



3. Aboriginal burning issues in the southern Tanami: towards understanding tradition-based fire knowledge in a contemporary context

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Although the report was jointly prepared by core researcher K Gabrys and consultant anthropologist P Vaarzon-Morel, each was responsible for different sections. Vaarzon-Morel authored the local case study section, and Gabrys authored the literature review, non-Aboriginal informant sections and appendices. Both authors contributed to the remainder of the report.

Shortened forms

ANU	The Australian National University
APY Lands	Anangu Pitjantjatjara Yankunytjatjara Lands
BFC	Bushfires Council of the NT, now Bushfires NT
CDEP	Community Development Employment Program
CLC	Central Land Council
CLMA	Central Land Management Association
CSIRO	Commonwealth Scientific and Research Organisation
DF	Desert Fire Project
DKCRC	Desert Knowledge Cooperative Research Centre
IAD	Institute for Aboriginal Development
NRETAS	Department of Natural Resources, Environment, the Arts and Sport, NT
NRM	Natural Resources Management
PWSNT	Parks and Wildlife Service Northern Territory
TO	Traditional Owner

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Glossary

Cleaning up the country – A term used by Aboriginal people when speaking English to describe an aspect of their burning practices

Elder – Key person and keeper of knowledge within Aboriginal communities

Firestick farming – Term introduced by prehistorian Rhys Jones in 1969 to describe the management of ecosystems through burning by Aboriginal people

GPS – Global Positioning System: a satellite-based navigation system that allows the user to calculate their exact location as well as speed, bearing, track, trip distance, distance to destination, sunrise and sunset time and more. This information can be transferred into maps.

Jukurrpa – Dreaming In this report the term *Jukurrpa* is translated as ‘Dreaming’. The terms are used to refer to the period when ancestral beings gave form to the world and laid down customary rules and laws that guide people’s behaviour today. Aboriginal people use the term to refer to stories, songs, places, objects, people and ceremonies spiritually associated with this time.

Kinship – In this report kinship refers to a system of classification that connects people to each other, to country and to other entities. Socio-cultural relationships based on kinship are of great significance to Aboriginal people. Descent is an important part of kinship and provides the basis for the formation of land-holding groups in Aboriginal society. The term ‘patrilineal’ descent refers to a way of tracing descent to a common male ancestor via links through men. Men and women who can trace links in this way are believed to be related to each other.

Glossary (cont'd)

Country – As used in this report the term ‘country’ refers to land for which Aboriginal people have spiritual attachments and customary rights and responsibilities. It is used here to apply both to land in a broad context and also to defined areas, which are identified with particular groups, *Jukurrpa* stories, and named places. Aboriginal people commonly refer to land with which they identify as ‘my country’.

Rubbish country – An Aboriginal term used to refer to country that is not healthy and/or productive.

Sacred site – a place that is sacred to Aboriginal people or is otherwise of significance according to Aboriginal tradition.

Seed clouds – A term used by scientists to refer to a method of using tiny particles to wring moisture from clouds to make rain.

Singing the country, singing rain – As used in this report ‘singing’ refers to the Aboriginal practice of singing *Jukurrpa* or Dreaming songs connected with country. Reasons for singing include celebrating the land and using the power of the songs to effect change, for example, to bring rain and to make the country healthy and productive.

Traditional Owner: This term has come into circulation among Aboriginal and non-Aboriginal people since the passage of the *Aboriginal Land Rights (Northern Territory) Act 1976*, in which it is defined. In order to be a Traditional Owner for a particular area, a person needs to belong to a descent group spiritually connected to the area and to have traditional rights to forage over it. Membership of descent groups changes through time as people die and are born, and as a result it is not possible to produce a definitive list of Traditional Owners for an area. People who satisfy the definition of ‘Traditional Owner’ in relation to a particular area of land enjoy special rights in and responsibilities for the land.

Station – As used in this report the term ‘station’ refers to land held under pastoral lease. Pastoral leases were taken out by European people on areas which, prior to colonisation, were home to Aboriginal people. After colonisation many Aboriginal people worked for European station managers in return for rations, and in this way they were able to stay on their country. In the 1970s–1980s some stations were bought by the government for Aboriginal people and subsequently converted to Aboriginal freehold title following land claims under the *Aboriginal Land Rights (Northern Territory) Act 1976*.

Waypoint – A reference point in physical space used for purposes of navigation (e.g. GPS).

Yapa – A Warlpiri Aboriginal term used to refer to Aboriginal people.

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Kasia Gabrys and Petronella Vaarzon-Morel



Photo courtesy of Kirsten Maclean



Photo courtesy of Kirsten Maclean



3.1 Summary

Introduction

Recent wildfire events in central Australia have raised awareness as well as conflict about fire management. Consequently, as part of the Desert Fire project, a research initiative was developed to promote the coexistence of fire, people and biodiversity in the Tanami Desert, with the long-term future goal of developing a collaborative regional fire strategy. The southern Tanami Desert was chosen as a regional case study, due to consecutive wildfire events and reported conflict between Aboriginal and pastoral land holders in the region. The research involved the collaboration of the Central Land Council (CLC) and the Department of Natural Resources, Environment, the Arts and Sport (NRETAS): Division of Biodiversity Conservation, and Bushfires NT on two subprojects. The first subproject, driven by NRETAS, developed a detailed fire history of the region and evaluated the perspectives of pastoral

land managers on fire management issues (Allan 2009). The second subproject was driven by the CLC and is the subject of this chapter. A study was devised to address fire issues from the perspective of Aboriginal people in the southern Tanami. The research focused on finding out why, how, when and where Aboriginal people burn, and who is doing the burning. It also sought to determine Aboriginal perceptions of fire issues and conflicts (if any), local interest in livelihoods in relation to fire, and current fire knowledge and use of tradition-derived fire practices in the contemporary context. Field work was conducted on these issues in the three predominantly Warlpiri communities of Yuendumu, Nyirrpri (also partly Pintupi) and Willowra. The research used social science methods associated with qualitative inquiry.

Methods

Aboriginal participation and interest in the project was fundamental to its success. During both the initial consultation phase and research, core researchers were guided by and responded to Aboriginal interests, concerns and suggestions. Then, assisted by Warlpiri and Pintupi interpreters, the researchers observed people's burning practices and recorded people's views on burning and knowledge of fire. Science-based information about fire ecology and issues was also distributed and discussed with many community members. As part of this process, a Bushfires Council fire safety workshop was also held at Willowra. The two-way framework of investigation was an important step in cross-cultural communication and understanding about fire in the region.

To help contextualise the research, a literature review and interviews with non-Aboriginal professionals were also conducted. A key finding of the literature review revealed that there is a comparatively limited amount of Warlpiri-specific published material on fire knowledge and practice. In addition, the studies that have been undertaken have proceeded from either scientific conservationist or ethnographic perspectives, with little attempt at integration.

Interviews with non-Aboriginal professionals revealed a diverse range of views and positions in relation to Aboriginal fire practices and beliefs, both past and present. The general perception was that Aboriginal burning of country has dramatically reduced since pre-colonial times. Changed fire regimes resulting in large high-intensity fires were regarded as a contributing factor to the reduction of native fauna and flora biodiversity. Reduced movement of people over their land in time and space was thought to have accompanied a dramatic decline in traditional Aboriginal burning practices and fire knowledge. Some people claimed that traditional practice is no longer relevant to Aboriginal people's lives in the region, while others thought it was an essential part of the Aboriginal worldview. Several informants also commented on the urgent need to talk to the senior men and women about their fire knowledge before they pass away. While roadside ignitions were regarded as one of the major fire issues in central Australia today, it was also pointed out that there is no coherent picture of who is lighting fires, where and why.

Key local case study findings

A key finding was that despite changes in the Aboriginal subsistence economy and society over the last decades, there are substantial continuities in Warlpiri and Pintupi beliefs and practices concerning fire. Moreover, there has not been uniform decline in people's fire knowledge. Factors such as age, gender, life experience and history of land use (both Aboriginal and non-Aboriginal) contribute to variation in people's practical fire knowledge. Older men and women who led relatively traditional lives in their youth are most knowledgeable about fire today, and there are still such people living at Nyirrpri, Yuendumu and Willowra. This knowledge and these beliefs are best explored with reference to local cultural geography, *Jukurrpa* (Dreaming) narratives, dance, song and ritual. These practices contain cultural references to fire that inform contemporary understandings and as a result are not easily translated to people outside of that culture.

Fire remains important in Aboriginal people's lives today, both practically and symbolically, with people retaining many fire uses. The proper use of fire is regarded as a way of looking after country, which for Warlpiri involves interrelated physical, spiritual and human dimensions which, though often for different purposes, significantly relate to environmental outcomes. Burning country is said to increase productivity of native plants and animals and is used as a tool for hunting. People burn country for both immediate and longer-term gain, exploiting it at different periods for different resources. Other reasons provided for setting fire to country include increasing visibility and access, and to find soakages and other places of interest. In what is a continuation of the customary practice of using fire to signal one's presence, in case of vehicle breakdown people may also light grass fires along roadsides to attract attention.

In general, Warlpiri see burning at any time of the year to be more important than not burning at all, which may account for the various informants saying that at 'any time of year is a good time to burn'. However, decisions of when and where to burn are informed by numerous environmental and social considerations and not specific times of year. Many Warlpiri talked about the best times to burn in terms of burning for certain species when hunting and gathering. Several Warlpiri also talked about a good time to burn being in the dry 'change of season' times (which in arid Australia is around March–April and August–September), when there is enough wind to carry the fires and often just before the rains (conversely, western scientific preference for burning is straight after the rains when burning in the hotter times of the year). Significantly, several Warlpiri also said that burning just before the rains helps to create rain clouds and therefore can also influence times of burning. Other factors mentioned by Warlpiri that influence their decision to burn include fuel load, wind direction and strength, temperature and time of day.

Social factors were perceived to be just as important in relation to burning as environmental ones, with Warlpiri land-based activities being structured by a complex system of social organisation and land tenure. The Tanami is not merely an open space over which anyone can burn; rather, it is comprised of different countries in which there are places of religious significance for which different groups of people possess rights and responsibilities. Burning is undertaken by traditional owners who have customary rights to that land. When burning is undertaken, it is influenced by the likelihood of the right people being in an area again at a more appropriate time and the opportunity to burn. Today, much burning of Aboriginal land occurs during weekend or school holiday trips undertaken for cultural reasons such as site visits, site clearances and school camps. For Warlpiri, these expeditions are multifunctional with people burning as the opportunity and/or need arises.

Aboriginal people access Aboriginal land for hunting and gathering via dirt tracks and public roads, with more inaccessible country being less frequently visited and less frequently burnt. Extensive cross-country travel tends to occur only when people have access to properly equipped four-wheel-drive vehicles, which are often supported by externally resourced organisations such as Aboriginal Councils. That some regions have a better network of roads, tracks and access to water is also likely to influence patterns of burning. Areas surrounding residential communities, outstations and major roads attract frequent burning.

One of the key findings was that many Warlpiri have similar concerns about fire on their lands as do their pastoral neighbours and scientists. Inappropriate burning that damages infrastructure, cattle and cattle feed was of great concern to many Warlpiri who had involvement with pastoral enterprises. Similarly, many Warlpiri consciously protect certain areas for cultural, economic and social reasons: for example, old ghost gums (*Eucalyptus papuana*), mulga stands (*Acacia aneura*) and bean trees (*Erythrina vespertilio*). Areas that contain valued bush tucker plants such as bush tomatoes (*Solanum centrale*) and native tobacco (*Nicotiana* spp.) are also left unburnt until after harvest.

Warlpiri were found to receive mixed messages about fire. On the one hand non-Aboriginal people involved in land management encourage Warlpiri to burn in a customary manner; while on the other, many non-Aboriginal people, including some pastoralists, police and wildfire personnel, discourage Warlpiri from burning. In general, people respect not burning on pastoral lands, particularly people who have worked with cattle. With regard to wildfires alleged to be lit by Aboriginal people in these areas, Warlpiri attributed blame to drunks or potentially to other Aboriginal groups visiting the area, though this was merely speculation. No evidence was found of Aboriginal people deliberately using fire to threaten non-Aboriginal people or their properties.

For Aboriginal people, major conflict over fire arises when the ‘wrong’ people burn their country, thus risking damage to cultural and natural resources, including sacred sites and other places of cultural significance. Violation of cultural protocols concerning Aboriginal land management can lead to serious social conflict. Conversely, it was found that Warlpiri were rarely aware of or concerned about fire issues outside of their lands, considering that, for either cultural or practical reasons, they had little control over burning in these areas. The more distant a fire the more anonymous it is. People felt that there was not a lot they could do to extinguish bushfires caused by lightning or carelessly managed roadside fires, particularly since many lacked access to fire-fighting equipment. This means that a number of non-Aboriginal fire-fighting methods cannot be implemented, though people voiced their need for such equipment and showed much interest in western fire-fighting techniques.

Even though Warlpiri responses to questions concerning the effects of hot fires on the natural environment varied, many Warlpiri acknowledged the need for more frequent burning of the more remote regions to meet their cultural obligations. When Warlpiri were shown the various fire history maps by scientists that showed extensive wildfire events, Warlpiri often voiced their concern at their country being so extensively burnt. However, there was a general belief that country has always been able to regenerate after all fires.

People expressed interest in the following fire related activities: burning for land management using tradition-based strategies, work-based training and employment in fire prevention and burning strategies from a non-Aboriginal perspective, sharing of tradition-based and scientific fire knowledge with non-Aboriginal researchers, transfer of Aboriginal fire techniques to younger generations, and having support to burn for subsistence purposes in more remote regions. Apart from having support in being able to have their own properly equipped fire-specific vehicles, people also identified the need to increase networks of graded tracks. At the same time, some other senior people were worried that increased road access would diminish their ability to maintain control over people’s behaviour on their country.

3.1.1 Recommendations

- Incorporate Aboriginal perspectives and protocols concerning management of country into the planning processes to enable effective collaborative fire management to take place in the southern Tanami region
- Provide support to increase fire-related livelihood opportunities for Aboriginal people
- Develop and adhere to effective cross-cultural communication strategies in the planning and implementation of a collaborative regional fire management strategy in the southern Tanami region
- Provide greater support to Aboriginal people to facilitate tradition-based fire-related knowledge transfer
- Establish community-based fire advisory committees to advise on fire management strategies and activities.

3.2 Introduction

A key element of land management in central Australia is fire. Unfavourable fire regimes have been implicated in the disappearance of many mammal species from central Australia and also in the ongoing decline of some plant and animal communities (see Duguid et al. 2009). Wildfires also impact heavily on commercial grazing businesses and the bush resources that are important to the sustainable livelihoods of many Aboriginal people, as well as threatening life and property, including remote Aboriginal communities and cultural sites. The CLC and NT government agencies share a mutual recognition that the current fire regimes in parts of central Australia, including the Tanami Desert, are unfavourable for production, conservation and human habitation, and that effective fire management depends on a collaborative approach by stakeholders.

Recent wildfire events in central Australia have raised awareness as well as conflict about fire management. Consequently, as part of the Desert Fire project, a research initiative (subproject 3a – see Edwards & Allan 2009) was developed to promote the coexistence of fire, people and biodiversity in the Tanami Desert, with the long-term future goal of developing a collaborative regional fire strategy. The southern Tanami was chosen as a regional case study site for the following reasons:

- The region receives a relatively consistent annual rainfall that is linked to both regular opportunities to burn and frequent periods of increased fire risk.
- Within the region there is a mix of land uses and economic activities, vegetation communities and biodiversity assets, including wetlands (Duguid et al. 2002) and sites of botanical significance (White et al. 2000a, b) that are likely to be threatened by adverse fire regimes.
- Frequent, large and uncontrolled wildfires occurred across different land tenures in the region over the period 2000–2002.
- On the basis of the recent period of widespread fires in central Australia during 2001 and 2002, it was known that fire was a contentious issue in the southern Tanami Desert, and it was expected that the Desert Fire project could improve the dialogue about fire and help to resolve some conflicts associated with fire.

Subproject 3a of Desert Fire was a collaboration between the CLC and NRETAS (Bushfires NT and Biodiversity Conservation Division). The objectives of subproject 3a were to:

- establish better communication between stakeholders through formal and informal processes (networks), including links with other DKCRC projects
- identify land use and fire management goals across land tenures, highlighting areas of conflict
- develop improved techniques for fire detection, mapping and dissemination of associated information. This would involve updating fire history, investigating associated issues of resolution, accuracy, distribution, use and interpretation of fire history mapping
- investigate the fire regimes through analysis of fire history, fire frequency and fire intervals
- as a longer term objective, develop a fire management strategy for the southern Tanami area, with the potential for application to other desert areas of Australia.

The anticipated outcomes from these objectives were to:

- improve our understanding of how different cultures and individuals perceive the benefits and impacts of fire
- reduce the current conflicts associated with fire between adjacent land managers, and facilitate a more coordinated approach to fire management in regional areas

- contribute to our understanding of the extent of existing (traditional, ecological and contemporary) knowledge related to fire and its role in maximising the potential for Aboriginal land managers to use traditional bush resources
- increase prevention and control of large wildfires and improve mitigation of negative impacts on stock, property, natural resource and biodiversity values, thereby improving sustainability of ecosystems, ecotourism ventures and traditional culture.

In meeting the above objectives, NRETAS developed a detailed fire history of the southern Tanami region and evaluated the perspectives of pastoral land managers in respect of fire management issues (see Allan 2009). The CLC evaluated the perceptions of non-Aboriginal fire specialists in respect of past and present use of fire by Aboriginal people and conducted a study devised to address fire issues from the perspective of Aboriginal people in the southern Tanami Desert. It is this latter work on Aboriginal use of fire that is the subject of this chapter. The research focused on finding out why, how, when and where Aboriginal people burn, and who is doing the burning. It also sought to determine Aboriginal perceptions of fire issues and conflicts (if any), local interest in livelihoods in relation to fire, and current fire knowledge and use of tradition-derived fire practices in the contemporary context.

3.3 Methods

The original brief for the research was as follows:

Investigation of fire management and related human activities on Aboriginal land, including contemporary Aboriginal burning practices through consultation and research by anthropologists and land management staff of the CLC. Knowledge that is not culturally sensitive will be collated in a written report documenting the methods and purposes of current burning practices. These consultations will be intertwined with other consultations [including non-Aboriginal fire professionals' input and ideas and a southern Tanami and central Australian focused fire literature review] regarding the nature of fire history and associated mapping products, the responses of plants and animals to fires and the development of fire management strategies.

Thus, there were three components to the research:

1. review of literature pertaining to the use of fire by Aboriginal people in desert areas
2. consultations with non-Aboriginal fire professionals on past and present use of fire by Aboriginal people
3. investigation of fire management and fire-related issues on Aboriginal land.

3.3.1 Literature review

Relevant literature on Aboriginal burning that focused on the Tanami and central Australian region was collated by core researcher Kasia Gabrys. On the basis of this material an overview of pertinent themes and issues specific to Warlpiri people and fire was prepared (see section 3.4), which helped shape the later local case study research. A more comprehensive review (Yates & Morse 2003), together with several other relevant references (Myers et al. 2004, Rose 1995a, Walsh et al. 2004, Walsh & Mitchell 2002) proved particularly useful in the development of local case study research.

3.3.2 Perspectives on Aboriginal burning by non-Aboriginal professionals

Over 30 non-Aboriginal professionals were consulted about their perceptions of Aboriginal use and knowledge of fire in the southern Tanami and surrounding region. Informants were selected based on having either direct professional involvement with fire issues and/or Warlpiri and/or fire ecology.

Suggestions provided during these consultations served to shape the development of the project. In particular, Peter Latz and David Nash provided valuable assistance in the initial stages.

Face-to-face and/or email and/or phone discussions were held with the following 22 participants between October 2004 and June 2006:

Table 3.1: List of interviewed participants

Name	Profession	Organisation
David Alexander	Manager, Land Management	CLC
Grant Allan	Scientist	Bushfires NT
Hugh Bland	Anthropologist	CLC
Peter Donohoe	Land Management Officer	CLC
Nic Gambold	Land Management Officer	CLC
David Gibson	Scientist	Private Consultant
Miles Holmes	Anthropologist	CLC
Robert Hoogenraad	Linguist	IAD
Graeme Horne	Senior Ranger	PWSNT
Andrea Johnson	Land Management Officer	CLMA
Richard Kimber	Historian	Private Consultant
Peter Latz	Ecologist	Private Consultant
Sandy Marty	Land Management Officer	CLC
Dennis Matthews	Senior Ranger	PWSNT
Anna Meltzer	Anthropologist	CLC
Meg Mooney	Land & Learning Manager	Tangentyere Landcare
Jock Morse	Environmental Researcher	Private Consultant
Teresa Nano	Land Management Officer	CLC
Rachel Paltridge	Environmental Scientist	Desert Wildlife Services
Tony Secker	Manager	Bushfires NT
Richard Tuckwell	Land Management Officer and core Desert Fire researcher	CLC
Fiona Walsh	Ethnobotanist	CSIRO

In addition to these thorough consultations, informal discussions were held with 11 other non-Aboriginal people, including:

Table 3.2: List of non-formal informants

Name	Profession	Organisation
Joe Benshemesh	Scientist	Private Consultant
Chris Brock	Scientist	Biodiversity Conservation NRETA
Belinda Cook	Land Management Officer	APY Lands
Angus Duguid	Scientist	Biodiversity Conservation NRETA
Jon Marsden-Smedley	Fire Ecologist	Private Consultant
Jo Moloney	Land Management Officer	Tangentyere Landcare
David Nash	Linguist	ANU
Neil Phillips	Resource Manager	Natural Resource Management NRETA
David Price	Cross-cultural Trainer	Private Consultant, Yuendumu
Dirk Swaye	CEO	Nyirripi Community
Boyd Wright	PhD Fire Student	Haasts Bluff

3.3.3 Investigation of fire management and fire-related issues on Aboriginal land

A set of key objectives was devised by the Desert Fire core researchers (Richard Tuckwell and Kasia Gabrys) in order to guide their field research and that of anthropologists and other consultants working on this aspect of the research. The key objectives were as follows:

1. Capture what local people in communities are currently doing in relation to fire, including why, who, how, when and where people burn.
2. Assess the current fire knowledge, perceptions and issues, focusing on what people know of or what people think of fire-related conflicts (if any).
3. Determine what are people's interests in livelihoods in relation to fire (e.g. burning for land management, hunting) and identify what support may be needed to burn as well as to gain better social economic outcomes that are inter-connected to fire.
4. Increase awareness and responsibility for fire.
5. Identify present local knowledge of current fire techniques as well as flora, fauna, culture and bush resources relevant to fire and to the community.

These objectives were to be addressed primarily through fieldwork research and activities at three local case study sites.

Yuendumu, Nyirripi and Willowra were chosen as the local case study sites due to their location in the southern Tanami and local interest about the Desert Fire project. The communities are located within a major travelling corridor between several pastoral properties, including Mt Doreen, Mt Denison, Coniston, Napperby and Newhaven Bird Sanctuary (see Figure 3.1).

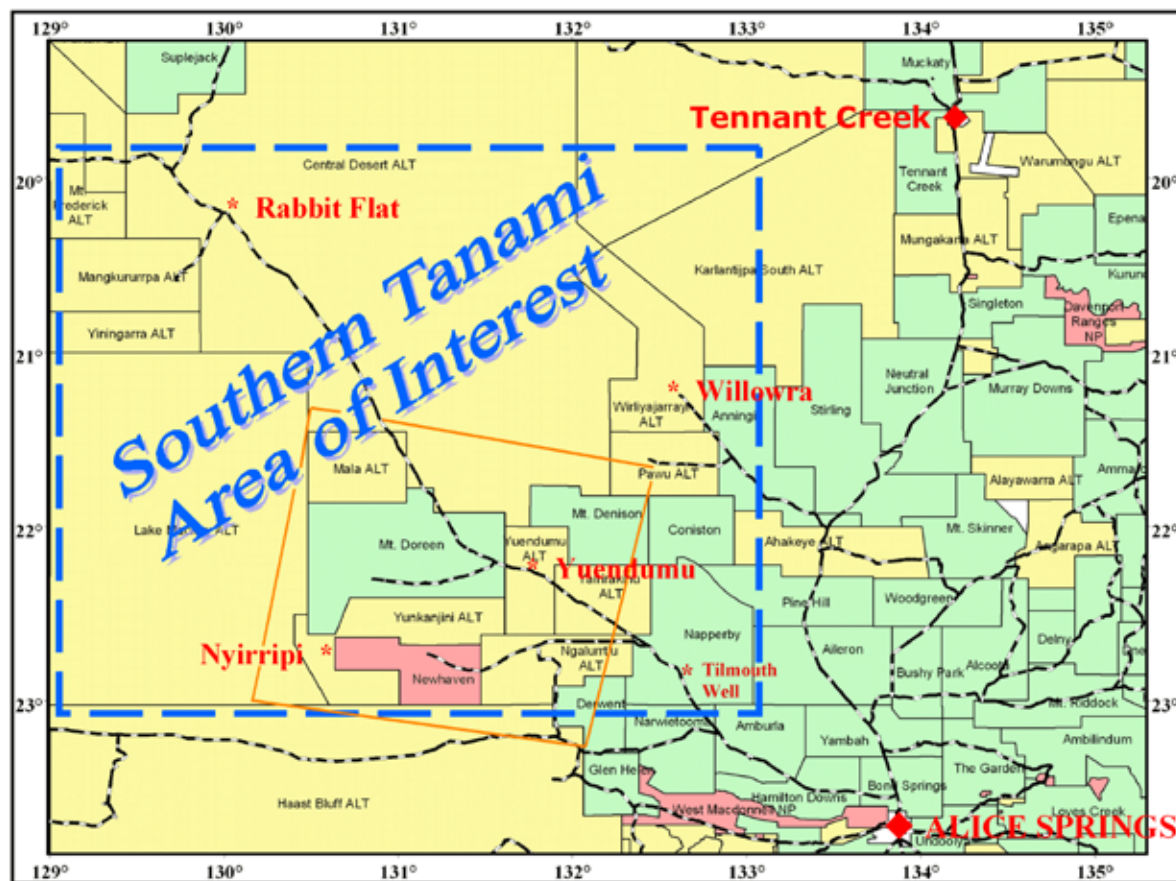


Figure 3.1: Study area, Including Yuendumu, Nyirripi and Willowra Communities

CLC entry permits were attained and flyers introducing the project were disseminated to the three communities. The core researchers (Tuckwell and Gabrys) together with PhD student Kirsten Maclean conducted an initial five-day trip to all three communities in March 2005. This served to ascertain possible local Aboriginal interest and ideas concerning the project. Two consecutive trips were undertaken prior to work conducted by anthropologists and other consultants (for more details see individual local case study descriptions). As a result of these consultations, additional informants and potential fire activities were identified. A project mind map was created and a set of questions developed that served as a guide for future field research and the brief for consultants to be engaged in the local case study work.

Throughout the research several products were created for use during community consultations. These included fire history maps for each of the local case study sites to facilitate discussion (Appendix 1), an introductory story book entitled '*Warlu! Fire! Tell us what you think*' (Gabrys 2005), an educational book on what pastoralists think about fire (Appendix 2), and a fire education slide show for Yuendumu council (Appendix 3). Storybooks documenting fieldwork with people were also produced and taken back to the communities (see example in Appendix 4).

Investigation into suitable consultants for the local case study work was undertaken. It was envisaged that their research would supplement that of the core researchers. Twelve people, including linguists, anthropologists and ethnobotanists, were contacted to gauge their interest, suitability and feedback on the consultancy brief. Subsequently, three consultants with particular links and expertise for each local case study site were engaged to conduct fieldwork with Aboriginal people: Yasmine Musharbash (Anthropologist, University of Western Australia) for Yuendumu, Peter Bartlett (Earth-Bound Consultants) for Nyirrpri, and Petronella Vaarzon-Morel (consultant Anthropologist) for Willowra. An account of the work conducted in each community follows. The research used social science methods associated with qualitative inquiry.

(a) Yuendumu

Yasmine Musharbash was engaged for a period of ten days to undertake research into contemporary Warlpiri fire practices in the Yuendumu region, an area where people typically light fires. Her investigations into fire were concurrent with her own post-doctoral research at Yuendumu during the period July–December 2005. Using a participant observation methodology, Musharbash proposed to document fires ignited by Yuendumu people during hunting and other trips and to interview Aboriginal people about their attitudes and practices surrounding burning. However, Musharbash did not have the opportunity to observe Warlpiri firing of country because no burning took place during the period of her research. Thus the thrust of her observations were on reasons for, and Warlpiri attitudes towards, lack of burning, and social dimensions of Warlpiri perceptions of fire. She also provided suggestions for further research.

In addition to Musharbash, Tuckwell and Gabrys consulted people at Yuendumu. Aboriginal people who participated in fire research and consultations at Yuendumu include Neville Japangardi Poulson (former Warlpiri Ranger), Warren Japanangka Williams (CLC Regional Representative, Yuendumu), Tommy Watson, Harry Dixon, Ruth Stewart, Maggie Ross, Coral Gallagher and Jeannie Egan Nungarrayi.

(b) Nyirrpri

Initial consultations were undertaken with eight knowledgeable senior men and women affiliated with country in the wider Nyirrpri region (see Photo 1). This included a five-day field trip to Mina Mina, a half-day trip south-west from Nyirrpri towards the Western Australian border, with core researchers Kasia Gabrys and Richard Tuckwell and consultants Rachel Paltridge and Jessica Bartlett. In the course of the field trip, formal interviews and informal discussions were conducted and observations were made as people burnt country. Paltridge has extensive experience working with elders from the Nyirrpri

region and had recently conducted fire research in the neighbouring Newhaven Bird Sanctuary. Jessica Bartlett has close family ties to some of the senior Nyirrpri people and assisted with Warlpiri/Pintupi interpreting and translating.

In the final phase of the research Peter Bartlett was engaged. Bartlett conducted interviews with Paddy Japanangka Lewis and Mitjili Napanangka Gibson about their knowledge of traditional fire practices. Lewis is a senior Traditional Owner (TO) for Mina Mina while Napanangka is a senior Pintupi woman with rights in Lake MacKay and Mina Mina areas. Both of them had spent their early years pursuing a traditional hunter-gatherer lifestyle. Bartlett also provided comments on Warlpiri fire practices based on personal observations and discussions with people from the region, including Warlpiri man Rex Japanangka Granites (P. Bartlett pers. comm. 2006).

Additional Aboriginal people who participated in fire research at Nyirrpri were Ena Nakamarra Gibson, Alice Nampijinpa Michaels/Henwood, Jeannie Napangardi Lewis, Maryanne Nampijinpa Michaels, Mortie Nakamarra/Napanangka Morris, Nancy Napanangka Gibson and Rex Japanangka Granites.

(c) Willowra

Initial consultations were held at Willowra from 11–13 April 2005. These involved over 25 Warlpiri men and women, Kasia Gabrys, Richard Tuckwell and project assistants Danae Moore and Kirsten Maclean. A country visit was made to Smokey Bore (*Parnma Parnta*), an unserviced outstation midway between Mt Barkly and Willowra. People were observed firing country, and discussions and interviews were held using visual aids such as the book *Warlu! Fire! Tell us what you think* and fire maps. A second field trip was undertaken 17–19 May 2005 to Mt Bennett, a half-day four-wheel drive to the west of Willowra. This trip involved more than ten, mainly young, men who had been involved with, or were interested in, community ranger work. During the course of the trip Kasia Gabrys, Richard Tuckwell and Kirsten Maclean recorded what people thought about fire and how they burnt. The group was also shown various fire-related information and trained in use of a Global Positioning System (GPS), enabling the participants to plot waypoints where they ignited fires. A map of these waypoints, together with photos and a report produced from the trip was subsequently returned to the community.

On 31 August 2005, a fire awareness workshop was held at Willowra involving 13 young Warlpiri men and women. This was organised by Shane Brumby and Rod Heron from Bushfires NT and Kasia Gabrys and Danae Moore. The aim of the workshop was to raise awareness of fire issues and develop skills in prescribed burning techniques. This was the first such workshop to be held in the southern Tanami and was viewed as a trial.

In the latter phase of this project, Petronella Vaarzon-Morel was engaged for 11 days to conduct research for the Willowra region. The research methodology was that of ‘rapid ethnography’, involving directed interviews, discussions and an intensive participant observation session. The latter involved a two-day ‘country visit’ from 19–22 September 2005 on informants’ traditional land at Pinalingi in Ngarnalkurru country, approximately a half hour’s drive north-east of Willowra. The major objective of the country visit was to document people’s cultural knowledge of fire while observing their practices on country. Leanne Napanangka was hired as a translator and interpreter for this trip.

A final trip to Willowra took place on 5–6 of October at the request of Maxie Martin Jampijinpa, a TO for the Mt Barkly and Willowra region who wanted to discuss issues of fire management on his country. Under his guidance, a fire-planning map was created indicating areas near the community that are of cultural and economic importance and should not be burnt (Appendix 5).

Additional Aboriginal people who participated in fire research at Willowra include Lucy Nampijinpa, Leah Nampijinpa, Lady Nampijinpa, Nora Nampijinpa, Kathy Nangala, Mary Nangala, Marilyn Nampijinpa, Kay Napanangka, Carole Napaljarri, Barbara Napanangka, Tanya Napanangka, Lynette Napanangka, Marilyn Nampijinpa, Jodie Anne Nakamarra, Sabrina Nampijinpa, Teddy Jupurrula Long, Freddy Japanangka Williams, Sammy Williams, Mitchell Jampijinpa, Jonathan Jarra, Mathias Jarra,

Alfred Martin, Lance Williams, Greg Japangardi Williams, Isaac Williams, Metshane Long, Hamish Ross, Alfred Martin, Ernest Haines, Greg Williams, Aaron Williams, Samuel Walker, Jodi Walker, Lucinda Williams, Glynette Jarra and Anastasia Ross.

3.3.4 Research guidelines and potential benefits

This research was designed under CLC policy code of research (CLC 2005) and was guided by CLC staff to ensure ethical guidelines were met. This included the education of researchers on Warlpiri etiquettes, individual community dynamics and knowledge of people's country. Wherever possible, trialled and tested successful research methodologies were used, for example, participatory planning techniques (Walsh & Mitchell 2002). As part of the research guidelines, the research design had to show potential benefits to local Aboriginal people that are outlined below.

- Provide opportunities to employ local Aboriginal people as Desert Fire project co-researchers.
- Support people to go out on to country so they can burn, hunt, and visit, which in turn allows issues, concerns and demonstrations to be shared (Walsh & Mitchell 2002).
- Whenever appropriate, pay local Aboriginal people CLC consultancy rates on field trips for knowledge and time exchange.
- Provide opportunities for fire-relevant training (e.g. Bushfires NT, PWSNT) and information dissemination to interested participants, such as fire history maps of their country.
- Where possible, aim to link the project to potential future land management work with community ranger groups and coordinators.
- Provide opportunities for as many different family groups and different-aged community members to contribute to the project, providing space for knowledge exchange.
- Gather and write people's knowledge under their guidance and permission and disseminate this knowledge back to the community to ensure validity.
- Disseminate the research knowledge that has been approved for wider distribution by relevant individuals and CLC research policy, to assist bridging the gap of understanding.

In keeping with the ethical guidelines and to safeguard the privacy of Aboriginal informants, subsection names only are used to identify informants in this report unless requested otherwise.

3.3.5 Research limitations

The study faced numerous limitations, particularly time constraints. As a result, a number of original project ideas and areas of Aboriginal interest could not be followed through. Fieldwork for the project could not start until May 2005 and had to be completed by September 2005, the date that the official Bushfires NT fire season ended. In addition, recent large fire events at Yuendumu limited opportunities to conduct burning in the region. While it was originally envisioned that the Warlpiri Ranger program could benefit the project's implementation, this did not occur as the community Ranger Program Coordinator was not appointed until the project's end.

The topic itself was challenging to research, for unlike other land management or scientific work that typically focuses on a discrete problem, fire is a complex matter involving diverse social, political and environmental issues. Since the research was conducted in a cross-cultural situation, it was necessary to spend time building good relationships with members of the communities to ensure their effective participation in the process. Aboriginal people in the local case study areas speak English as a second or third language with varying fluency, and the researchers found that at times it was difficult to question people meaningfully about fire in English. As a result, interpreters and anthropologists with knowledge of the areas were engaged to assist with the work of cultural translation.

The local case study sites were over 300 km distant from Alice Springs and communication with people who have limited access to telephones, fax machines and email technology proved challenging. The high mobility of Aboriginal people, coupled with community pressures and social obligations meant that the coordination of consecutive burning trips involving the same participants also took time. Unfortunately, lack of time and resources meant that not all Warlpiri who wanted to participate in the project could be accommodated.

A major methodological limitation of the project was that there was limited time to observe people burning of their own accord outside the framework of directed research. As a result the findings must be viewed as tentative. These limitations highlight the need for long-term research in order to gain more comprehensive and conclusive data. Finally, it also should be noted that consultants had limited time to conduct research and to report on the findings, and that more extended consultancy contracts would have benefited the project significantly.

For the above reasons, the local case study research is best viewed as a preliminary investigation that provided initial insights into the issues that were considered.

3.4 Literature review

3.4.1 Overview

Only a limited amount of Warlpiri-specific fire information was available in the literature. There are several reasons for this. Warlpiri have an oral tradition and until recently have not had their knowledge of fire recorded in written and other easily accessible forms (e.g. audio and video tape). Firing of country was so commonplace that many non-Aboriginal observers thought it not worth documenting. Until recently, there appears to have been little in-depth non-Aboriginal interest in Aboriginal firing unless it was to oppose the practice.

This section focuses on contemporary Warlpiri (and occasionally Pintupi) use of fire to help contextualise the report's findings and identify gaps in knowledge. Even though some of the literature shows similarities in burning among the different central Australian Aboriginal cultural and linguistic groups (Nicholson 1981), predominantly Warlpiri references were used due to considerable variation in ecology and the social, historical and demographic characteristics of the region (Rose 1995a, Laughren et al. 2006). An annotated bibliography on central Australian and Australia-wide Aboriginal burning is provided in Appendix 6.

3.4.2 Historical background

Explorer and traveller accounts from the early contact period reveal varied descriptions of Aboriginal use of fire. For example, while traversing a spinifex plain on the northern boundary of Mt Barkly in the 1860s, John McDouall Stuart noted Aboriginal (Warlpiri) tracks and that 'the spinifex in many places has been burnt' (Stuart 1865: 169–179). His journal makes references to Aboriginal camps dispersed over the country near water sources as well as evidence of Aboriginal hearth fires, and what appeared to be patch burning. Other explorers such as Gosse (1874), Warburton (1875), Gregory (1969), Davidson (1905) and Gee (1911) also travelled through Warlpiri homelands, but had limited contact with Warlpiri and only made brief reference, if any, to Warlpiri burning.

Further research on Warlpiri culture was conducted throughout the 1900s by a handful of anthropologists, historians and researchers including Meggitt (1966, 1974), Peterson (1978), Young (1981), Bell (1983) and Tindale (1940, 1959, 1974). Their research serves as an important basis for understanding Warlpiri history, cultural changes, movements, settlements and a general overview of the area. The notes and journals of a small number of researchers who worked with Warlpiri over the last couple of decades (e.g. the late Elspeth Young, and Petronella Vaarzon-Morel) also provide relevant observations on burning and associated cultural phenomena. However, it is beyond the scope of this

project to extract these data. In general, it is believed that some Warlpiri were still walking with their firesticks, deliberately burning patches of spinifex only 60 years ago (Loorham 1985, Nash 1990). There are accounts of changed fire regimes in the Tanami dating as far back as the 1890s–1900s and to a much greater extent between 1918–1940, caused by large-scale fire events believed to have mainly occurred due to a decreasing Warlpiri population and associated decrease in regular small-scale burning (Kimber 1983a).

3.4.3 Assessment of themes in literature

Nash (1990) noted that Warlpiri described ‘cleaning the country’ with fire as work. Fire is also seen as part of a ‘three-fold economic cycle’. The first stage of this cycle includes burning an area to attract birds and game, then several months to a couple of years later the area promotes edible tubers and solanum fruits. Five to ten years later acacias provide seed, and dead trees provide firewood and material for implement making (Cane & Stanley 1985). The regeneration of food plants by Aboriginal people is regarded by Jones (1969) as the most important reason why Aboriginal people burnt in the past. However, only limited information on the regeneration of food plants by the Warlpiri using fire was found (e.g. Latz 1995). Jones (1969) stated that other reasons for burning included burning for ‘fun, to signal one’s presence, to clear the ground for travelling, to extend habitat area and to hunt and attract animals’.¹

These additional reasons were also recently noted for Warlpiri by other researchers (Nash 1990, Kimber 1983a, Laughren et al. 2006), though like most literature on the topic in central Australia, the main focus seems to be on men burning for large game hunting. How much hunting with fire still occurs by Warlpiri today is uncertain from the literature. It was documented to still occur in 1975–76 (Kimber 1983a), and recorded to have ceased some 15 years later in the more northern regions of the Tanami (Nash 1990) with the greater availability of western food and technology (Moloney & Tangentyere Landcare 2005). Interestingly, in other areas it appears that, in the past, Aboriginal men did not frequently use fire to hunt for large mobile prey, nor were these fires found to increase productivity of game in comparison to women’s generally smaller fires made for different purposes (Bird et al. 2003). However, little detailed analysis has been conducted on Warlpiri burning, with no specific literature on Warlpiri women and fire found at all. Other less widely documented reasons why Warlpiri still burn include burning for ceremonial purposes and for the protection of burial, ceremonial and sacred sites (Peterson 1970). Rose (1995a), Nash (1990), and Kimber (1983a) also report that Warlpiri use fire for safety, warmth, cooking, aesthetic and social reasons (i.e. imprinting a human signature on the land) and for punishment (Kimber 1983a).

For Warlpiri, fire is ‘a tool with many human uses’, which is deeply connected with their Dreaming (*Jukurrpa*)² (Nash 1990). Burning practices by the Warlpiri were recently documented as being carried out according to Aboriginal Law, which among other things, ‘dictates which people have the right to burn over country and what measures have to be taken to protect sites of significance’ (Rose 1995a: 16). For example, Warlpiri were observed to burn around resources such as bean trees (*Erythrina vespertilio*) in order to protect them from wildfires (Nash 1990) as well as to burn less frequently in mulga woodlands to allow re-growth (Cane & Stanley 1985). These activities are usually governed by cultural edicts concerning who can conduct burning, with *kirda* (owner) and *kurdungurlu* (worker) responsible for an area instructing and guiding people where and how to burn (Nash 1990, see also section 3.6.3.6). Similarly, in some areas certain activities such as hunting and burning are not allowed due to either cultural reasons, such as in an area where a person has died (Laughren et al. 2006), or for practical purposes, such as providing refuge for wildlife (Rose 1995a).

¹ Cane and Stanley (1985:184) also note that ‘fire itself kills and maims insects and clears the ground exposing these and living insects to birds – particularly raptors and bustards. When burning, Aboriginals [Warlpiri] anticipate the arrival of bustards soon after the fire dies out and usually go on hunting them the following morning and for several days after the fire has died out’.

² For the Warlpiri, fire strongly continues to manifest itself in the culture through symbolism, art and as a way to reference ‘country’ or landscape. The fire ceremonies, Jardiwarpa and Buluwandi of the Warlpiri, the fire Dreamings, the stories that tell of the theft of fire from women in the formative creation period and other cultural symbols of fire also support this (Langton 1998).

Often, literature on Aboriginal burning focuses on the attributes and effects of past burning, such as frequency, size and technique, and aims to provide a better understanding of how to manage country with fire for biodiversity conservation (Bolton & Latz 1978, Griffin 1992, Allan & Baker 1990). Very little Warlpiri-specific information is available on these more technical aspects of fire management, while the more general literature on the topic tends to be varied, predominantly due to the differences in climate and vegetation zones and the 'limited reliable quantitative information about the nature of the past fire regimes' (Burrows et al. 2000: 3).

The most reliable indicator used by most scientists for determining when people burnt in the past is the correlation between fire and rainfall patterns (Griffin et al. 1986), which has led to some broad-based theories. It is generally believed that Aboriginal people who lived in lower rainfall areas, with often lesser fuel loads, predominantly burnt after the rains. The rain allowed them to walk the land again and move away from permanent waterholes after drought (Latz & Griffin 1978). In higher rainfall areas that had higher fuel loads, burning is believed to have occurred more consistently throughout the year as well as predominantly prior to the major rains (Kimber 1983a). It is also believed that larger-scale fires occurred and still occur more during the hotter months of the year in the more northern regions, while smaller-scale fires occur during the cooler months of the year in the more southerly regions (Kimber 1983a). Cane and Stanley (1985) noted that Warlpiri 'pursue traditional methods of subsistence burning with much more vigour' compared with people in other regions only 20 years ago. This may indicate that Warlpiri burnt fairly consistently throughout the year in the southern Tanami region.

However, it is very difficult, for several reasons, to be certain of the circumstances under which Warlpiri chose to burn. Firstly, many wildfires are caused by thunderstorms in the remote regions of the Tanami (Burrows 2003), particularly during dry lightning storms in October or November (O'Reilly 2001), making it difficult to determine human-ignited as opposed to lightning-started fires. Secondly, Warlpiri (and Pintupi) regard the opportunity to burn as more important than the actual time of year (Kimber 1983a, Burrows 2003) making it difficult to know from oral accounts the preferred months of the year to burn. Instead, Warlpiri use a mixture of other indicators such as 'temperature, the directions and nature of prevailing winds, cloud formations and where they came from, the length of the day and the direction of sunrise and sunset, the position and movement of constellations and planets, and so on' (Hoogenraad & Robertson 1997).

The size of fires that Warlpiri burnt in the past compared with now is also uncertain, with both human-ignited and lightning-started fires in surrounding Warlpiri regions estimated to range from 10 m² to 20 km² and occasionally from 100 km² to 1000 km² in area (Kimber 1983a). From research conducted in adjoining Pintupi lands, satellite photos were found to indicate that the average size of fires had greatly increased over a period of 30 years since Pintupi stopped walking the land (average size of burn was 467 m² in 1953 compared with 2570 m² in 1986) (Burrows et al. 2000). The reduction in the size of burning has also been recorded in a broader context on Warlpiri lands. Warlpiri have been recorded discussing the way burning and hunting regimes have reduced greatly in remote regions of the Tanami (Rose 1995a). Limited fire mapping of Warlpiri lands since the outstation movement in the 1980s shows an increase in burning around outstations, though this burning does not seem to extend to remote regions and tends to involve repeated burning in the same areas (Cane & Stanley 1985).

The predominant theory among many scientists is that mosaic burning helped to prevent hot, large fires from getting out of control (Allan & Southgate 2002, Bolton & Latz 1978, Griffin 1992). However, some researchers question how effective this localised burning actually was in reducing wildfires in the first place, noting that wildfires are now just as prevalent on Aboriginal lands as on pastoral lands (Griffin & Friedel 1985). Also, it seems to be difficult to separate the effects of natural- and human-induced burning from palaeo-environmental records until the arrival of Europeans (Kershaw et al. 2002); these records, together with Warlpiri Dreaming stories (Nampijinpa 1994) indicate that large fires occurred in central Australia for thousands of years. This may be one of the reasons why Warlpiri

do not seem to be concerned about large hot fires (Rose 1995a). Instead, they perceive large fires to be better than no fires at all, saying that they help to ‘clean up’ the country and make things come back (Kimber 1983a, Cane & Stanley 1985).

The majority of literature seems to focus on Warlpiri knowledge and use of fire relevant to past burning regimes than to current changed ones. However, Warlpiri were documented to still have a good deal of control over fire, being able to skilfully direct where fires travel and stop by using wind, humidity and natural fire barriers such as claypans and sand dunes to control the size and intensity of fires (Laughren et al. 2006, Loorham 1985, Kimber 1983a). For example:

The spinifex cover was constantly assessed during travel as to whether it will sustain a burn. It may be too patchy (yarluyarlu) or have too much space between the hummocks. Most fundamentally, control is an apparent theme of the Warlpiri vocabulary relating to fire. Among the 115 or so simple verb roots, only the verbs of burning distinguish whether the agent of burning is human or otherwise.

(Nash 1990:4)

This depth of knowledge about fire in the Warlpiri vocabulary and its integration into the culture is further exemplified in the numerous descriptions of how certain plants were burnt for specific reasons. For example, white cypress pine (*Callitris glaucophylla*) was noted to be used in a smoke pit when someone was very ill. Ironwood (*Acacia estrophiolata*) was also described to ‘burn well’ when making a fire; umbrella bush (*Acacia ligulata*) branches were noted to create a hot fire that people would be warmed by; and dogwood (*Acacia coriacea*) was used as a firestick carried by people as they walked (Laughren et al. 2006). Old Warlpiri men were also recorded to ignite a flame in a traditional manner by quickly rubbing a hard and soft piece of wood together (CLC 1988), and using a fire brush (*maripi*) or a burning branch or bunch of grass trailed along (*tiji-kanyi*) in a line while almost running (Nash 1990, Kimber 1983a). The same authors also note that today Warlpiri predominantly burn using matches while travelling by vehicle, though little detail is provided on other changes and the reasons for them.

Some researchers point out that there has been a strong tendency for Europeans to control Aboriginal burning for the last 100 years (Kimber 1983a), which would indicate that Aboriginal people have been aware of western perspectives of burning and the limitation that this has brought to their own burning regimes. Warlpiri were found to generally believe that non-Aboriginal people do not like to burn (Nash 1990), and they were not aware of the Bushfires NT and other land management organisations supporting fire as an environmental management tool. This may be largely due to the fact that fire has been promoted as a management tool for only a couple of decades, often leading to conflicting messages about fire (Rose 1995a). No reference was found about conflict arising from burning in the Tanami and surrounding Warlpiri land, though it was noted that Warlpiri want to avoid conflict with non-Aboriginal people over the possible destruction of property and cattle by fire (Rose 1995a, Kimber 1983a). Rose (1995a) found that Warlpiri wanted freedom of choice in relation to when and where to burn without having to get a government agency involved.

Some Warlpiri believe that they cannot burn on pastoral lands even if they wanted to due to the reduced fuel loads from cattle grazing. In other areas where people were regaining control over their land, burning was noted to be in a state of flux; while in some more remote regions of the Tanami, tradition-based burning was noted to continue but was limited by the practicalities of access, lack of ephemeral water and the related costs. Conversely, when support was offered, burning was given a high priority (Rose 1995a:15). Warlpiri also expressed their preference for resources to be directed into ground travel rather than aerial burning, wanting support in developing a network of graded vehicle tracks for greater access for burning, hunting, food-gathering and renewing contact with Dreaming sites (Nash 1990). However, this view was not always shared by scientists, who instead favour aerial burning over ground-based burning in remote areas, arguing that with the increase in Aboriginal population since pre-European times, increased vehicle access would potentially lead to over-hunting and over-collection of

fire wood, which is important habitat for many animals and plays an important role in the nutrient cycle in the decomposition process (Griffin & Allan 1986).

One source suggested that it is difficult to draw conclusions from the literature as to the points of view on burning of either scientists or Aboriginal people, as there is considerable variation among each group (Langton 1998). What is clear is that western and Aboriginal perspectives can combine to achieve common goals. This is exemplified by the collaborative attempt to conserve the endangered mala (rufous hare-wallaby, *Lagorchestes hirsutus*), which used Warlpiri burning regimes in assisting with the species' conservation.³ It seems that the majority of literature is separated into either environmental or cultural research, which can overlook some important relevant information on the collaborative use of fire. Conversely, when research on Aboriginal burning is conducted from an anthropological or historical perspective, it focuses more on the culturally specific relationships and etiquettes of fire and can lack relevant environmental analysis (Peterson 1970). Recently there has been a greater move towards validating and integrating Aboriginal fire knowledge with science through more ethnobotanical approaches, particularly in regions such as the Western Desert (Douglas et al. 2003, Burrows et al. 2000), though no such in-depth research was found to have focused on the Warlpiri.

3.5 Western perspectives on Aboriginal burning

The interviewed participants discussed Aboriginal burning mainly in a broad context rather than a Warlpiri-specific one. Nevertheless, some comments related directly to Warlpiri. It should be taken into consideration that the level of experience of working with Aboriginal people among the informants was varied, ranging from knowledge gained from extensive fieldwork to that of speculation. Since the main aim of these initial interviews was to help shape the local case study research, many informants provided extensive views and information on how to go about conducting fire research and the way in which this research may lead to a collaborative fire management strategy. These views are collated in Appendices 7 and 8.

3.5.1 Observations of historical change

Even though several informants thought it important to use early explorer accounts in a study such as this, it was also pointed out that early explorer accounts are not always reliable. For example, one informant stated that 'one needs to be careful when using explorer's accounts as Aboriginal people used fire as a communication device and the explorer's presence was often the cue for burning, making it difficult to establish how much people really burnt' (F. Walsh pers. comm. 2004). Another informant pointed out that explorers such as Gosse (who explored in the Coniston area) and Warburton (who explored close to Mt Wedge and Mt Doreen country) documented their findings during good (rain) seasons (R. Kimber pers. comm. 2006) (see Figures 3.2–3.5). During such times, there would have been more vegetation to burn and therefore potentially more sightings of what may have been exceptional burning.

The same informant suggested that the limited accounts of early explorer sightings of Aboriginal burning in the south-west Tanami may be due to there being a limited amount of water and resources in the area (R. Kimber pers. comm. 2006). Instead, more sightings of Aboriginal burning were made by explorers in the more resource rich areas. Some informants speculated that the Aranda stayed in resource rich areas with water during times of drought, and did not burn until after rains when they could travel further afield (J. Morse pers. comm. 2005, P. Latz pers. comm. 2005).

³ In the belief that management of conservation areas in the Tanami must involve Aboriginal people, Gibson (1986:65–66) worked with senior people who used fire to manage the Mala habitat.

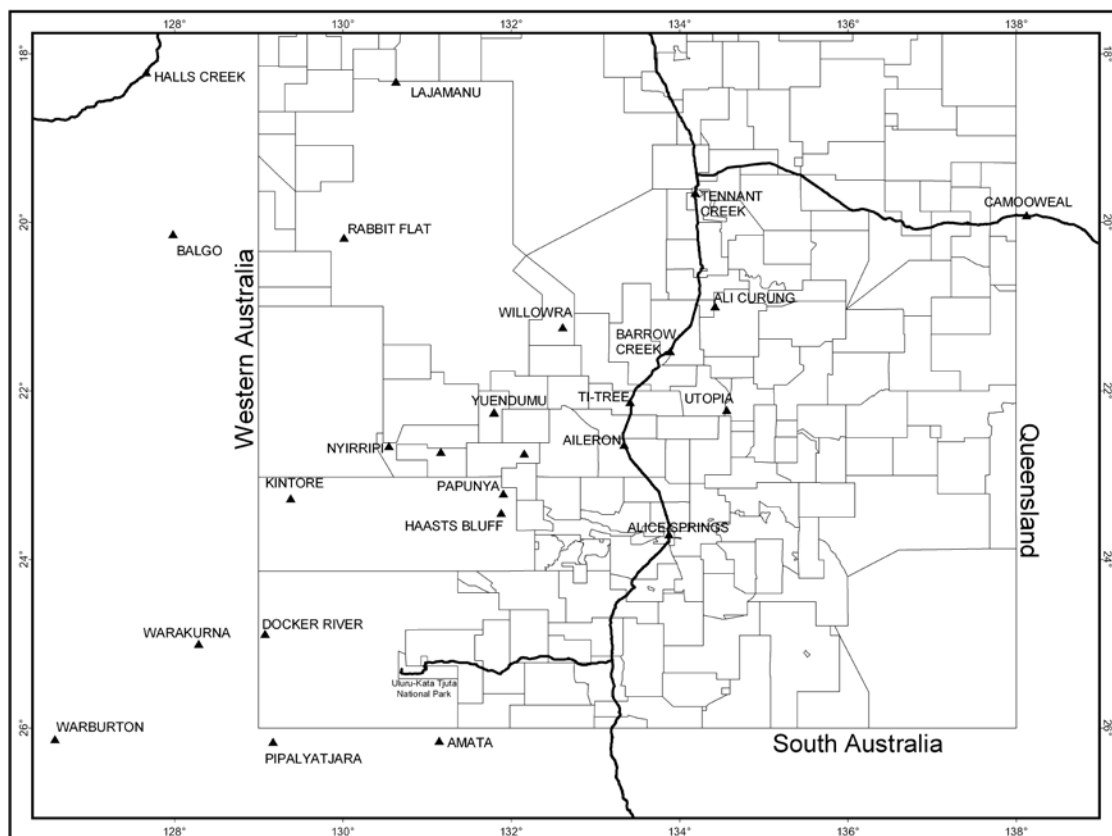


Figure 3.2: Map of Northern Territory southern region

In the southern (particularly south-west) Tanami, where there was (and still is) not much water and resource-rich areas, it was speculated that people would have travelled in the past for no more than nine months of the year, and that they would not have travelled and burnt during the hotter months (R. Kimber pers. comm. 2006). However, during times of drought people may have had to move from one (small) water source to another, burning as they went, and therefore they may have burnt before rain.

The general perception among informants was that Aboriginal people burnt a lot more often in the past (i.e. night and day, in some instances daily during travel) compared with now. In particular, the areas that are burnt today were perceived to be smaller in size compared with those burnt in the past.

One informant was of the opinion that Aboriginal People did not take account of ecological considerations when they burnt, stating that:

*... many years of research has convinced me that Aborigines had **no** fire practice, it just happened automatically as they walked over their country carrying firesticks. They always carried firesticks, and no matter how hard you try, live coals dropping from your firestick will always start a fire in spinifex which is ready to burn.*

(P. Latz pers. comm. 2006)

On the other hand, another informant was of the view that in the past people burnt in a selective manner in order to ensure the supply of food, with, for example, approximately 20 groups of three to five people travelling along various paths three times a year. The same informant said that today people are more mobile with much larger groups travelling in the same country; for example, 200–600 cars may travel each year from Yuendumu to Nyirripi. Areas of up to 200 km² in size can be burnt during such travel, ‘while in the past if you burnt out even 30 km², you could have starved’ (R. Kimber pers. comm. 2006). At the same time, informants pointed out that people no longer rely on bush foods and therefore the amount of burning for hunting and gathering is much less than occurred before European

settlement. One researcher also pointed out that the landscape had changed greatly by the 1980s when many Aboriginal people went back to living on country and began burning more regularly. By this stage, 'the fuel loads were high and people returned to country then, which makes it hard to ascertain what the average burning practices and size of fires were before then, as there had been change to the landscape' (F. Walsh pers. comm. 2004). One informant speculated that the fact that some stations such as Mt Wedge, Yuendumu, Willowra and Newhaven had been de-stocked may have led to changes in Warlpiri perceptions of these areas as fuel loads increased (R. Kimber pers. comm. 2006). The same informant also said that town-related activities lead many young Warlpiri into Alice Springs and other regional centres for up to six months at a time, making it difficult to determine who is burning, and when.

3.5.2 Why people burn

Aboriginal people were seen to burn for a variety of reasons, including to clear out soakages for access to water (B. Cook pers. comm. 2004), for ceremonies and for other cultural reasons, such as protecting sacred sites (R. Kimber pers. comm. 2006) and certain mulga stands (N. Gambold pers. comm. 2004). Burning was also noted to occur for safety reasons, such as clearing camping areas of snakes and spiders and for keeping dingoes away (R. Kimber pers. comm. 2006, R. Tuckwell pers. comm. 2005). Warlpiri were also observed to burn to clear overgrown tracks in order to see landmarks and obstacles such as termite mounds while travelling (H. Bland pers. comm. 2005). The most expressed reason for why Aboriginal people burned was to signal for help during vehicle breakdown (G. Allan pers. comm. 2004, D. Swaye pers. comm. 2005).

In other areas of central Australia women were observed to burn to clear areas for ease of hunting animals such as goanna and to assist in the production of bush tucker plants like *Solanum centrale*, *Acacia coriacea*, *Acacia colei* (F. Walsh pers. comm. 2004, B. Cook pers. comm. 2004) and pituri bush (*Nicotiana spp.*) after harvest (P. Latz pers. comm. 2005). Warlpiri men were observed to burn in order to maintain grasslands (D. Nash pers. comm. 2004) and to promote fresh green shoots to attract kangaroos (H. Bland pers. comm. 2005, R. Kimber pers. comm. 2006). Warlpiri were also found to burn for aesthetic reasons, such as keeping country 'looking good', 'cleaning up the country' and making 'rubbish country' good (R. Hoogenraad pers. comm. 2005, H. Bland pers. comm. 2004) or to simply say 'hello' to rarely visited country (R. Kimber pers. comm. 2006).

Burning for fun and to relieve boredom were also mentioned, particularly in relation to younger people (R. Tuckwell pers. comm. 2005). Anthropologist Hugh Bland (pers. comm. 2005) noted in his field journal when taking out old Warlpiri men on a country trip in the Lower Lander River area that some of the burning did not seem to have a purpose: 'Once again there had been no immediate outcome to be realised from the burning exercise.' This was also implied by others such as Miles Holmes (pers. comm. 2004), who believed that there did not seem to be a great deal of pre-planning in what he had observed from northern-Warlpiri burning practices.

A couple of informants discussed the way in which Aboriginal people may attempt to instigate rain through burning. For example, stories are recounted of particular old men at Uluru burning a certain area in order to encourage rain, and then the rain would follow (J. Morse pers. comm. 2006). For the southern Tanami region, Warlpiri men were noted to discuss burning in relation to spinifex fires in particular, and the way in which this could produce a desirable dark smoke to encourage rain. Hugh Bland (pers. comm. 2006) surmised that 'the potential for this very dark smoke to then effectively "seed" clouds may also relate specifically to certain species of spinifex'. He reflected:

I became interested when people told me they could 'sing the rain' from a place called Kupurlurnu. Despite the concerted efforts of many researchers over the past 20 years this place has not been located but it is somewhere west of Lake Surprise close to or within a series of closely spaced sand hills. There have been a number of theories about why Kupurlurnu is of such prominence in local ritual for the Ngapa (rain/floodwater) Dreaming. I tend to adhere to pragmatic explanations and consider it possible that people do actually

enhance the propensity for rain by their actions at or near Kupurlurnu. When I was visiting country along the lower Lander and people who had lit fires remarked favourably about the dark smoke rising from spinifex country to the west, and indicated that it would produce rain soon, it occurred to me that burning country may be associated with the 'singing' of the rain at Kupurlurnu.

Another informant also commented on this issue from an ecological perspective:

You get the most smoke from burning old spinifex with lots of shrubs growing over it – especially big old Melaleuca spp. You can certainly get clouds to come up and if conditions are right you might get a bit of rain, but the scientists say that lots of smoke actually reduces rainfall.
(P. Latz pers. comm. 2006)

The idea of fire-induced rain clouds is not new (Morris & Ulbrich 1973) and has been documented in the past. Under what specific conditions this occurs and Aboriginal people's knowledge of this in central Australia has not been clearly documented and is an area that justifies further research (Webb 1997), particularly since the topic seems to be somewhat ambiguous.

3.5.3 Who is burning

Some informants speculated that there are two major groups of people who burn. The first group was identified as being predominantly the mobile population who burn along roadsides, made up of young men in the age group of 18–25 (R. Kimber pers. comm. 2006). However, an informant who had extensive fieldwork experience with central and Western Australian Aboriginal people claimed that it is the middle-aged men who, in her view, are the most mobile population (F. Walsh pers. comm. 2004) and therefore, potentially, the ones lighting the bulk of roadside fires.

Conversely, Richard Kimber (pers. comm. 2006) pointed out that there have been considerable changes in Aboriginal vehicle travel as car ownership has increased among different sectors of the population, and women, as well as men, now drive. He suggested that these changes may impact on burning in that women may burn now and not just primarily men. Yet another informant thought that it may be visitors from other regions who sometimes start roadside ignitions in the southern Tanami (A. Johnson pers. comm. 2004).

The second main group identified to be burning was people who still hunt and gather, consisting of both men and women from different age groups, as well as children, who were noted to burn as young as the age of three (R. Kimber pers. comm. 2006, R. Tuckwell pers. comm. 2004). Fiona Walsh (pers. comm. 2004) interpreted these two user groups in a slightly different way, saying that the two main fire user groups are firstly the people who hunt and gather and secondly the community ranger groups.

In general, most informants agreed that it was very difficult to determine who is currently burning due to the high mobility of Aboriginal people in remote communities, with an estimated average 30% regular turnover (F. Walsh pers. comm. 2004). The same informant also speculated that there have been changes in traditional law, and as a result there have been changes in who burns. She was of the opinion that rights surrounding the way in which people can claim connection to an area of land, and so the right to burn, are now more complex and numerous.

3.5.4 How people burn

Aboriginal people were observed to light fires mainly through the use of lighters and matches, which at times would be flicked from moving vehicles (R. Tuckwell pers. comm. 2005). However, numerous informants also reported the recent use of different methods of burning that indicate a level of continuity from pre-European times. For example, one informant mentioned having observed Pitjantjatjara women regularly using firesticks to burn (B. Cook pers. comm. 2004). Older Anmatyerre and Warumungu people were observed to light spinifex and drag it behind them to light other clumps while running in a line (R. Tuckwell pers. comm. 2005).

Several informants also observed that in other regions there are differences in the size of fires that are burnt by men as opposed to women, with Pintupi and Luritja men observed to burn fires 20 km² in size (R. Kimber pers. comm. 2006) while Martu women from the Western Desert were observed to burn approximately 1 km² in area (F. Walsh pers. comm. 2004). However, the same researchers also noted that it was difficult to determine how traditional such practices are because of historical and landscape changes. There was only one brief observation of a repeated burning method: 'As usual the senior men were travelling in the lead vehicle and they pulled over to allow the rest of the convoy to pass before setting the fires', noted anthropologist Hugh Bland (pers. comm. 2005) in his field journal on a trip to the lower Lander River area near Willowra.

3.5.5 When and where people burn

In the northern part of the Tanami, near Lajamanu, one informant observed that Warlpiri conducted most of their burning just before the rain, which was late in the season, in October to November when it is hot and windy (N. Gambold pers. comm. 2004). He said that burning at this time created greater productivity of bush tucker, including some grasses and fruit such as *Solanum* spp. He also noted that during this time there is greater animal activity, which makes for more successful hunting and that, 'If you burn earlier in the year, regeneration occurs in the dry season and the plants that come up are either not useful resource species or produce less prolifically or lower quality fruit and seed, etc.' (N. Gambold pers. comm. 2004).

Another informant identified different reasons for Aboriginal people burning during the hotter months of the year:

As far as I can make out Yapa now like burning in summer because they are annoyed by the amount of shrub growth that is making it hard to drive on their tracks... Hot fires are only good for getting rid of shrubs, and they generally reduce recovery of all species. In the past Aboriginals tended to avoid hot fires (e.g. Kimber's paper). I am quite sure that preference for summer fires has only come about since Toyotas arrived on the scene, and it causes me much grief!

(P. Latz pers. comm. 2006)

In relation to other regions, one informant commented that men burn during the hotter times, although at different times to women. For example, Martu men in the Western Desert were observed to burn between October and November for new grass shoots for kangaroo hunting, whereas women burnt in earlier months such as August, in order to hunt smaller animals such as goanna (F. Walsh pers. comm. 2004). Another informant had observed that the main time people travel in the southern regions of the Tanami is between April and October, when men opportunistically burn spinifex up to 25 years of age in country that had not been visited for a long time (R. Kimber pers. comm. 2006). The idea of people burning opportunistically was further highlighted by Fiona Walsh (pers. comm. 2004) who pointed out that burning associated with vehicle breakdown can occur any time of the year.

Most informants were aware that there are numerous factors that influence when and where people burn today. Given that it is no 'exaggeration to say that arid Australia does not have truly cyclic seasons' but rather 'several observable patterns that recur, albeit not always at predictable times or in a predictable sequence' (Hoogenraad & Robertson 1997), it is not surprising that the topic of when Aboriginal people burn is open to interpretation.

In general, it was observed that Aboriginal people burn a lot less today than in the past and in more concentrated areas, with one informant estimating that only 5% of the Tanami is now being visited and therefore burnt (P. Latz pers. comm. 2005). Travel by Aboriginal people into these more remote areas today was also thought by another informant to mainly occur when non-Aboriginal organisation representatives organised trips for specific purposes, such as land claims (R. Kimber pers. comm. 2006).

As mentioned earlier, the change in people's method of travel from walking to vehicle travel was noted by several informants as being the major influence on when and where people burn today (G. Allan pers. comm. 2004, F. Walsh pers. comm. 2004, N. Gambold pers. comm. 2004).

In relation to this point, it was also observed that people tend to repeatedly travel along the same major connecting roads, with hunting in remote areas no longer common. While hunting in remote areas does still occur, it was observed that Pintupi and Luritja people, for example, rarely go further than 10 km from the road, often due to the risk of creating punctures. It was said that not many people walked anymore, with one informant estimating that people walked 2–3 km from their camp at most (R. Kimber pers. comm. 2006). Warlpiri and Pintupi women at Nyirrpri were observed to travel by vehicle in order to hunt and burn within an area only 10–20 km away from the community or outstation (R. Paltridge pers. comm. 2004). At the same time, Warlpiri were also noted to be one of the most expansionist of central Australian Aboriginal groups, having extensive family ties ranging as far north as Lajamanu all the way south to Docker River (P. Donohoe pers. comm. 2004). Burning along tracks is believed to occur during family visits or when people travel to and from regional town centres (R. Kimber pers. comm. 2006).

3.5.6 Fire perceptions, issues and conflicts

The major fire issue identified by non-Aboriginal informants was that of roadside ignitions, when people light fires in order to signal for help during vehicle breakdown (G. Allan pers. comm. 2004, D. Swaye pers. comm. 2005, D. Price pers. comm. 2005). Travel in the southern Tanami was perceived to have increased along major roads, including roads that link communities together. One informant pointed out that satellite imagery shows that many fires in the southern Tanami start from roads, which indicates that these fires are man-made rather than started by lightning (G. Allan pers. comm. 2004). It was observed that at times, this burning can cause damage to infrastructure, cattle, cattle feed and the biodiversity of an area, particularly when conditions are hot and windy (G. Allan pers. comm. 2004, P. Latz pers. comm. 2005). 'This is a huge problem, and currently there is no real solution for it. However, every property is different so it is difficult to generalise' (A. Johnson pers. comm. 2004). In relation to the latter point, it was noted that there is only a 'patchwork of perceptions as to what is happening on various properties' (D. Alexander pers. comm. 2004).

Several informants identified a lack of understanding of the different people's activities and needs in the Tanami as being the major area of conflict (G. Allan pers. comm. 2004, A. Johnson pers. comm. 2004, J. Moloney pers. comm. 2005). One informant in particular pointed out the need for considering the different ways in which people view fire in order to gain a better understanding of their actions. For example, country can look 'healthy' for many Aboriginal people when it has been burnt, while for many western people, in particular tourists, 'healthy' country often means country that has not been burnt (N. Phillips pers. comm. 2004). In relation to understanding why people burn, another informant pointed out that the notion of patch burning with the intent to create a mosaic is a western scientific concept, as in the past Aboriginal people burnt to secure particular bush resources (F. Walsh pers. comm. 2004). Other informants identified the lack of access to land and vehicles in order to burn as being a major issue for Aboriginal people (T. Nano pers. comm. 2004, P. Donohoe pers. comm. 2004).

In relation to the issue of burning near roads, one informant speculated that Aboriginal people view roads as universally used areas, and that they therefore approach the issue of breakdowns from a universal perspective. 'Generally you would prefer not to burn on other people's land, yet the practicalities make it different, so if you break down, you burn' (R. Kimber pers. comm. 2006). Another informant, who was with a group of Warlpiri travelling from Yuendumu to Nyirrpri when a vehicle broke down, found that people lit a signal fire after having called for help by satellite phone (D. Swaye pers. comm. 2005). He speculated that they did so because it was getting late and some people feared darkness and spirits of the night. Other informants thought that people burnt along roadsides for

practical reasons when waiting for help in a remote area, for example, for warmth and to cook freshly hunted game. It was interesting to note that none of the informants raised the issue of roadside ignitions potentially being started by people under the influence of alcohol or other substances.

One informant commented that, although he had worked closely with Aboriginal people for many years, only occasionally had he heard that Aboriginal people may do some 'pay back' of burning on non-Aboriginal properties, yet he has not seen any proof of this (R. Kimber pers. comm. 2006). In general, informants thought that Aboriginal people, including Warlpiri, were aware of punishment for lighting fires imposed under western law, particularly since 'many Aboriginal people have grown up in a pastoralism context for the last fifty years' (G. Allan pers. comm. 2004).

Informants also observed that Aboriginal people disapproved of inappropriate burning in other contexts. For example, Aboriginal people from remote communities were observed to regard the burning of river red gums (*Eucalyptus camaldulensis*) by other Aboriginal people in Alice Springs as disrespectful. The same informant also heard of Warlpiri being concerned about a fire that got out of control just north of Yuendumu, when someone was cooking kangaroo. 'A whole group came out with the fire brigade as a response, so things are changing in areas; though this can be different from place to place' (R. Kimber pers. comm. 2006). For example, the same informant witnessed Pintupi people not being overly perturbed by an accidental fire south of Yuendumu Ranges, surmising that, 'In general, unless a fire destroys something that is very important, such as productive country or sacred sites, it is not a problematic issue'.

Generally, informants did not regard the way Aboriginal people burn to be bad in itself; rather, what was seen as bad was the lack of collaborative fire management between neighbouring land holders (J. Morse pers. comm. 2005, G. Allan pers. comm. 2004). At the same time, an informant who closely worked with pastoralists observed that often pastoralists have an agreement with local Traditional Owners as to where and how often to burn. The communication between the two parties was perceived to be much stronger when TOs were engaged in the business side of the leased land, particularly since many Aboriginal people have properties on pastoral leases (A. Johnson pers. comm. 2004).

Another major issue identified by numerous informants was the fact that Aboriginal people have been given mixed messages about fire, with several informants perceiving this to be a factor influencing the reduction in burning. 'Most people do not know if they are doing the right or wrong thing. The general message to TOs is that it is wrong to burn' (D. Alexander pers. comm. 2004). On the one hand, pastoralists have been telling Aboriginal people for decades not to burn in order to retain feed for stock and protect infrastructure, while environmental land managers and other professionals have been encouraging people to burn again, particularly since the outstation movement in the early 1980s, with people noted to want to burn on their land at every opportunity (T. Nano pers. comm. 2004, F. Walsh pers. comm. 2004, R. Kimber pers. comm. 2006).

Bushfires NT promotes and enforces the position that it is the responsibility of the land manager to contain fire within their land tenure (G. Allan pers. comm. 2004), with the recent revision of the Bushfires Act further emphasising this responsibility. The revision includes an increase to the penalty for wrongful burning from \$1000 to a maximum of \$25 000 (G. Allan pers. comm. 2004). This has provided more incentive to charge people, as exemplified by the report of one informant regarding one Lajamanu and two Yuendumu young men who were recently charged by police under the updated Act for burning inappropriately. Apparently, news of this spread throughout the two communities and talks were held concerning the matter; however, this was seen to have a short-term impact (T. Secker pers. comm. 2004). In addition, it appears that under the revised Act, Bushfires NT may be able to go on to Aboriginal land to stop people from inappropriately burning. However, some informants thought that rights of the Bushfires NT under the Bushfires Act were not at all clear and in any event were debatable,

particularly in relation to the rights of Aboriginal people under the Native Title and Land Rights Act (D. Alexander pers. comm. 2004, R. Tuckwell pers. comm. 2005), which would imply that it could also be unclear to Warlpiri.

3.5.7 Environmental issues

The general belief among informants was that, since Aboriginal people have stopped burning regularly, the country is no longer 'broken up'. Therefore when a hot, large fire comes, it travels extensively, killing off valuable wildlife, habitat and vegetation (G. Allan pers. comm. 2004, P. Latz pers. comm. 2005). Several informants also pointed out that the introduction of the widespread highly flammable, and fire tolerant buffel grass (*Cenchrus ciliaris*) has increased the intensity and frequency of roadside ignitions, where fuel loads are increased due to road water run-off (F. Walsh pers. comm. 2004). Even though roadsides were perceived by some informants to assist in 'breaking up' the country and be a form of fire break, the continual hot fires along these roads were considered to have negative impacts on the biodiversity of these areas for several reasons.

Firstly, it was perceived by some informants that since people continually travel along the same major roads, the same areas are burnt more often. This type of burning changes the composition of the landscape, with frequently no fuel load left along the major roads, yet a lot of fuel load still left in between the roads (G. Allan pers. comm. 2004, P. Latz pers. comm. 2005). When fuel loads build up, particularly after big rains, and a hot, large fire goes through, wildlife and vegetation, including seed sources may not recover for years (J. Morse pers. comm. 2005, P. Latz pers. comm. 2005). Also, in the areas where there are no roads, and therefore often no burning, fuel loads had an opportunity to build up, therefore increasing the chance of damage by hot and destructive fires to these long-unburnt areas (G. Allan pers. comm. 2004, P. Latz pers. comm. 2005).

In general, the entire composition of the central Australian landscape was perceived by many informants to have been altered, in part due to changed fire regimes. The size of spinifex plants in particular was observed to be huge in some areas where Aboriginal people had not entered, and therefore not burnt, for a long time (H. Bland pers. comm. 2004, P. Latz pers. comm. 2005, R. Kimber pers. comm. 2006). Several informants were concerned that when such high fuel areas were finally burnt, usually in a hot and uncontrolled wildfire, other plant communities in these areas could be destroyed. This was perceived by some informants to be a major reason why there are so few old tree stands found, particularly when the edges of these plant communities are made up of highly flammable species such as spinifex. In particular, it was noted that there were very few mulga stands over the age of 50 years left in central Australia, primarily because of these extensive, hot fires (P. Latz pers. comm. 2005, J. Benshemesh pers. comm. 2005).

Several participants stated that changed fire regimes affect four major environmental values, in particular: fauna, weeds, riverine areas and land composition. Large, high intensity fires were seen as greatly contributing to the exceptionally high mid-sized mammal extinction rates in central Australia, due to such fires destroying animals' habitat and food source. With the lack of habitat, middle-sized mammals in particular are at a much greater risk of being exposed to predators (J. Benshemesh pers. comm. 2005, P. Latz pers. comm. 2005). Paltridge's research in the southern Tanami and near Uluru found that there used to be many threatened species such as bilby (*Macrotis lagotis*), mulgara (*Dasycercus cristicauda*), and great desert skink (*Egernia kintorei*) in these areas, but that very few individuals of these species are recorded there now (R. Paltridge pers. comm. 2004). However, it was thought that a possible reason for the decline in these species was the recent decimation of the rabbit population due to calicivirus, with foxes having substituted a diet of rabbits with one of skinks and other native animals (R. Paltridge pers. comm. 2005). It should also be pointed out that, apart from the effect of predators on native species populations, rainfall patterns are also crucial in determining fauna numbers, otherwise known as the boom and crash cycle (see Dickman et al. 1999).

On this point, it is interesting that Paltridge and other researchers (J. Morse pers. comm. 2005, T. Nano pers. comm. 2004) have noted that sometimes threatened species are more abundant in areas that are patch-burned close to communities on Aboriginal lands. This could be due to other reasons indirectly related to fire. For example, as Rachel Paltridge (pers. comm. 2004) points out, ‘Ten to twenty kilometres from Nyirripi there is a good habitat area for great desert skinks. A lot of goanna and cat hunting goes on there by Aboriginal people, which often involves burning.’ Therefore, the reduction of predator cat numbers may be also contributing to an increase in native animal numbers. Regular patch burning by Aboriginal people while hunting in these areas may also be providing diversity in habitat fire age that potentially favours a greater variety of fauna species. For example, ‘Mulgara and great desert skink prefer middle-range burnt country, bilbies like feeding in fresh burns, while goannas tend to stay after fires’ (R. Paltridge pers. comm. 2005). However, as identified by most informants, further research is required in this area, particularly since, as one informant commented: ‘Like any scientific work in the Australian arid zone, you need at least thirty years to come up with some sound conclusive results’ (D. Gibson pers. comm. 2005).

As mentioned previously, as far as weeds are concerned, road edges were perceived by several informants to have been affected by the introduction of buffel grass. Buffel grass burns very readily and recovers quickly from fire, and buffel fires have negative effects on native species. For example, when it grows around river red gums, buffel assists in creating higher fuel loads, which contribute to the fire intensity and the trees’ potential destruction (P. Latz pers. comm. 2005). It was noted by one scientist that in certain areas, such as Watarrka National Park, the river red gums are much bigger and older in the riverbeds without buffel, due to a lack of high intensity fires (C. Brock pers. comm. 2006). The fire frequency is also higher in areas with buffel, and this can prevent recruitment in woody species that are killed outright by fires if the fire frequency is shorter than the time it takes for new recruits to reach maturity (C. Brock pers. comm. 2006).

3.5.8 Livelihoods and what people would like to see happen with fire

As one informant pointed out: ‘As long as an area of land is not managed and fire is out of control it has “an effect” on livelihoods’ (J. Morse pers. comm. 2005). However, informants were unclear as to how Aboriginal people perceive this effect or how interested they are in burning. Variation in people’s perceptions concerning Aboriginal interest in the matter may be partly due to the different experiences of informants in different regions in central Australia. For example, one informant who has worked in the southern Tanami found that Warlpiri were interested in fire and that they ‘often burn places as they go’ (A. Meltzer pers. comm. 2004). Also at Uluru, there is apparently considerable interest in burning, including interest from young people. ‘Even the petrol sniffers want to take it on; if given the right opportunities, they would strongly get involved with it. Yet this does not mean in the western way of burning’ (J. Morse pers. comm. 2005). However, in an area such as Docker River, interest in the community ranger program or land management from youth has been limited, with most of the people working with the CLC on land management activities being old (in their 80s) (P. Donohoe pers. comm. 2004). Others thought that there would probably be more interest expressed in this project by women than by men (D. Alexander pers. comm. 2004, P. Latz pers. comm. 2005), while one participant suggested that there might be no interest at all (T. Nano pers. comm. 2004).

The majority of participants discussed in some depth how to research what Aboriginal people think about, and want to see happen with fire, rather than commenting on what they found Aboriginal people to have said about these issues. When discussing fire management, many participants strongly supported the involvement of community rangers in fire work, such as burning breaks to protect infrastructure from wildfires, and patch burning to promote biodiversity. It was also seen as important for these ranger groups to apply both traditional and scientific methodologies to burning, which in turn would assist in creating an inclusive fire strategy (R. Tuckwell pers. comm. 2004, J. Morse pers. comm. 2005, G. Allan pers. comm. 2004). Yet it was unclear whether this is what Aboriginal people want.

A few participants spoke of supporting people who are already burning and hunting by providing vehicle support and funding in order to increase access to more areas of their land (R. Tuckwell pers. comm. 2004, R. Kimber pers. comm. 2006, D. Alexander pers. comm. 2004). For community ranger groups, the need for support was identified in the way of financial assistance, planned fire activities on their own and neighbouring lands and involvement in educating younger members of the community, in particular, about good and bad fires (N. Gambold pers. comm. 2004, G. Allan pers. comm. 2004). One informant voiced a concern that, although it was good that the community ranger programs are growing, they may be responding predominantly to conventional natural resources management (NRM) priorities rather than local ones (F. Walsh pers. comm. 2006). The same informant also provided the only account of Aboriginal people discussing concerns about fire in relation to livelihoods, noting that the involvement of people in selling bush tucker is one of the main reasons people continue to go out on country and burn:

Experiences in recent weeks in waiting for the katyerr (bush raisin, Solanum centrale) crop to be harvested have strongly reiterated the importance of burning (and other forms of surface disturbance) to maintain production. I've had several reports from Aboriginal people in Ti Tree and Aileron areas that there is not enough around this year as there is not enough burnt (that is, less than five years) country despite good rainfalls ... So, indications are that potential commercial enterprise for Aboriginal people are being constrained by poor resource management in respect to fire.
(F. Walsh pers. comm. 2006)

Informants also discussed the importance of creating a cross-cultural fire strategy, which incorporates Aboriginal as well as western points of view in a format that makes sense to Aboriginal people (A. Johnson pers. comm. 2004, G. Allan pers. comm. 2004). Aboriginal people were observed to adapt to new fire concepts and technologies such as maps and GPS, particularly when it was an issue of concern to them (T. Nano pers. comm. 2004). Participants emphasised the need for a strategy to be based on Aboriginal people's ideas, with researchers asking people's opinions before 'educating' them, particularly since older Aboriginal people were seen to still hold a lot of relevant fire knowledge (T. Nano pers. comm. 2004, A. Johnson pers. comm. 2004, F. Walsh pers. comm. 2004).

The way in which researchers ask Aboriginal people about fire was identified as an important issue, as Aboriginal people were thought to view land management in a different way from western land managers. For example, one informant stated that 'in a non-contextual sense, people understand things like wind and temperature, yet they use this knowledge as a tool without necessarily analysing it; therefore for them to discuss it can be somewhat arbitrary' (J. Morse pers. comm. 2005). It was thought that understanding this major difference can assist in moving closer to a truly two-way process. Yet this process can be lengthy and requires guidance and coordination (S. Marty pers. comm. 2004).

Another informant raised the issue of logistical constraints involved in consulting Aboriginal people about fire, highlighting the fact that it can be difficult to consult families for different areas within a restricted period of time (A. Meltzer pers. comm. 2004). It was also emphasised that when conducting research it is important not to promote one's own agenda as to where and how one wants people to burn, and that the presence of a fire researcher may influence Aboriginal burning (J. Morse pers. comm. 2005). The issue of paying people for knowledge was also discussed. Some participants were of the view that Aboriginal people should be paid an appropriate fee for their knowledge like any other fire consultants (H. Bland pers. comm. 2004, M. Holmes pers. comm. 2004), while others challenged this view on the grounds that others, such as pastoralists, do not get paid when they get consulted, so why differentiate between the two (G. Allan pers. comm. 2004). However, another view was that it is not appropriate to pay pastoralists for fire knowledge, as they mainly use their land for the purpose of cattle production, which has been found in numerous instances to not be beneficial to biodiversity: 'In some areas, inappropriate grazing practices over 150 years have resulted in land degradation, a loss of productive potential and biodiversity decline' (Brook et al. 2001). Since many pastoral lands in

central Australia are often continually grazed, which reduces fuel loads (with the exception of a high rainfall event), they do not require as much regular burning. If, and when, burning does occur, it is usually in order to reduce shrub or spinifex areas to make more room for grass to regenerate for stock feed, for access purposes and, at times, for reducing fuel loads in the event of wildfires. However, the latter comes with inherent risks to infrastructure damage and is rarely implemented (O' Reilly 2001). It also should be noted here that paying Aboriginal people for their fire knowledge is not a long-term livelihood solution, though it may provide economic assistance to a handful of people who still possess fire knowledge, such as older people who remember living a subsistence lifestyle.

3.5.9 Traditional verses contemporary fire knowledge and uses

The lack of frequent movement of people over their land, particularly in the last 50 years, was seen to have greatly affected traditional burning practices, and therefore fire knowledge in the southern Tanami (G. Allan pers. comm. 2004, P. Latz pers. comm. 2005). The topic of Aboriginal fire knowledge tended to pose more questions than provide answers, for example: what is traditional burning? How relevant is it today? And what does traditional burning involve? It was suggested by one informant that perhaps the range of country that people burnt in the past was random and not necessarily well thought through: 'Who really knows?' (D. Alexander pers. comm. 2004). It was thought that knowledge was held in different ways by different people and was deeply interconnected with Aboriginal worldviews, on a livelihood, cultural and spiritual level (F. Walsh pers. comm. 2004, J. Morse pers. comm. 2005). Though to what extent traditional fire knowledge has been understood was questioned: 'To date, traditional fire knowledge has been very superficially analysed and there is a real need to talk to the senior men and women about it while we still can' (J. Morse pers. comm. 2005).

Several informants pointed out that the way Aboriginal people (including Warlpiri) burn today is not necessarily the way in which traditional Aboriginal burning has been defined (i.e. fine-scale patch burning in the cooler season or early wet season) (N. Gambold pers. comm. 2004, P. Latz pers. comm. 2005). Several participants also thought that traditional burning is not that relevant in the current environment, as people drive cars these days and have different needs (A. Johnson pers. comm. 2004). It was pointed out that people have access to western foods now and no longer need to live off the land, and as a result burning to increase bush tucker harvest yields and for hunting is less relevant now (J. Moloney pers. comm. 2005). 'Bush tucker that was being used [in the past] was on average 100 species, while now only about five to ten species get used regularly' (F. Walsh pers. comm. 2004). Another person commented that the extinction and loss of mid-sized mammals has also changed how people hunt with fire (J. Benshemesh pers. comm. 2005).

While in general fire skills were thought to have changed greatly because people no longer burned as much (G. Allan pers. comm. 2004, A. Johnson pers. comm. 2004, P. Latz pers. comm. 2005), several informants thought that Aboriginal people retain broad principles in respect of fire and hunting (R. Kimber pers. comm. 2006, F. Walsh pers. comm. 2005). It was pointed out that Aboriginal people still have more fire knowledge than non-Aboriginal people because they generally burn a lot more. How detailed that knowledge is now and how much of it is from pre-European times was, however, thought to be debatable (F. Walsh pers. comm. 2004, R. Kimber pers. comm. 2006). Some informants pointed out that the younger generation in particular are now learning a lot of their fire knowledge from books such as *Bushfires and bushtucker* (P. Latz 1995), as well as from non-Aboriginal land managers and scientists who have detailed fire knowledge (F. Walsh pers. comm. 2004, R. Kimber pers. comm. 2006). Others believed that Aboriginal fire skills are just as valuable as non-Aboriginal fire skills, regardless of how traditional they are in today's context: 'Aboriginal skills are still recognised and valued, and there is still a lot of positive things happening with fire' (T. Nano pers. comm. 2004).

Some informants regarded observation of the environment and seasons throughout a lifetime to be just as valid as scientific experiments (D. Gibson pers. comm. 2005, D. Nash pers. comm. 2004) and capable of producing valuable findings. For example, older Martu women in the Western Desert were recently observed to still know a lot about plants and their flammability (F. Walsh pers. comm. 2004).

A couple of informants who work closely with Aboriginal people discussed the way Aboriginal law is still practiced today in the southern Tanami; for example, in the rights of certain family members designated to look after particular parts of the country where they may conduct and guide burning. These people are called the *kirda* (owner) and *kurdungurlu* (worker) (R. Hoogenraad pers. comm. 2005, A Meltzer pers. comm. 2004, see also Nash 1990 and Section 3.6.3.6). In addition, Warlpiri were observed to have strong cultural associations with lightning and storms as reflected in their Dreaming stories. For example, it was said that in the southern Tanami, there is the Bushfire Dreaming that starts at Warlukurlangu, travels south all the way to the Pitjantjatjara lands and then east to Yuendumu. It was suggested that Warlpiri knowledge of weather patterns as described in their Dreaming stories could be a true reflection of the way storms actually travel across the landscape even today (R. Kimber pers. comm. 2006), and that their observations are worthy of investigation.

However, several non-Aboriginal informants thought that even though many traditional Aboriginal customs may remain, many have been lost, together with the closely interconnected laws that relate to fire. For example, traditional land tenures were perceived by one informant to still be partly used, yet to now be more restricted by fences, lines on maps and vehicle access tracks (G. Allan pers. comm. 2004). Another informant identified tradition-based knowledge as having become a lot less defined due to the many modern pressures that face Aboriginal people today, including increasing movement away from people's original lands and changing family relationships and responsibilities (R. Kimber pers. comm. 2006). Similarly, another informant thought that (mainly due to these modern external changes) 'the avenues by which people can claim connection to an area of land and so the right to burn that land are now more complex than before' (F. Walsh pers. comm. 2004).

3.6 Local case study results

3.6.1 Yuendumu

3.6.1.1 Community background

Location

Yuendumu⁴ is a predominantly Warlpiri settlement located 300 km to the north-west of Alice Springs on the Yuendumu Land Trust in the southern Tanami. An 'outback town' (Young 1981: 56), Yuendumu had a population in 2006 of 999 (NTGC 2007), although this can fluctuate dramatically. The Yuendumu Land Trust area (previously the Yuendumu Reserve) is bounded on the west by Mount Doreen Pastoral Lease, on the north by Central Desert Land Trust, on the north-east by Mount Denison Pastoral Lease, on the east by Yalpirakinu Land Trust, on the south by Ngarluju and on the south-west by Yunkanjini Land Trust (Figure 3.3).

The climate is semi-arid with an average annual rainfall of approximately 369 mm (Bureau of Meteorology n.d.). The country surrounding Yuendumu is vegetated by *Acacia* species and spinifex grasses (*Triodia* spp.), large eucalypts such as ghost gums (previously *E. papuana*, now *Corymbia aparrrerinja*), bloodwood (previously *E. terminalis*, now *Corymbia opaca*) and red river gum (*Eucalyptus camaldulensis*), which occur only in creek beds (Young 1981: 59). In 1981, Young noted that while cattle grazing had affected vegetation in most areas enabling some introduced species to dominate, 'the environment still yields a variety of vegetable and animal foods, for example yam

⁴ For the sake of consistency, we use the Warlpiri orthography to spell both Warlpiri and Pintupi terms throughout this report. We also employ the ethnographic present to indicate current Aboriginal practices and beliefs unless referring to reported events or events in the immediate past.

(*Ipomoea* sp.), bush tomatoes (*Solanum* sp.), witchetty grub (*Cossidae* larvae), honey ant (*Melophorus bagoti* and *Camponotus inflatus* spp.), goanna (*Varanus* spp.), red kangaroo (*Macropus rufus*) and emu (*Dromaius novaehollandiae*), which are avidly sought by Yuendumu residents' (Young 1981: 59). Although there has been a reduction in pastoral stock since the 1980s, lack of rain coupled with the presence of scrub bulls and wild horses has meant that the native vegetation is still somewhat denuded (Adrian Winwood-Smith pers. comm. Central Land Council 2006).

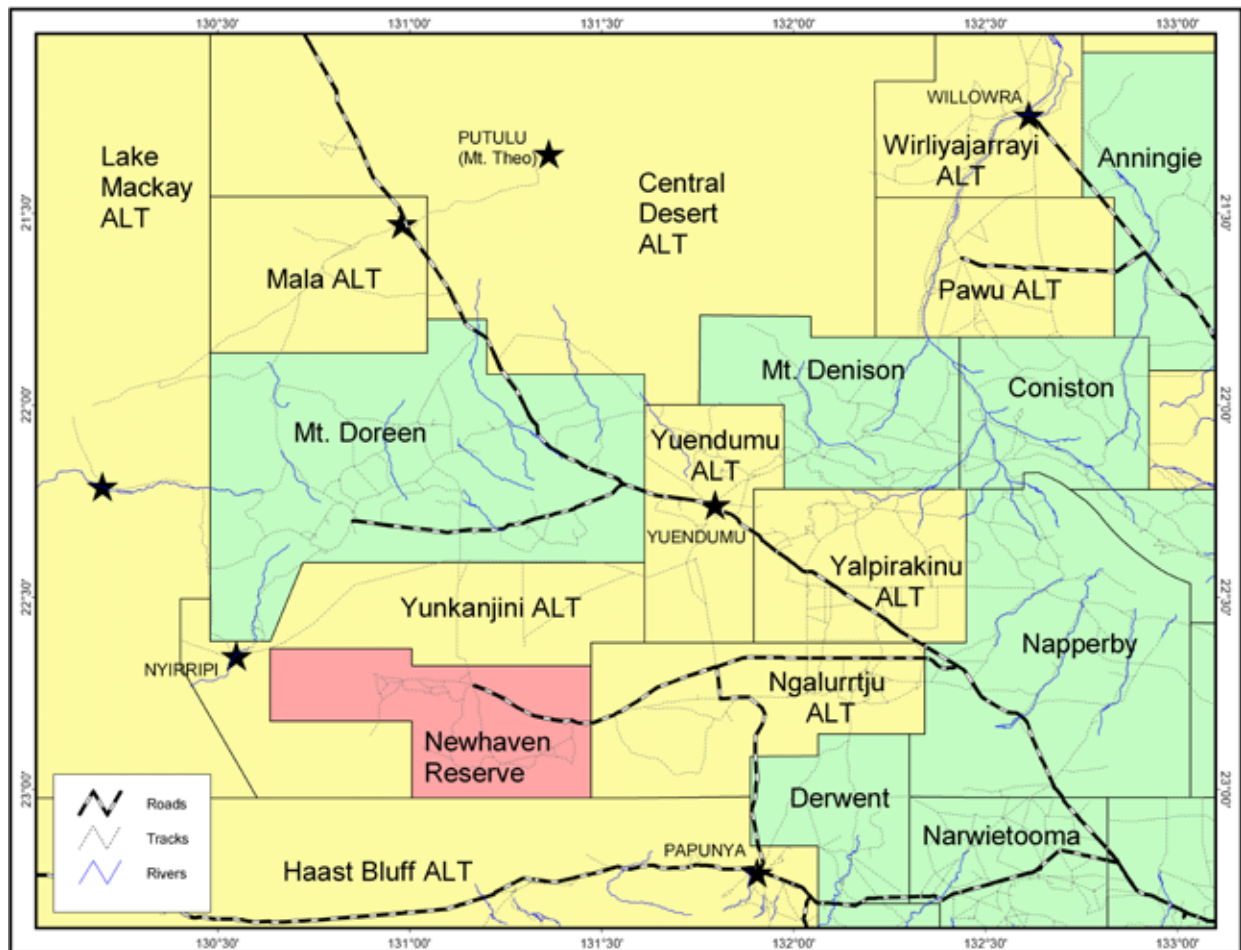


Figure 3.3: Map of Yuendumu region

History

Yuendumu was established in 1946 by the Commonwealth Government as a permanent settlement for Aboriginal people in the region. Part of the rationale for establishing Yuendumu was to provide a pool of labour on which stations could draw for the mustering season. While much of the land surrounding Yuendumu is today Aboriginal freehold land, this was not always the case, as much of the better-watered country surrounding Yuendumu was taken up by Europeans for cattle stations in the 1930s–1940s. Thus Mount Wedge Pastoral Lease (now Ngarluju Land Trust) and Mt Allan Pastoral Lease (now Yalpirakinu Land Trust) were both established in 1947. Mount Doreen, which was established in 1932 on Vaughan Springs – ‘the most important single [Warlpiri] water for several thousand square miles’ (Peterson et al. 1978: 17), remains a non-Aboriginal run cattle station.

While today the population of Yuendumu is predominantly Warlpiri, there were sizeable groups of Anmatyerre, Luritja and Pintupi at the settlement from the time of its inception until the 1970s, when people began to move back to their traditional lands and establish smaller communities or outstations. The majority of Yuendumu Warlpiri who are in their mid-50s and younger grew up at Yuendumu and

led more sedentary lives than the older generation Warlpiri. Nevertheless, in the early period ‘many residents still retained close contact with their own lands, and frequently returned there for ceremonies’ (Young 1981: 61). In the ensuing years, the institutional settlement environment and the presence of neighbouring cattle stations meant that people had fewer opportunities for hunting and gathering expeditions during which they would set fire to country. By the late 1970s, however, as Warlpiri gained greater autonomy and access to vehicles, they were able to conduct hunting trips further afield from the settlement. In the 1980s, Young (1981: 59) observed that people had to travel considerable distances to hunt and gather, as constant foraging and firewood collection had depleted country near the settlement. Today, Warlpiri are highly mobile, moving between Yuendumu and other towns, settlements and outstations. While they still participate in ceremonies and observe tradition-based customs, the younger people have an increasingly European lifestyle. While a small number of people are employed in the school, clinic, office and store, many more participate in the Community Development Employment Program (CDEP). The local art centre provides a source of income for artists, although it can vary greatly between individuals. The Tanami and Granites gold mines also provide employment opportunities.

3.6.1.2 How and when people burn

The general consensus is that the ideal time to burn country is the late dry season, around August to September before the summer rain. For example, Neville Japangardi Poulson said ‘usually we burn when the wind changes, around about August and September.’ Musharbash noted that Warlpiri prefer to burn ‘after “cold” time proper, during “windy time”, while there are changing wind directions, and before the summer rains start’ (Y. Musharbash pers. comm. 2005).

While timing is important, other considerations such as stage of growth, dryness and type of vegetation also influence decisions to burn. Thus, as Neville Japangardi Poulson explained: ‘Burning mainly takes place in August and September, when the spinifex is older, not so green so it can’t carry fire.’ He pointed out: ‘This is spinifex country here and what we mainly burn ... People do not burn in mulga but only in spinifex country.’ Musharbash also noted that although rains at Yuendumu during September and October 2005 meant that ‘burning season was over as the rains had come’, a fire observed in the direction of Willowra ‘was considered “normal” so late in November by Yuendumu people because Willowra had [had] no rain [yet]’ (Y. Musharbash pers. comm. 2005).

3.6.1.3 Why people burn

Broadly speaking, one of the main Warlpiri goals of burning is to renew country. It is thus unnecessary to burn where conditions for regeneration of vegetation already exist; for Warlpiri this is a matter of common sense (Y. Musharbash pers. comm. 2005). In the period August–December 2005, during hunting trips with Warlpiri women, Yasmine Musharbash observed that much of the country close to Yuendumu had recently burnt patches of vegetation, so that new green shoots of spinifex were interspersed with slightly older growth. Neville Japangardi Poulson explained that the reason people were not burning was because ‘It’s all been burned, it needs to grow back now, for four years. Sometimes people go and burn at the wrong time. But it’s all been burned last year or the year before, up in the Tanami and west. *Yapa* [Aboriginal people] been put fire, and lightning, too.’ Yasmine Musharbash (pers. comm. 2005) commented that to the best of her knowledge during the period of her research at Yuendumu ‘no active culturally appropriate burning of country was undertaken by Yuendumu people.’ She noted that she did not hear Warlpiri mention the fact that burning was unnecessary:

... this was so abundantly clear to everybody that it did not need to be discussed. Even stretches of long unburned country, which in my past experience causes Warlpiri people to complain (and/or plan burning), especially when large and filled with old spinifex that

is regarded with distaste – did not occasion discussion, as they were so rare as to be an essential part of the ‘landscape’ rather than a ‘nuisance’ or a ‘mess’ (Y. Musharbash pers. comm. 2005).

3.6.1.4 Present local knowledge of cultural geography

It was noted that Warlpiri thinking about fire includes the mythological domain. Fire Dreaming, or *Warlukurlangu Jukurrpa*, is an important Dreaming for many members of the Yuendumu community. The Yuendumu arts centre is said to take its name ‘Warlukurlangu’ from the Fire Dreaming held by the Nampijinpa and Nangala women who started the centre, and Fire Dreaming was a central theme in the 2005 anniversary celebrations held by the Arts Centre.

The published works of anthropologists Meggitt (1974), Munn (1986), Peterson (1978), Dussart (2000) and Michaels (1985) indicate that until the early 1990s, at least, the local Warlpiri community was strongly tradition oriented. It is acknowledged by Warlpiri today, however, that there is some loss of cultural knowledge among members of the younger generations. In an attempt to redress this situation younger Warlpiri are engaged in a project to record information on Warlpiri places and associated Dreaming stories from senior knowledgeable Warlpiri men and women. The project is an initiative of Mt Theo substance abuse program and is coordinated by Warlpiri woman Jeannie Egan Nungarrayi.

3.6.1.5 Distribution and transfer of fire knowledge

Warlpiri informants observed that older people generally have more traditional fire knowledge than younger people, with some being particularly skilled in using fire to hunt. For example, on the prowess of older Nyirrpri women, Neville Poulsen Japangardi commented: ‘Those Nyirrpri old ladies are very good with fire and when they go hunting they kill 20 goannas in the morning and 20 in the afternoon.’ Informants emphasised the importance of younger Warlpiri learning from older more knowledgeable Warlpiri (see next subsection).

3.6.1.6 Fire issues, concerns and conflicts

According to Neville Poulsen Japangardi, people are concerned about the destructive effects of big hot fires on animals and vegetation. Japangardi has worked with Parks and Wildlife researchers on land management issues in the past, and this experience may have increased his awareness of the effect of hot fires on animals. He commented that: ‘Big hot fires are a problem, as five native animals have gone from around here since hot fires. The mulga paddock burnt twice in close time frame, which is not good.’ According to Yasmine Musharbash (pers. comm. 2005): ‘People get told off for lighting fires at the wrong time/the wrong place/in the wrong circumstances’, although it is often the case that no attempt will be made to extinguish the fires. The following two incidents illustrate the point:

Example 1

On 21 August, six women, four children from Yuendumu and myself went on a day trip north-east of Yuendumu (approximately 90 kilometres return). We went to look for honey ants, have a picnic in one of the creeks, to inspect some sacred sites and to collect ‘ashes’ (for chewing with tobacco). Over lunch, the children and two of the women stayed at the picnic site at the creek while the others of us went to a sacred site. Upon our return, everybody piled into the Toyota, and just before we were ready to leave, one six-year-old boy, P., threw a burning stick he had taken from the almost-died-down lunch fire in the middle of the (sandy) creek into the thick grass on the side of the creek – which went up in roaring flames immediately (it was dry old grass, it was a very hot day, and it had been weeks since the last rain).

The women immediately began chiding the boy, telling him off and calling him and his action ‘punku’ (implying that he is a nuisance and that lighting that fire was making trouble). Their admonitions had a strong flavour of P. having acted wrongly and irresponsibly and that as a six year-old he should know better. There was, however, no attempt by anybody to ‘do’ anything about the fire and we set off to some other sites.

From the rocky outcrop we climbed next, some 5–10 kilometres away from the creek, we could spot the smoke cloud generated by P.'s fire and how it was growing quickly. The fire was referred to as 'P.-kulangu warlu' (P.'s fire, or, the fire that belongs to P.), he was scolded again as 'punku' [rotten, bad] and as people observed the smoke cloud getting bigger and bigger, he was threatened with 'policeman will get you'.
(Y. Musharbash pers. comm. 2005)

Example 2

A further example of this happened in 2002 while a number of us were camping just outside Yuendumu, where a funeral was held that day leaving us 'no room' in Yuendumu. It was a very hot day and when we ran out of water we moved 'up the road' a little to another camp where there was more water. Some people were clearing the grass under the shade bushes to lie down and L., who was meant to carry the grass away but who felt 'lazy', instead lit it to burn it – and the grass and with it the bushes around went up with a great woosh. L., a woman in her forties, was teased rather than told off for her folly, but the teasing became quite sharp as the fire grew and a) made everybody move out of its way rather quickly and b) threatened to roll towards Yuendumu.

In the above example, maybe because the fire was so close to Yuendumu, L. in fact got very frightened of the police and people kept teasing/threatening her about being 'locked up for putting that fire' and for 'burning down Yuendumu'. L. in fact was so frightened that she began hitting at the flames with branches, attempting to put the fire out, which kept circling away and growing. This was the only time ever that I have seen a Warlpiri person attempt to put out a bushfire.

(Y. Musharbash pers. comm. 2005)

It is clear from the earlier descriptions that people believe they may get in trouble with police for lighting bushfires. The issue has been raised in meetings involving Warlpiri, police and non-Aboriginal people (for example, from the nearby Newhaven Bird Sanctuary and Bushfires Council), and has resulted in growing awareness about conflicting European and Warlpiri perspectives on fire. What is not clear is how Yuendumu people perceive blanket prohibitions on burning, as awareness of such prohibitions does not always inhibit people lighting fires. For example, a non-Aboriginal informant reported that once when travelling with an elderly Yuendumu woman near the Newhaven Bird Sanctuary, the woman lit a fire – despite having earlier been cautioned about lighting fires on Newhaven at a meeting at Yuendumu. Consequently, when at one point the fire looked as though it might get out of control (which it did not) the woman became very concerned about the reaction of the manager of Newhaven as well as that of the Yuendumu community.

Musharbash noted that during her research at Yuendumu a number of fires were observed in the distance and that people discussed the location of the fires and who may have lit them. She observed that responsibility for fire was generally ascribed to people who lived in the community nearest to the fire. For example, a fire in the direction of Willowra was said to have been lit by Willowra people. While such ascriptions are not necessarily correct, 'as long as a fire is "far away", knowing it is there is more important than knowing who lit it, as it is assumed that the "right" people did [or that it was lit by lightning if there are storms]' (Y. Musharbash pers. comm. 2005). In relation to the latter she claimed that 'the fact that a fire was lit by the "wrong" person, (e.g. a child, a drunk person) would be public knowledge within minutes of the car carrying persons who know arriving at Yuendumu – such information is told in stories which are immediately incorporated in the information that is circling around the community at any one time' (Y. Musharbash pers. comm. 2005).

3.6.1.7 Livelihoods and what people would like to see happen with fire

At Yuendumu, interest was expressed by both Aboriginal and non-Aboriginal people in the following activities and livelihoods in relation to fire: school-based projects; engagement of younger Warlpiri men and women learning about cultural geography, traditional fire knowledge and practices; work-based training; and the sharing of fire knowledge with non-Aboriginal researchers. Suggestions for livelihood and fire-based activities were as follows.

(a) School-based fire activities

In order to help the Desert Fire research, both Tommy Watson and Yuendumu School Principal, Paul Unsworth, expressed interest in having Warlpiri children learn about fire and water issues in the context of school. It was proposed that children design fire posters to advertise upcoming fire trips and promote positive fire messages, that police give fire talks to school children and that an end-of-term play be performed about fire themes. Due to other pressing concerns these suggestions were not implemented during the research process. They are, however, suggestions that can be fruitfully taken up at some later time.

(b) Work-based training

Peter Gamlin, the CDEP Coordinator, expressed interest in the provision of conservation training and work as part of CDEP. Project Coordinators for the Mt Theo Substance Abuse Program suggested that a block of the program's activities could focus on burning techniques and traditional fire stories associated with *Warlukurlangu Jukurrpa*, the Fire Dreaming.

(c) Sharing cultural knowledge of fire

Warlpiri informant Jeannie Egan Nungarrayi suggested that traditional knowledge of fire was taught best in an applied context, for example, during school-based country visits to Warlpiri places such as Lungardajarra (approximately 2–3 hours' drive from Yuendumu), Warlukurlangu and Mawurrungu (a Mala Dreaming place between Mt Theo and Willowra).

Neville Poulsen Japangardi suggested a separate program for the women followed by one for the men, with involvement from knowledgeable Nyirrpri people. He affirmed the value of country trips as follows: 'When people go to the country they can feel it, it is real; and when they come back they can make a book, it's real; and then when they grow up they might become like Bushfires NT mob or Rangers.'

When asked what he thought about the suggestion to bring all the Warlpiri Rangers from the Tanami together to do a fire workshop, he replied that it was a good thing and that 'everyone needs to work together.' He suggested Mt Davidson as a possible meeting place for the Rangers and Vaughan Springs as an area that would benefit from fire management: 'At Vaughan Springs we could work together to look after country, even though we fight we can work together to look after country as this country is best country.' As noted earlier, Vaughan Springs is a well-watered area on the Mount Doreen pastoral lease.

Japangardi also suggested that a 'scientific research base' be established where Community rangers could study fire management techniques in a practical setting, for example, at Newhaven or Sangster's Bore. He also commented that multidisciplinary cross-cultural teams could facilitate the sharing of knowledge between Aboriginal and non-Aboriginal experts. He noted, for example, that he had learnt about different types of spinifex and their responses to fire from his work with a non-Aboriginal botanist. He commented that 'young people [should] learn about the traditional ways of burning as well as use scientific technology like these fire maps. The older people with the younger people can be involved in fire work as well as setting up fauna traps ... when working on fire issues. We could look at what happens to animals after bushfires go through, looking at ant pits and the different animals that are

living there like spinifex hopping mice and snakes.’ He suggested having ‘a fire-making competition at Yuendumu sports weekend without the use of lighters or matches, but instead using the right wood, like the bean tree.’

3.6.2 Nyirrpi

3.6.2.1 Community background

Location

Nyirrpi (Waite Creek) is located approximately 440 km west-north-west of Alice Springs and 150 km to the west-south-west of Yuendumu in sand hills in the Yunkanjini Land Trust area (Figure 3.4). There are a number of outstations and places of significance that people visit and camp at regularly, including Emu Bore, Kunajarrayi, NyiNyirrpilangu (Ethel Creek), Pilinyanu, Mina Mina and Kimayi. Of these NyiNyirrpilangu, which is approximately 80 km from Nyirrpi, has the most infrastructure, and people live there intermittently for extended periods.

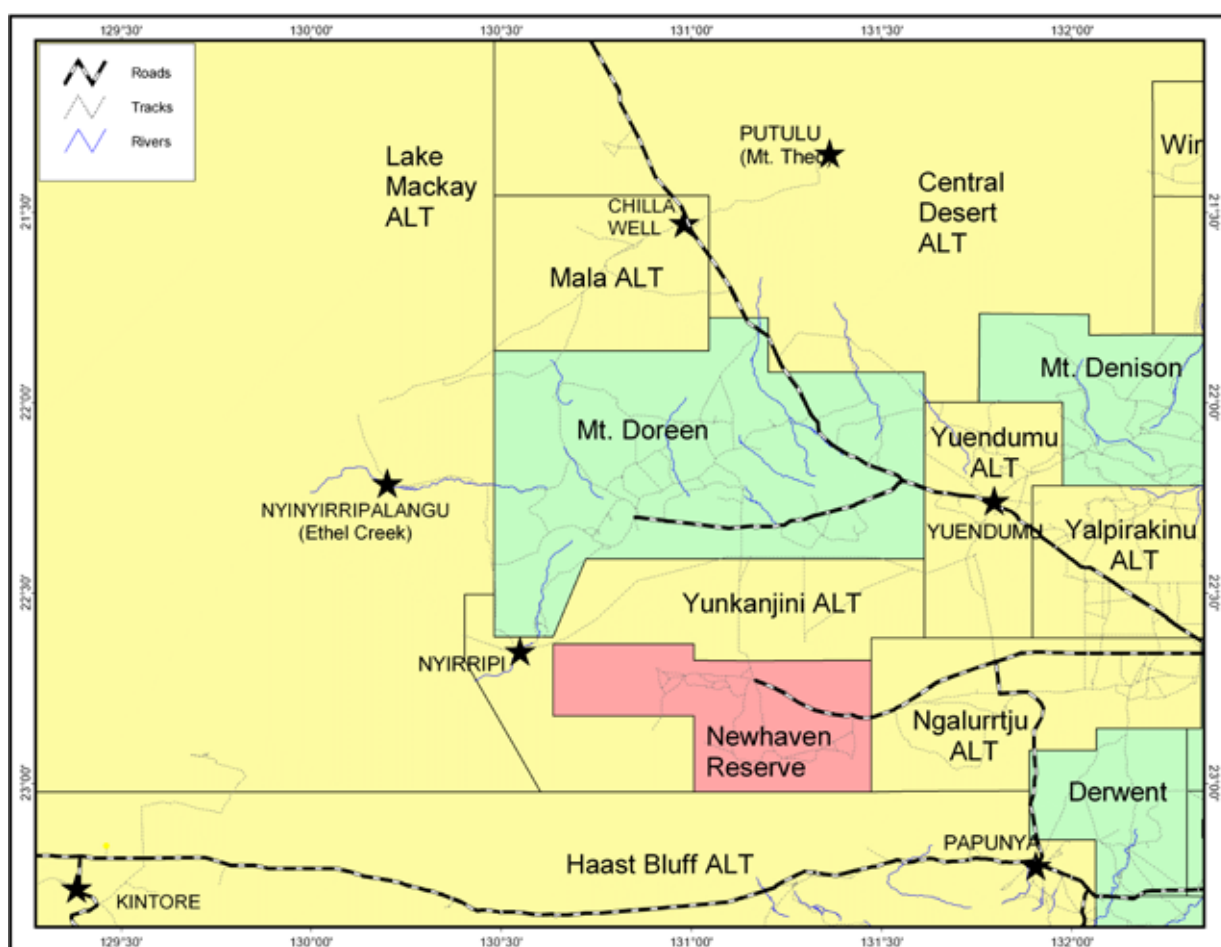


Figure 3.4: Map of Nyirrpi region

History

The first Yuendumu outstation to be established, Nyirrpi is now an independent community with a population ranging from 150 to 200. For the most part Nyirrpi residents are Warlpiri or Pintupi speakers, with many people identifying as 'Warlpiri/Pintupi mix up'. Many Warlpiri residents grew up at Yuendumu and moved to Nyirrpi in the late 1970s to be closer to their traditional lands and to avoid the problems of settlement life (Morel & Ross 1993: 38). A number of other Nyirrpi residents came from Pintupi areas to the west, where they had first contact with Europeans only in the 1950s or later. Having pursued a hunter-gatherer subsistence existence for much of their earlier lives, these older people retain detailed knowledge of cultural practices relating to their environment.

In the initial stages of development of the community, the closest store was at Yuendumu. As a result people were dependent on hunting and gathering to provide a large portion of their daily food. Foraging expeditions were regularly undertaken during which people would set fire to country to make it more productive. That people were without electricity and their dwellings consisted of tin houses or humpies meant that fire was used for cooking and heating (P. Bartlett pers. comm. 2005). The provision of serviced housing from the mid-1980s onwards and a local store means that there is increasingly less reliance on fire for domestic purposes within the home and for regeneration of bush food.

Nyirrpi people are highly mobile, travelling via established roads to Alice Springs, Yuendumu, Papunya and other Warlpiri and Pintupi settlements. One of the most frequently used roads through the area, the Yuendumu–Nyirrpi road, runs close to the southern boundary of the Mount Doreen Pastoral Lease. There is another road from Nyirrpi to Newhaven and Mount Wedge. Other tracks include the Nyirrpi–Chilla Well road and the Mina Mina track from Nyirrpi to Emu Bore, Tjikardi, Desert Bore and Kintore. While some of the traditional owners for country in the Nyirrpi region reside at Nyirrpi, others live further away at Yuendumu, Lajamanu, Kintore, Mt Leibig, Papunya and Alice Springs.



Photo 1: Desert Fire consultants Richard Tuckwell and Kasia Gabrys introducing the project to Nyirrpi community members

3.6.2.2 How people burn

Nyirrpi people typically burn when hunting, camping in and travelling through country. These expeditions are rarely undertaken alone but usually in the company of kin. Evidence of burning was noted during the Desert Fire trip undertaken in August 2005 from Nyirrpi north-west to Mina Mina. During the first hour of the trip, several recently burnt patches of vegetation were sighted as well as scattered piles of bush turkey (Australian bustard, *Ardeotis australis*) feathers. Nampijinpa, who lives at NyiNyirrpilangu outstation on Ethel Creek, commented that her son had burnt the area recently while hunting for *parrulka* (bush turkey) and *marlu* (red kangaroo). She was pleased to see burnt areas, which were evidence of her children's activities in their country. She commented that on another occasion a fire that her daughter had lit had burnt for several weeks. She pointed out new green shoots, which she said indicated 'bush tucker' such as sweet potato and bush tomato, commenting that 'All fires are good for bush tucker'.

The site chosen for the base camp during the Mina Mina trip was close to a small waterhole said to belong to Nampijinpa's grandfather.⁵ A total of nine fires were lit by Aboriginal participants while driving to and from the camp and stopping to look for places to hunt. Of these fires, two burnt for two nights, with one strong fire continuing to burn in a westerly direction until the last morning. The fires swept through mature spinifex carried by a slight wind blowing in a south-westerly direction. The temperature during the day was in the mid-20s dropping to approximately 15° at night.

On the second day of the trip women hunted in the burnt areas, digging from their burrows two female goannas (*Varanus gouldii*) and a blue-tongued lizard (*Tiliqua multifasciata*). While lighting fires during the trip, Nampijinpa sang traditional *Jukurrpa* (Dreaming) songs and recalled that in the past her father and mother also had sung Dreaming songs while travelling through and setting fire to country. Around the campfire during the last two nights of the trip the women sang *Jukurrpa* songs which they said would make the fires bigger and burn further.⁶ At one moment when a fire headed toward the camp the women sang to change its direction; by the next morning the fire had moved away to the east. Although this particular fire burnt for three days it did not register on the North Australian Fire Information (NAFI) website, which maps recent fires and fire scars using satellite imagery.

On patterns of fire activities noted while living at Nyirrpi, Peter Bartlett (pers. comm. 2006) observed that, in general, women hunt, gather, and burn country within a 20–30 km radius from Nyirrpi, with the preferred environment being lightly wooded sand-plain country between Nyirrpi community and Emu Bore. Men, on the other hand, prefer to hunt for larger game in mulga woodland to the north of Nyirrpi and near Karrku (Mt Cockburn) and have detailed knowledge of hunting tracks in the area. They tend to travel further than women and regularly drive as far as NyiNyirrpilangu (Ethel Creek), returning by a different route from that taken on the outward journey. Although Nyirrpi men rarely use fire for hunting purposes, they will set fire to spinifex if it impedes vision and/or driving. In the case of a vehicle breakdown they will light signal fires even within mulga areas if lives are at risk. Fires are generally ignited near roads, the distance from the road being related to the purpose for which the fire is lit. Thus fires lit during hunting on foot will generally be started away from the road within a kilometre of a parked vehicle. Signal fires, on the other hand, tend to be ignited in thick vegetation close to a road or track.

3.6.2.3 When people burn

According to elder Paddy Lewis, in the past people burnt during periods when it was cold and dry and not during wet or hot weather. He explained 'cold times you are right; when wind picks up [the fire] can carry on next day.' In contrast, some younger women claimed that burning was undertaken at either hot or cold times. Thus, Nampijinpa commented: 'Any time is good for burning, good for goanna and

⁵ Details were not recorded concerning the grandfather nor the basis for his affiliation to the land.

⁶ Unfortunately no further details of the songs were elicited. It is thus not known whether the songs were associated with the country which was being burnt and/or a particular fire *Jukurrpa*.

turkey; we burn in the cold most of the times but doesn't matter, we burn long big grasses like the ones burnt today. There's no good or bad times for burning.' Nampijinpa said that when lighting fires she takes into account factors that influence fire behaviour, such as wind and vegetation, commenting 'Sometimes there's little and big fires depending on the wind and how big the grass is ... sometimes we make little fires. [If we want a big fire] we burn when it is windy so the fire goes for longer.' However, she also commented that control of fire was not a major concern in her own country where there is little in the way of infrastructure to protect: 'The wind changes every time you burn, but we don't care where the fire burn from our country.'

Peter Bartlett observed that Nyirrpri people do not burn country when it is extremely hot, windy and dry. During these periods people also take precautions with hearth fires, covering embers with sand at night and during the day before going hunting to prevent their possessions catching fire. People are concerned about fuel building up in areas rarely visited and burnt, and although aware that first fires in such areas are likely to be extremely hot, they believe that the country will eventually regenerate. People understand the need for follow-up fires and patch burning to allow the country to regrow in a mosaic pattern and to withstand hot fires. As a result of continued patch burning of spinifex grass in the 20 km zone surrounding Nyirrpri settlement, women feel comfortable to burn regrowth even in hot windy weather because they know that the fire will not spread (P. Bartlett pers. comm. 2006).

In reference to discussions concerning Aboriginal fire management and the fact that older informants do not burn carelessly, Japanangka reflected that 'in the past us Aboriginal people could not burn things thoughtlessly because the bush was our supermarket, and if we burnt it down without thinking, then we would starve!'

3.6.2.4 Fire technology

Today, in addition to using matches, people trail firesticks or brands made of grass stalks across vegetation to light it (see also Nash 1990). Emphasising the convenience factor of matches, Nampijinpa explained that 'these days we use matches, by throwing it into the grass or sometimes use firesticks. But in the old days it was the firesticks because we didn't have matches. We used to carry firesticks everywhere when it was cold or even raining. We still use firestick now and then.' Paddy Lewis described earlier labour-intensive methods of procuring fire and keeping the flame alive as follows:

Firesticks – [that is what] we used to use; [we had] no matches to make fire. We used to grind two sticks to make fire and then, when that was made, we used to keep the fire burning on the firestick forever. The firestick we had for a long time. If that firestick reached the end we would light another as soon it was about to finish up. I used to go hunting for everything. That firestick would be with me. When I'd go back after hunting I would put my food down and my firestick too, then I would take a drink of water. Then I would make a fire and cook my food, I couldn't eat all of my food so I would put it away and save it. Then I would do it again every day, that's what would happen, everyday ... [One] day I walked to the waterhole and off to another place, killing a kangaroo with a spear. There was a big rain coming, so I made a hut with big, thick spinifex. I kept the fire going in the hut. Everywhere I went I kept it like that. [Once a bushfire] was so big that my father was chased by it.

It is clear that people are willingly use new technology if it helps in burning and clearing country as long as they control the process. Thus Bartlett observed that during the 1980s, access roads were cleared to potential outstation sites in the Nyirrpri region by towing a steel drag behind a vehicle and then burning collected vegetation. He also noted that:

Some older Aboriginal people, if they know they are going on a long trip in untravelled country, will purchase many boxes of matches that they will hand out to younger people, and instruct them to flick the matches out behind the vehicle when they pass through tall grasses. If there is more than one vehicle it is the last vehicle that will flick the matches out (P. Bartlett pers. comm. 2006).

3.6.2.5 Why people burn

Pintupi and Warlpiri informants are clearly aware from long-term observations of country that burning encourages plant and animal diversity and keeps the land productive. Thus it was common for people to say that they burn to encourage growth of plants and that they enjoy seeing the country rejuvenated as a result of it having been burned. For example, Nampijinpa explained:

The reason we burn is for bush tucker and nice green fresh plants. Fire is good for food, so when the fire is finished and the rain comes everything is fresh. If you burn then afterwards you get bush tomato and bush raisin, the big bush tomato. We burn for the goannas so they're good hunting places and for turkeys because turkeys land in places that have been burnt looking for little animals to eat. People shoot turkeys in those areas.

Other reasons people burn are to increase visibility and access, and to signal a vehicle breakdown. As mentioned previously, men rarely use fire for hunting purposes; however, they burn spinifex to make it easier to move through. Women burn vegetation to make it easier to see tracks of prey such as cats and snakes and to access animals in their burrows. Peter Bartlett (pers. comm. 2006) observed that a variety of burning techniques are used for hunting, depending on an animal's characteristics and habitat. For example, while entrances to sand goanna burrows can be located relatively easily because of soil disturbance, their exits are hard to find, and so grass is burnt to make it easier to locate escape points. Cats require a slightly different fire technique: when hunting cats it is preferable to have a slow, contained fire that allows the hunter to follow the cat's tracks and monitor its movement as it flees the flames. Fires that tend horizontally cannot be used as successfully. In periods of high wind women who are skilled foragers do not waste time and energy following an indistinct track. Rather, having ascertained that a particular animal is active in an area they remember its location and return for it when the wind has subsided and the cat has had a chance to deposit fresh tracks.

3.6.2.6 Restrictions/controls on culturally appropriate burning

Initially, answers to questions on this topic were ambiguous. Thus, when asked about whether there were any special areas that people did not burn, Nampijinpa said, 'There are no sacred places for us where you can't burn. People next to Lake McKay used to burn into rabbit holes. Some areas you can burn, some you can't.' Napanangka helped clarify the matter, indicating that in some areas burning is controlled, for example near water sources and sacred sites. She explained that people should not light large fires close to trees of cultural value such as Dreaming trees, bean trees that are used for shade and making artefacts and trees with edible fruit such as wild fig (*Ficus platypoda*). In some cases, burning is discouraged only until a particular resource was used; for example, grass seeds and spinifex resin collected and wood cut from trees for artefacts. In relation to water sources Napanangka explained that 'when ash from grass and trees drops on water it fouls it. Unclear water is not good for drinking; and ... fire makes soakages, rockhole and creek waters go down [evaporate].' She added that they did not burn near a large body of water 'because of the snake that would frighten us'. The latter refers to a mythological serpent believed by Pintupi and Warlpiri to reside in the more permanent water sources.

Bartlett observed that men protect areas of mulga, which provide habitat for kangaroos, because they believe that by diminishing mulga they will also reduce kangaroo numbers. There are also cultural reasons for protecting mulga woodland, including the fact that it can have religious significance. It provides a space of privacy where men may perform secret sacred ceremonies and store sacred objects (P. Bartlett pers. comm. 2006). People have grave fears about fire damaging sacred sites and places of religious significance. It was explained that if a person sets fire to sacred areas they are likely to suffer retribution, not only from senior males but also from the spirits who look after the land. Thus Napanangka said that if a fire damages a sacred site:

It might explode [sacred site] Yes! Only men can sing it to calm it down and the people who make that fire will become very sick. That sacred site – spirits look after that area too. They told us at Yuendumu not to make any fire.

While people such as Napanangka use their knowledge of local weather conditions and vegetation to manage burning, they also control fire in other ways. For example, people extinguish small fires by smothering the embers with leaves. To take another example, people may use traditional *Jukurrpa* songs to change the direction of a fire.

3.6.2.7 Management laws that operate under traditional Aboriginal systems

It was generally agreed that a person should only burn country in which he/she has traditional rights and responsibilities or has permission to burn from the traditional landowners. For example, Paddy Lewis said, 'We do not burn other people's places, only family from that area can burn; so all this mob can come in and burn'. Nampijinpa commented: 'We burn on our own country because [otherwise] people might start talking. We burn our own country. Anyone can burn in their own country; all we know is that we burn our country.' It was explained that it is the role of senior landowners (both *kurdungurlu* and *kirda*) to look after country, as it is these people who know the Dreamings and have responsibility for sites of cultural significance within a particular area. Thus, while in her grandfather's country Nampijinpa commented: 'This area is the bilby Dreaming. We can burn this because that's what it's for.' Nampijinpa named CLC as the appropriate body to assist with organisation of burning on Aboriginal freehold land.

There was consensus that roads are not subject to the same norms and rules concerning burning as other areas. Thus, people accept that if someone's vehicle breaks down they can make a signal fire next to the road; however, it is expected that the fire is controlled. Paddy Lewis stated: 'You can do that anywhere [i.e. light a signal fire] and anyone can do that. When people see those fires they come out to help.' Nampijinpa added that: 'People that break down in other people's country make little fires. People take notice of signal fire from communities.'

According to Bartlett, while Nyirrpri people prefer to hunt and light fires on their own country, this is not always possible because some people's country is not easily accessible, being either too distant and/or lacking roads into the area. As a result of social links forged with traditional owners for the Nyirrpri region, Nyirrpri residents who have country elsewhere are permitted to hunt and burn in the Nyirrpri area. However, this accommodation of long-term residents by local land holders does not extend to all people: Aboriginal land holders from other areas may not burn in the Nyirrpri region without relevant permission. Indeed, Nyirrpri people expressed concern about people from other areas setting fire to country in the Nyirrpri region when no traditional owners were present. Nampijinpa complained that this had happened while a party of Aboriginal people and non-Aboriginal people was travelling north of Nyirrpri to Lapi Lapi (Thompson's Rockhole) in Western Australia. She complained that the Aboriginal people on the trip were not affiliated to the country and had no right to burn it. People emphasised that permits granted by CLC to non-Aboriginal people for entry on Aboriginal land did not include permission to set fire to country, and that strangers should not set fire to country without the involvement of traditional owners.

3.6.2.8 Distribution and transfer of fire knowledge

The research indicated that older people are most knowledgeable about fire, having learnt about fire from their parents, grandparents and other kin through verbal instruction, observation and long-term practice. Reflecting on her experience, Napanangka said: 'Our great grandmothers and mothers used to teach us about fire, how to make fire and how to use it. They used to hand the firestick to us and tell us to burn the place.' Paddy Lewis described how his father taught him to burn and hunt as follows: 'My father used to teach me how to burn; he told me to track a rabbit beside the lake and kill it with the spear. That Peg Leg taught me how to burn inside the burrows; the rabbit would come running out. We would spear them one by one each time they came out of the hole. Some times we would dig them with sticks not with crowbars.'

On the other hand, Nampijinpa, who is much younger than Napanangka, claimed not to have been specifically instructed about burning, commenting: 'Me and Ena used to walk around ourselves, two teenagers, our grandmothers and mothers didn't teach us about fire.' Although not conscious of having been taught how to burn, given the nature of Pintupi/Warlpiri sociality and the fact that Nampijinpa and Ena did not live alone, it is likely they observed others burning and learnt something of how to burn in this way. It is commonly accepted that much Aboriginal cultural learning occurs through observation and practice.

Knowledge of cultural methods of burning is being transferred from older to younger people today as indicated by Napanangka, who said: 'We do still teach our grandchildren how to burn'. However, according to Peter Bartlett (pers. comm. 2006), people are concerned that the younger generation will not maintain country through culturally appropriate burning practices, especially in the more distant areas. Many Pintupi children do not know traditional fire-making techniques, nor the Pintupi terms applied to them. He noted that many of the older generation of people who led traditional lives and for whom fire was an integral part of their subsistence life have died, and that for the most part it is now the senior Nyirrpri women who undertake culturally appropriate burning today.

As a complement to informal Aboriginal learning, members of the community have taken up opportunities for more formal learning about the environment. Thus in recent years a small number of highly successful workshops have been held at the school in conjunction with organisations such as the Threatened Species Network, Tangentyere Council and World Wildlife Fund for Nature. The workshops involved senior members of the community as well as school children and facilitated discussion of conservation issues and community aspirations regarding land management. Skills transfer occurred in areas such as GPS mapping. Some young people have also participated in research involving radio tracking of animals (P. Bartlett, pers. comm. 2006).

3.6.2.9 Fire issues, concerns and conflicts

It was found that informants feel free to set fire to country within Aboriginal freehold land; however, they regard pastoralists as anti-fire and refrain from burning on their leases. While there was little evidence of people setting fire to non-Aboriginal land, when asked about the issue people made some interesting comments. One informant claimed that Aboriginal people are not allowed to light fires or hunt birds on the Newhaven Bird Sanctuary, and that although people might not agree with the restrictions that in general they observe them. Recalling her own experience she said:

Those people at Newhaven, the old man tells the people at Nyirrpri not to burn or shoot at Newhaven. You can't shoot turkeys. We could tell them [Newhaven white fellas] off but we leave them. One time we were sitting side of the road and that Toyota came. They thought we were hunting the turkeys. And asked what that other Toyota was doing, my car, which was just turning around; we just told him that we were driving and that was it. You are probably only allowed to get goannas and kangaroos [at Newhaven].

On the other hand, a second informant claimed that the non-Aboriginal manager of Newhaven gave her permission to set fire to country but that she was fearful of doing so lest the fire escape and burn the buildings and people living there. The first informant surmised that fires on non-Aboriginal land may result from careless behaviour by drunks following a vehicle breakdown: 'People break down at Newhaven [and] they make bush fires; especially drunken people. It's broken down people or drunken people that burn at Newhaven.' Here it should be noted that informants had no first-hand evidence of people burning on non-Aboriginal land and could only repeat hearsay.

A variety of views was expressed on the destructive effects of large fires on fauna. One younger informant appeared to be unconcerned about the issue, indicating that animals most likely to be endangered had already disappeared: 'Possums are all gone. There's nothing left to protect.' Reflecting further on the matter he observed that larger animals escape fire but that smaller ones can burn: 'The animals smell the fire and escape, like kangaroos, cats and camels – they all run; but the little ones,

they get burnt or escape too.’ Older informants were aware of the potential for fire to destroy people, property and natural resources that they would otherwise use; for example, shade trees, and trees (e.g. bean and mulga trees) from which wood is taken to manufacture artefacts such as shields, boomerangs, baby and water carriers. Napanangka described Aboriginal people’s fear of hot uncontrollable fires when they lived a subsistence lifestyle in the past:

When a big wind came it widened it [fire] during big winds. It chased us and we didn’t have anywhere to run to. Yes, we were frightened, we would run during big fires with strong winds ... [otherwise] Aboriginal people might get burnt ... Yes! Yes! Leave it, it might burn us all – big hot sun burning. Me, I would run towards the cave. I can sing that fire to slow it down.

People were concerned about the build up of fuel in the more distant and inaccessible areas; however, factors such as the cost of fuel, absence of tracks and lack of appropriate vehicles equipped with radio or telephone communications prevented people from undertaking regular burning in these areas. Peter Bartlett (pers. comm. 2006) observed that while people are willing to take expensive vehicles off road for short distances, they do not want to damage them or place themselves in a dangerous situation, especially if they have no means of communication.

3.6.2.10 Livelihoods and what people would like to see happen with fire

Informants indicated that they are willing to participate in land management activities with outside agencies to share knowledge, to learn about scientific research methods, and to undertake culturally appropriate burning on their traditional countries. They want to do so, however, within a context that respects their laws and knowledge of different habitats, sacred sites and cultural geography. People require appropriate financial support, resources and assistance in order to conduct burning in accessible areas. For example, Nampijinpa commented:

We do want help with people taking us out to our place so us mob can burn. Yeah, we do need help from white people like Land Council to take us [on trips]. We need more fire burning more west, this area always gets burnt. It’s good to burn, the west is waiting for us to burn, it’s too over grown so that needs more burning. We have our names down for those kind of things so people that want to help take us to our country to burn, they can by asking the right people. They send faxes and different people ask us if they can come along. Wrong people can’t go out there, only people from those places and from their own country can go and do whatever they want with land. We don’t ask if we go to their country, it doesn’t feel right going to a whole different land. And we get upset when people get jealous. We can go to our own country to burn and to do whatever.

3.6.3 Willowra

3.6.3.1 Community background

Location

The Aboriginal community of Willowra, or Wirliyajarrayi as it is locally known, is located approximately 350 km north-west of Alice Springs on the Lander River within the former Willowra Pastoral Lease (Figure 3.5). Covering an area of 4885 km², the pastoral lease was converted to Aboriginal freehold title in 1980 after a successful land claim and is now held by the Wirliyajarrayi Aboriginal Land Trust.

The area is bounded to the north, east and west by Aboriginal freehold land, which was converted from vacant Crown land during the late 1970s and early 1980. Bordering Willowra to the south is an area of some 2589 km² known as Mt Barkly. Initially taken up as a pastoral lease in 1950, it is now Aboriginal freehold land held by the Pawu Aboriginal Land Trust. To the south-east of Willowra is the Anningie Pastoral Lease, an area held by non-Aboriginal interests since at least the 1920s. Willowra thus has only one common boundary with non-Aboriginal neighbours. In this report the phrase ‘Willowra region’

is used to refer to the region centring on the Wirliyajarrayi and Pawu Land Trust areas. The area is regarded as Lander Warlpiri country with Anmatyerre interests extending into the southern part of the region.

The researchers conducted consultations at the outstations Smokey Bore, approximately 25 km south of Willowra (between Willowra and Mt Barkly), and at Mt Bennett, approximately 140 km north-west of Willowra (to the east of Mt Theo) in the Central Desert Land Trust area. There is minimal infrastructure at these places.

The Willowra–Mt Barkly region is broadly characterised by flat spinifex scrub-lands, mulga stands and small trees and bushes on the flood plains, with the riverbed area supporting a larger variety of trees including ghost and river gums (Wafer & Wafer 1983, Young 1981). The average annual rainfall from 1947 to 1973⁷ was 235 mm (Bureau of Meteorology Government of Western Australia n.d.).

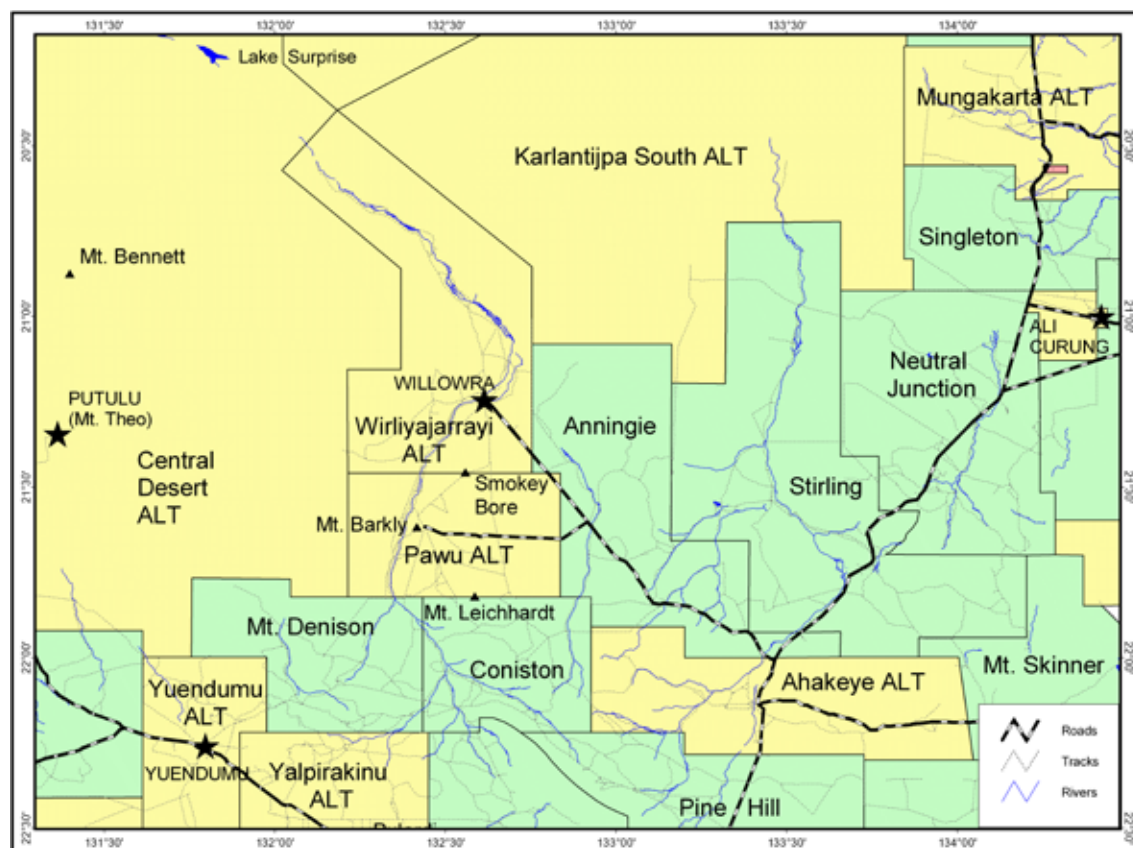


Figure 3.5: Map of Willowra region

History

Historically, Lander Warlpiri, or Yalpari as they are also called, are a sub-group of a much larger Warlpiri population. They speak a different dialect from western Warlpiri and have a strong history of intermarriage with Kaytetye groups to the east and Anmatyerre groups to the south and south-east (see Wafer & Wafer 1980). Although sharing important ties with other Warlpiri (including through marriage), their identity has always been somewhat distinct, and even today older Lander Warlpiri pride themselves on being different from Warlpiri from other areas who were relocated to settlements such as Yuendumu, Hooker Creek (renamed Lajamanu) and Warrabri (now known as Ali Curung). These differences have implications for community governance and land management issues in the region.

⁷ There are no records after this period; however, average annual rainfall for the neighbouring Anningee station in 2006 was 331 mm (http://www.bom.gov.au/jsp/ncc/cdio/weatherData/av?p_nccObsCode=18&p_display_type=dataFile&p_stn_num=0015542).

Due to the arid nature of the region it was not taken up by European interests for cattle grazing until the 1920s.⁸ Fifty years later, at the suggestion of the European lessee, the pastoral lease was purchased by the government for the resident Aboriginal population. The Aboriginal-owned Willowra Pastoral Company continued to run cattle on the property, and in 1981 they purchased the neighbouring Mt Barkly lease. As a result of the brucellosis campaign the cattle population of both places was subsequently drastically reduced. In 2007 cattle were agisted in the lower Lander River area. Given that the region is not good grazing country, economic returns from pastoral activities cannot support the local population (Young 1981). As at Nyirripi and Yuendumu, a small number of Willowra people are employed in the school, clinic, office and store, with the remainder on CDEP. While some people receive income from the sale of paintings, unlike Yuendumu Willowra does not have an art centre, and sales are sporadic. Although there are currently no mines in the area, mineral exploration is ongoing.

The comparatively late and sparse European settlement of the region has meant that Lander Warlpiri have had relatively unbroken occupation of their traditional lands, resulting in a strong sense of identification with and cultural knowledge of their environment. From the 1970s to 1990s Willowra was commonly described as an Aboriginal community of great social stability whose members adhered to customary beliefs and practices (Morel & Ross 1993, see also Young 1981:125). However, the last few years have been a period of social change and conflict, with the population fluctuating between 100 and 300.



Photo 2: Leanne Napanangka with Marilyn Nampijinpa burning for goanna

3.6.3.2 Present local knowledge of cultural geography, flora and fauna

Most middle-aged and older people have an intimate knowledge of the mythology, topography and plant and animal habitats associated with the Lander region. Prior to the late 1940s they spent most of their lives in the bush, obtaining food by hunting and gathering. Until the late 1960s, people combined a customary lifestyle with the demands of station work, supplementing rations with bush food. For example, Jampijinpa, a man in his early 50s vividly recalled travelling from Anningie station to

⁸ For background history of the area see Wafer & Wafer 1980: 20–29, Vaarzon-Morel 1995: 105 and Coombs 1993.

Willowra with his father and other family members after stock work had ceased for the season. They hunted game, gathered vegetable food and burnt country as they travelled via the creeks and rivers along the way (Maxie Martin Jampijinpa pers. comm. 2006). People continued to access their lands for camping and hunting expeditions even after the introduction in the 1970s of social security benefits, a store and a school (Young 1981: 136). Today, people continue to visit and camp out on country, targeting places for hunting trips on the basis of likely availability of food and customary rights to hunt in a particular area.

Although peoples' knowledge of cultural geography differs according to their age and lived experience, during the country visits for this research both younger and older women who had grown up at Willowra demonstrated cultural knowledge, naming Dreamings, non-restricted sacred places and types of food-bearing plants and animals to be found in different locations according to the local seasonal cycle. On the trip to Mt Bennett, people constantly monitored the ground for signs of life, identifying tracks of kangaroos and emu and other animals of note such as dingoes and camels. A senior male traditional owner of Mt Bennett also pointed out a number of Dreamings, including one associated with the major Warlpiri fire ceremony called Jardiwanpa.

3.6.3.3 Distribution, transfer, and changes in fire knowledge

Initially, the introduction of pastoral activities to Lander Warlpiri country resulted in conflict with local inhabitants, and people were discouraged from lighting fires lest they attract unwanted attention (Vaarzon-Morel 1995: 9, 53, 54). However, following changes in European ownership of the pastoral lease, Aboriginal people continued to burn country in a customary manner, keeping away from the bores and areas where stock congregated as they did so. Thus, men and women who are in their mid-forties and older learnt about fire on country as children, and are very knowledgeable about fire behaviour. However, younger people have had very different influences on their lives from those of their parents and grandparents and, in general, have less detailed knowledge of fire. One senior male informant commented that younger people today are less likely to burn country when they go hunting than did people in the past.

While people still look after country by burning, the practice is not as widespread and sustained as in the past. Reasons mentioned by informants for changes in burning practices include the need for people to remain in the Willowra community during the week for matters involving the school, store, clinic and employment; lack of suitable off-road vehicles and the increasing cost of fuel; and decreasing and limited community resources people can draw on to access outlying country. For example, a senior female informant recalled that prior to the closing of the Women's Centre in 2001, Centre activities involved regular trips to places associated with different family groups, where the women would patch burn to promote the growth of food-bearing plants. To take another example, during 2005 Napanangka lived with her mother Nampijinpa and other kin for periods at Smokey Bore outstation, where they regularly hunted and lit small fires in the surrounding country (Photo 2). The family moved back to Willowra when the relative who owned the vehicle on which she relied left for Lajamanu. Napanangka subsequently took a job at the Willowra School, further reducing her opportunities to undertake culturally appropriate burning.

3.6.3.4 Why people burn

Fire remains part of the everyday life of Willowra people today, both practically and symbolically. People use fire to cook food, for warmth, to clean campsites, to burn country and in the production of artefacts such as spears and shields. There are at least two different fire Dreamings in the Willowra region and major Warlpiri ceremonies and rituals involving fire (Vaarzon-Morel 1995: 9, Nampijinpa 1994: 23–35, Robertson Nungarrayi 1994: 73–91). Reasons people gave for burning country (the focus of this research) included the following:

(a) To ‘clean up’ country, to ‘make it green’ and ‘look good’

Women said that they burn country to make it green and to look good (*ngurrju mani*). As indicated by a number of informants, people take pleasure in burning country appropriately and seeing positive effects of burning. For example, young Napanangka commented: ‘We smell the fire burning with spinifex wax and it smells nice to us.’ Driving through country burnt a year earlier, Napaljarri commented: ‘The country looks nicer after fire.’ Women said that they ‘feel sorry’ for country that has not been burnt for a long time as it indicates neglect.

(b) To encourage rain, growth of plants and to attract animals

As noted by Nash (1990) Warlpiri people perceive a direct and causal interrelationship between fire, rain and plant regeneration. They believe that thick smoke can create clouds, leading in turn to rain and growth. As Napanangka explained: ‘Fire can make fresh clouds. When you burn big spinifex clumps it creates big clouds. They merge and create rain clouds. It rains and the country is made fresh again with grass.’ During the research women of all ages frequently commented on the regenerative effects of burning country, as in the following examples: ‘Burning makes new grasses and seeds come, makes it green’; and ‘Fire makes roots of trees come alive and rain stimulates growth’. Nampijinpa, a woman in her mid-60s, provided the following examples of plants that were encouraged by fire: *yurlumpuru* (native millet, *Panicum decompositum*), *lukarrara* (*Fimbristylis eremophila*), *warripinyi* (*Panicum australiense*), *wanakiji* (bush tomato, *Solanum chippendalei*) and *yakajirri* (desert raisin, *Solanum centrale*). People perceive a relationship between lack of burning and the absence of fresh growth and animals, and the converse.

Although women burn country for immediate gain (for example, to make it easier to track animals), they will exploit the same area for different purposes over time. Thus, women will scour an area immediately after a fire to collect freshly cooked animals such as blue-tongued lizards, returning in the following days and months to track small animals and collect bush food. Pointing out an area that had been burnt the previous year for hunting purposes and was now flush with growth, Napanangka, a young woman, commented:

Napaljarri burnt this area because she couldn’t find goanna. She burnt it to make the area new for goanna. Look, now new growth is coming from the branches. Wakilpirri [dogwood, Acacia coriacea] is coming out now, beans. Little kids have been here collecting wakilpirri. That’s our Dreaming wakirlpirri, wardapi [Gould’s goanna], wanakiji [bush tomato] and marnakiji [conkerberry, Carissa lanceolata].

To take another example, Nampijinpa commented: ‘We come out hunting after burning to get *wardapi* (Gould’s goanna, *Varanus gouldii*), *yakajirri* (desert raisin), *wanakiji* (bush tomato), and *lungkarda* (blue-tongued lizard, *Tiliqua occipitalis*).’ Women also pointed out that men burn to attract larger animals: ‘Men know that green shoots come up after a burn [and the shoots] will bring kangaroos ... and bush turkey, and they’ll go there to hunt.’ Jupurrula, a man in his late fifties, commented that ‘fires bring on green pick for emu and bush turkey and plants like bush yams, bush tomatoes and bush raisins. Yuendumu mob come up and take a lot of the bush tucker down south [the Mt Leichardt-Barkly area].’ He also noted that a lot of bush tucker grows close to areas where people live and burn on a regular basis.

(c) To increase visibility and safe access to country

People use fire as a form of protection. They will light small fires around their swags to warn off animals, such as snakes, dingoes and camels, as well as malevolent beings. They also use fire to increase visibility when travelling in scrubby and overgrown country, making it easier to follow dirt tracks, find animals in their burrows and find places of interest and see impediments such as termite mounds. In addition, fire is used to provide light at night: small fires are used to illuminate dance grounds during ceremonies (car headlights may also be used), and, out bush, to light up camping areas.

(d) To obtain non-food products

People collect scattered firewood from areas previously partially burnt. They distinguish between types of firewood according to its burning qualities. For example, during the Mt Bennett trip, Japanangka pointed out corkwood (*Hakea suberea*), commenting that in olden times it was used for firesticks that people carried around and for firewood because it burns slowly.

(e) To clean out water sources

Women said that in earlier days they would burn vegetation around waterholes just as they still do today, depending on vegetation and the spiritual nature of the water place. During the research trip to Smokey Bore Napanangka, a female in her early twenties, was told where and how to burn by older knowledgeable women, including burning grass surrounding the soakage, which the women had burnt the previous year.

(f) Fires used to create smoke for signalling

Older women described how they used signal fires when hunting and travelling in earlier times. Types of information conveyed by signalling included the presence of water, the signaller's position and/or direction of travel and impending arrival. In the early 1990s Nungarrayi, now in her 90s, described how people used signal fires while hunting and gathering in the Lander region in the first half of the nineteenth century:

We moved to another place and looked for other people on the way. We lit fires to signal that we were coming. 'Let's go and look for the others. Maybe someone is sick,' we said. Then two men went looking for their father who was at another soakage. They took one day to get there and when they arrived they said to the old man, 'We will take you back home with us ... They walked into camp together taking meat with them ... The visitors said, 'The place where we lit signals for you lot, that was the soakage where we were staying.' Then they told each other their news: 'I saw lots of yams to the north. We might go there.'

(Vaarzon-Morel 1995: 11)

Signal fires are used today by people to attract attention and help when their vehicles break down. According to senior male Jampijinpa, signal fires lit along roadsides are typically small grass fires. Although said to occur infrequently in the Willowra region, some signal fires have been known to escape.

3.6.3.5 How, when and where people burn

As indicated earlier, people still camp and hunt in areas within Aboriginal Land Trusts, and during these trips they set fire to country as they think necessary. For the most part, trips take place during weekends or school holidays and involve small groups of kin visiting country for which members of the group hold customary rights to hunt and gather. The structure of hunting activities varies according to the composition of the group and purpose of the trip. Sometimes men leave women to hunt at a particular place while they take the vehicle for kangaroo shooting. At other times a man and his wife and other kin will hunt 'together' in the same general area, fanning out in different directions from a camp site to procure different types of game and bush food. Hunting trips and country visits generally involve multiple agendas: providing opportunities to check up on country, to sing the travels of ancestral beings along Dreaming tracks, to obtain food, for conviviality and to set fire to vegetation. In addition to informal Warlpiri-initiated hunting trips, Willowra School organises 'country visits' during which children have the opportunity to visit and learn about countries associated with their descent groups. Organised by the Aboriginal staff, country visits take place during the cooler months of the year (typically August) and may involve small-scale burning of land by senior men and women.

Trips to country involving local Warlpiri are organised intermittently by the CLC for purposes such as site clearances, discussions about mining exploration and land management activities. These trips, which are made using well-equipped four-wheel-drive vehicles, often involve off-road travel to outlying

areas and may involve burning. For example, commenting on burnt patches of vegetation observed during the trip to Mt Bennett, a senior informant said he had burnt the area the previous year during a CLC site clearance, because spinifex was one metre high, dry and in need of burning. In August 2006 Vaarzon-Morel observed people setting fire to country along the Willowra–Mt Barkly road while travelling to and from a CLC meeting. In both cases people burnt country of their own volition. In the case of hunting trips, areas burnt tend to be close to outstations such as Smokey Bore, Rabbit Bore (Patirlirri), Mt Bennett and Mt Barkly (near the Jajipi soakage), and other areas accessible by road or dirt tracks. People often camp at outstations such as Smokey Bore for extended periods and burn the surrounding country to attract bush food and to clear certain soakages to access the water.

As indicated by a senior Nampijinpa woman, burning is not restricted to men nor to descendants of male members of a patriclan: ‘Both *kirda* and *kurdungurlu* can burn, people who can belong to country can burn.’ Nampijinpa commented that in ‘olden time men and women burn together – [they] still burn today. Widows can still burn on husband’s land.’ Older men and women supervise the burning of country. Thus, during a country visit made to Mt Bennett senior *kirda* Japanangka instructed young men (some of whom were Rangers) how to burn the country. The researchers noted that Japanangka:

... chose a grassy area to burn on the southern side of the mountain. Various young men were told to light the fire, starting from east to west, the direction of the wind. Japanangka told us that the fire would not travel far, which it did not, stopping before a mulga stand some distance to the west. No trees or shrubs were burnt. The young men were also lighting grass on the way back to the vehicles. Several other areas were burnt; however, none of the fires lasted long as there was very little wind and limited fuel load. Japanangka told the researchers that it was good to burn the country in preparation for rain which would bring up green shoots for animals to feed upon.

In response to questions concerning when people burn, a number of informants commented to the effect that people ‘should burn in dry time before rain and then rain will make things green.’ A middle-aged Jampijinpa also commented that it was good to burn in the colder time of the year ‘to make plenty of food’, and that ‘rain brings all the bush food out’ (see also Vaarzon-Morel 1995: 10). During the research, older women confidently instructed younger women where and when to burn, and conversely, when not to burn. In doing so they took into account factors such as time of day, wind direction and strength, type of vegetation and stage of growth, and the likelihood of them being in the area again at a more appropriate time. For example, in the early morning women burnt small clumps of spinifex only six metres from the camp, confident that with the lack of wind, cool temperature and spotty vegetation the ‘small burns’ would not spread. Later in the day when burning larger areas along a dirt track, a woman in her early twenties was stopped from burning a mulga stand and told to ‘leave it’. To take another example, when passing a section of country that had been burnt some months earlier, it was explained that it would be ready to burn again in ‘maybe in another six months.’ The area, which was burnt patches and showed green growth, extended in and along from the bush track. As in the other local case study areas, a variety of methods were used to set fire to vegetation, including use of matches, cigarette lighters and torches made of spinifex grass or wood.

3.6.3.6 Restrictions/controls on culturally appropriate burning

There are various customary restrictions and/or controls that Willowra Warlpiri continue to observe today with regard to culturally appropriate burning. They are based on norms, laws and protocols that relate to Warlpiri religious beliefs concerning the *Jukurrpa*, conceptions of place and space and social organisation. People’s spiritual and descent-based links to land provide them with rights to, and responsibilities in, land. These rights include use of economic resources of country, the right to fire country, the right to speak for country, and the right to control other people’s access and activities on country. Responsibilities include looking after country through ritual performances, the protection of sacred sites, hunting and burning country. In what follows, examples of Warlpiri cultural controls on burning are discussed.

(a) Social protocols and authority structures related to local land management: the Warlpiri land tenure system

In common with other Aboriginal people in central Australia, Willowra people believe in the *Jukurrpa*, a period when ancestral beings gave form to the land by performing song, dance and ritual acts at various sites on it. The pathways of these mythical beings are commonly referred to in English as 'Dreaming tracks'. Areas surrounding sites on these tracks constitute the estates or 'countries' with which different descent groups are affiliated. In the Warlpiri land tenure system 'country' is inherited through a system of patrilineal descent. Children of males of the descent line are called *kirda* and children of females of the descent line are *kurdungurlu*. *Kirda* are sometimes referred to in English as 'owners' and *kurdungurlu* as 'managers'; and they have different but complementary responsibilities in regard to land. *Kirda* and *kurdungurlu* belong to opposite moieties and have different subsections or 'skins' to each other. For example, *kirda* for Smokey Bore are J/Nampijinpa, J/Nangala and *kurdungurlu* are N/Japanangka and N/Japaljarri (where men's names begin with 'J' and women's names with 'N').

At Willowra, the participation of both *kirda* and *kurdungurlu* is required in the burning of country. For example, during the research a senior *kirda* for Mt Bennett insisted that his *kurdungurlu* accompany him on the visit to Mt Bennett in order for burning to take place. Indeed, the authors noted that all burning activities undertaken during the research involved both *kirda* and *kurdungurlu*. The Warlpiri system of land management is complex, and it is often difficult for non-Warlpiri to appreciate its subtleties. While the permission of both *kirda* and *kurdungurlu* is required before burning can take place within their country, factors such as seniority, gender, knowledge and affiliations to country also influence the process of decision making about land. This is partly because decisions about burning country are also decisions about the management of place: Warlpiri country is not just open space but replete with places of sacred and social significance, some of which are restricted to certain categories of persons and protected from fire. During the research, principles of hierarchy and authority were illustrated by the fact that it was senior male and/or female traditional owners who were named as appropriate people to oversee burning. For example, Jampijinpa, a senior male *kirda* for Mt Barkly, informed Desert Fire researchers that the community rangers could not undertake burning activities in his country without supervision by senior *kirda* and *kurdungurlu*.

Another example involved the same Jampijinpa speaking for a different area of country in the role of *kurdungurlu*. He warned some women in their twenties and early thirties that they should only set fire to the country for which they were *kirda* under the guidance of more senior knowledgeable women and/or men. He emphasised that there were large areas which were 'dangerous' for the young women (i.e. restricted areas containing men's sacred sites) and must not be burnt. One of the women, a Napanangka, recalled that although her late father used to burn country on the lower Lander River she is not allowed to burn there unless supervised by senior *kurdungurlu*. Her father had worked with Parks and Wildlife on the *mala* (Rufous Hare-wallaby, *Lagorchestes hirsutus*) paddock in the area. As a senior knowledgeable *kirda* he had the right to burn the area, and, indeed, by doing so was 'looking after' country appropriately. He burnt in a controlled manner, ensuring that sacred sites, of which there are many in the area, and the *mala* paddock were not damaged.

(b) Cultural restrictions on burning

Burning involves paying respect to ancestral spirit entities that are believed to inhabit different places. It is believed that the spirits can cause people to become ill if they act inappropriately. Examples of people acting inappropriately include being on country they have no rights to and have not been introduced to by senior knowledgeable people, and lighting fires without having the right and/or permission to do so. If a place has not been visited for some time, it is the norm for senior traditional owners to introduce people to the spirits of the country advising them of their presence and intention to burn. For example, during a 2004 CLC site visit with traditional owners to country on the lower Lander River, a senior

man set fire to tall spinifex grass that obscured people's vision. Prior to igniting the grass the senior traditional owner, a Jungarrayi, called out to the spirits of the country, introducing himself and telling them that he was going to burn their country.

It is considered morally wrong to burn country associated with different linguistic groups and geographic areas; that is, unless one is in the company of people from the area and given permission to burn. Senior men and women stated that 'you can't go and burn Arrernte country, other people's country, only in country of one's *warlalja* and *jurldalja*', that is, country belonging to one's close family and people to whom one is related by kinship and marriage.

In response to questions concerning strangers breaking down and the lighting of signal fires along roads in the Willowra region, people said that it would be unlikely that Aboriginal people would travel through the area unless they were related to people from the region or were invited for a particular purpose; for example, to attend ceremonies or sports events. In the latter case it is expected that people behave with circumspection and observe relevant protocols. Unlike the Yuendumu and Nyirrpi regions, which have major public roads passing through them, Willowra people have been able to maintain a degree of surveillance over people entering the region. The issue of being able to maintain control over who visits and uses one's country, including burning fires, is one reason why a number of senior Willowra people do not want major linking roads bulldozed through the area. At the same time they are keen to have the number of access roads and tracks to outlying areas increased.

Part of the reason that people should not burn country without permission and guidance from appropriate *kirda* and *kurdungurlu* is the need for Warlpiri to protect their cultural resources. There are restrictions on burning sacred sites (including those designated as men's restricted sites and sites that may be visited by both men and women), trees of spiritual (*Jukurrpa*) importance (which may or may not be named), and trees deemed to be culturally significant for other reasons such as their economic value, age and size. *Jukurrpa* trees may occur individually or as a stand, and even important *Jukurrpa* trees that are dead remain protected. Examples of trees in the Willowra area that are *Jukurrpa* and are protected include certain stands of mulga, paperbark (*Melaleuca glomerata*) and bloodwood trees (*Eucalyptus terminalis*). To give another example, women of all ages said that they do not set fire to the larger gum trees (for example, ghost gum *Eucalyptus papuana* and coolibah *Eucalyptus coolibah* ssp. *arida*) on the banks of the Lander River, many of which provide homes for native bees and are regarded as *Jukurrpa* trees. At the same time, women acknowledge that the trees are occasionally burnt in big fires caused by lightning strikes. In this area, at least, the lightning strikes are regarded as *Jukurrpa*. Napanangka explained 'That's *Jukurrpa* – it happened in the old days and is still happening today.' Although accepting lightning fires, men will check up on country struck by lightning to inspect damage. A Willowra Community Advisor observed that in early January 2005 'there were a lot of lightning strikes, with the older people knowing where these lightning strikes were and travelling to them.'

Young people are not always conscious of the spiritual significance of trees; however, the fact that older knowledgeable people supervise burning of country means that sacred trees and thickets are afforded protection. Senior traditional owners may carefully burn off grass around such trees and sites to protect them.

In addition to restrictions on burning certain *Jukurrpa* places as described earlier, senior Warlpiri emphasised that 'you can't burn burial grounds.' While there are designated burial grounds near the Willowra community, there are also burial grounds in outlying areas. Cultural beliefs concerning mortuary practices and death have meant that the location of many of these places is not widely known beyond the local Warlpiri population, nor are their boundaries marked off from the surrounding countryside as, for example, in the Alice Springs cemetery.

3.6.3.7 Current fire planning involving Warlpiri and Desert Fire researchers



Photo 3: Freddy, Greg and Sammy Williams discussing fire sensitive areas with Kasia Gabrys



Photo 4: Maxie Martin Jampijinpa drawing areas on Willowra map that are not to be burnt

Formal fire planning at Willowra took place in the context of two consultations involving Warlpiri and the researchers (Photos 3 and 4). The first planning session occurred in May 2005, when the researchers undertook a two-day initial consultation trip with Japanangka and young male members of his family to their traditional country near Mt Bennett, which is approximately 200 km north-west of Willowra in the Central Desert Land Trust area. Access to the area was by a rough dirt track, resulting in several flat tyres on the way. Following discussions about areas to burn, traditional owner Japanangka identified a large area he wanted protected from fire for cultural reasons, and selected other areas for burning. Limited fuel load, lack of wind and patch burning ensured that the fires ignited by Japanangka and the young men did not escape. As part of learning activities associated with fire planning the young men were taught how to use a GPS, and they recorded the locations of the protected areas and sites where fires were lit during the trip. A large burnt area approximately 140 km west of Willowra was thought to date to early 2004.

The second formal planning session took place at the request of Jampijinpa, a senior *kurdungurlu* for Willowra, who wanted specific areas protected from fire. The designated areas contained places of cultural significance (including burial grounds), infrastructure and an area of several square kilometres set aside for a proposed cattle project. Subsequently a map of these areas was produced for the community (see Appendix 5 for an edited version of this map). Jampijinpa gave instructions that community rangers should not undertake burning in the designated areas. He said that people could still undertake culturally appropriate burning away from the foraging range of the cattle.

3.6.3.8 Bushfires NT workshops

A trial Bushfires NT fire workshop was held at Willowra on 31 August 2005 to raise awareness of fire issues and develop skills in fire management and prescribed burning techniques. Significantly, it was the first to be held in the southern Tanami. Participants included 12 Willowra Rangers (both male and female), two representatives from Bushfires NT and two Desert Fire representatives. Activities included a PowerPoint presentation; practical training in fire suppression and the creation of fire breaks using hoses and drip torches; and discussions about people's fire concerns, the role of Bushfires NT and ways the organisation can support Aboriginal communities.

The PowerPoint presentation stressed the importance of taking responsibility for fire by understanding its danger; managing fire on one's own land by using prescribed burning on boundary lines and other areas; not burning on other people's land; understanding appropriate times to burn; and the various techniques, skills and equipment required to apply good burning strategies. The history of fire at

Willowra over the last five years was illustrated using fire history maps and satellite imagery. Practical training was provided in an area selected by traditional owners approximately 8 km from Willowra near a waterhole. Following an explanation of the significance of wind directions to prescribed burning, the mostly young Warlpiri participants dampened the perimeter of the area to be burnt and ignited control lines with drip torches.

3.6.3.9 Fire issues, concerns and conflicts

Senior Willowra men expressed concern at the possibility of large fires burning out of control and damaging sacred sites and other places of social, environmental and religious significance. In addition, there was a general concern about the possible threat of uncontrollable fire to human life, personal property, stock and related infrastructure. People were interested in receiving support to burn less-accessible areas where the fuel load is building up. At the same time informants did not want fire management plans imposed on the community by outside agencies.

It was also stressed that land management proposals would not be considered unless there had been appropriate consultation with senior traditional owners for the land in question. As mentioned previously, people's right to speak for country varies depending on the nature of their descent links to the area, their seniority and their knowledge of country. At the close of the workshop, a senior male member of Willowra Council expressed deep concern about young men 'just burning anywhere', ignoring local authority structures and land management protocols. He emphasised that community rangers and other youth must get permission from the appropriate senior Warlpiri men and women before they undertake burning. In regard to this issue, it was also reported to the researchers that before this study began, inadequate consultation over the fencing and burning of an area resulted in conflict between senior *kurdungurlu* for the area and the community rangers proposing to undertake the activities. Neither the community rangers nor the non-Aboriginal coordinator of the project were aware that parts of the targeted area were restricted to certain categories of persons. When senior male owners became aware of the proposed activities, they called a halt to the ranger project. In the event the matter was resolved; had this not been the case, it could have led to the cessation of all ranger-based land management activities in the area.

Warlpiri distinguish between culturally appropriate burning and fire used maliciously out of jealousy, revenge or some other motive to destroy property belonging to other people. While there was little evidence of such arson, an anonymous fire incident was said to have occurred in 2003 that resulted in a tractor being burnt outside the community, causing distress. Arson attracts community comment and censure and is regarded as a matter for police.

Concerns were expressed during the Bushfires NT workshop about the lack of fire-fighting equipment and fire response units at Willowra and the need for funding of fire mitigation programs. It appears that a decade ago Willowra community did have a fire response unit but there was insufficient funding to maintain it.

3.6.3.10 What people already understand about 'western scientific burning' and where and how accessible this information is

Apart from information obtained during cross-cultural land management activities such as community ranger and conservation programs, Willowra people have had little exposure to scientific ideas about burning. However, they are concerned about some of the same issues, for example, burning to promote habitat and feed for animals. As mentioned earlier, they also acknowledge the need for more frequent burning of places not burnt for a long time in order to protect sacred sites and trees and to regenerate country. However, while some people were worried about the impact of very hot fires on plants and animals resulting in the loss of baby birds and animal young, it is commonly believed that the roots of many plants can withstand hot fire underground. As noted earlier, people asserted that many burnt

trees and bushes grow again following rain and they pointed out fresh foliage growing from the trunks of trees. Some informants observed that burrowing animals escape large fires by hiding in their dens. There is also a perception that large fires can be beneficial because they can result in rain.

However, discussion of the impact of large, hot fires on the environment was complicated by the fact that terms such as 'big' and 'hot' are highly relative. Although fires that could be described as 'big' and 'hot' have swept through the Lander area in the past, regrowth has occurred in the affected areas. Moreover, people accept the inevitability of large fires and even older people stated that, for as long as they could remember, there have always been big fires, including in the *Jukurrpa*. One man described a big fire that swept through the Mt Theo area when his mother was young, and observed that 'big fires come through sometimes because of lightning and you cannot stop them'.

3.6.3.11 Livelihoods and what people would like to see happen with fire

Much interest was expressed in livelihoods connected with fire, particularly with regard to activities that incorporate hunting and gathering practices, customary burning of the more inaccessible country and the transfer of cultural knowledge about the environment from the older to younger generations. It was suggested that young people could video older people talking about their fire practices and understandings while conducting burning. Some men suggested that some, but not all, burning expeditions be structured according to gender, enabling men and women to address their particular cultural concerns separately. Younger people are interested in continuing community ranger work, supervised by relevant senior knowledgeable traditional owners. In relation to this issue, when asked if they wanted to assist with controlled burning at Newhaven, only one community ranger, an older man, indicated interest, justifying his involvement on the basis that he had traditional connections to the area. Others were reluctant to be involved in activities on country to which they had no traditional rights.

There was interest in learning new fire management techniques such as those taught during the Bushfires NT workshop. It was noted that people enjoy working with maps of country, and that given the depth of older people's knowledge of local topography and plant and animal habitats it may be productive to combine use of a Geographic Information System (GIS) and other mapping with on-the-ground research. One senior man, a Jupurrula, was keen to map bush tucker plants, threatened plant communities and fauna species.

3.7 Discussion: overview of themes and issues

3.7.1 Aboriginal fire knowledge

It is commonly thought that European occupation led to the rapid abandonment by Aboriginal people of their traditional subsistence economy and related practices such as burning. This study found that, despite changes, there are substantial continuities in Warlpiri and Pintupi beliefs and practices concerning fire, with people retaining multiple uses for fire, including as a tool for resource management. Moreover, it cannot be assumed that there has been uniform decline in people's fire knowledge. In reality, the story is much more complex. Factors such as age, gender, life experience and history of land use (both Aboriginal and non-Aboriginal) contribute to variation in people's practical fire knowledge. Thus, while there are broad similarities in the historical experiences of Aboriginal people in the southern Tanami, there are also significant differences between Warlpiri who grew up at government settlements, Warlpiri who lived on cattle stations such as Willowra, and Pintupi who had first contact with Europeans in the 1960s (and in some cases, much later). Older men and women who led relatively traditional lives in their youth are most knowledgeable about fire today, and there are still such people living at Nyirrpi, Yuendumu and Willowra. While younger people are not learning about fire in the same way nor to the same extent as in the past, older people are passing on aspects of their knowledge to younger generations, particularly within the Willowra community and, it appears, to a lesser extent at Nyirrpi.

Research at Willowra and Nyirrpri revealed that older men and women, in particular, are knowledgeable about the role of fire in plant regeneration. They consider that burning increases the availability of bush food, with many possessing an intimate knowledge of the effects of fire on various plant and animal species. Fire continues to play a key role in contemporary hunting and gathering, both directly and indirectly, with burning being used for both immediate and longer-term effects. Knowledge of fire techniques today includes not only using fire as a tool for hunting and gathering, but also the control of hot fires in certain areas such as sacred sites or other places of cultural value.

The proper use of fire is regarded as a way of looking after country, which for Warlpiri involves interrelated physical, spiritual and human dimensions. People's knowledge of fire is situated knowledge, and we found that many find it difficult to articulate their fire knowledge meaningfully in English and in the abstract. Statements which at face value may appear simple can involve moral sensibilities and concepts of wellbeing concerning people and country which are very different to those held by non-Aboriginal people. Apart from the practical context of burning and stories of particular events involving fire, Warlpiri fire knowledge is conveyed to people through rituals involving dance and song and *Jukurrpa* narratives. There was limited opportunity to pursue these avenues during the current research.

3.7.2 Why, who, how, when and where people burn

3.7.2.1 Reasons for fire use today

Although there have been changes to people's use of fire over the past century, fire remains ubiquitous in the lives of people of the southern Tanami today. In the context of domestic life it is frequently used for cooking food, for warmth and to clean campsites. People also use fire to provide light and for safety reasons, to warn off snakes, dingoes and malevolent beings. Fire has symbolic significance in Warlpiri culture and is used in rituals marking stages in the life cycle. It is also used for other purposes, for example, by men in the production of artefacts such as spears and shields, and to rejuvenate the physical environment. While the findings of this report mostly relate to fire and the environment, Warlpiri perceptions of observable phenomena often encompass the spiritual realm (this was also noted by Bradley (2001) for Aboriginal people further north). Thus, even the burning of country by Warlpiri for what Europeans might term 'ecological' reasons (for example, the promotion of plant growth) may involve socio-religious considerations.

Other commonly cited reasons for setting fire to landscape were to clean the country, to make it green and look good (*ngurrju mani*), for growth and increased productivity of native plants and animals and as a tool for hunting. Clean country is country that is regularly burnt and free of long grass and undergrowth so that it is easy to move around on foot. For Aboriginal people, country that looks good is not necessarily already green, but may be in the process of rejuvenation, blackened by a burn or with new growth interspersed with older patches of vegetation. People take pleasure in engaging with the country through burning. They express sorrow for country long unburnt, as this indicates lack of human activity. People reported setting fire to country to increase visibility when travelling and to make it easier to find and access places of interest, including water sources. People light grass fires on the side of roads to signal vehicle breakdowns and attract assistance.

Women, in particular, burn spinifex grass to make it easier to follow the tracks of small animals and find their burrows. Perceiving a relationship between lack of burning and absence of small animals, people burn to encourage growth of different plants and grasses which in turn attracts animals such as lizards, turkeys and kangaroos. People also obtain firewood after a burn. Significantly, there was convergence between Warlpiri and environmental research perspectives concerning the relationship between regular burning, plant regeneration and increased productivity of country (including both plants and animals). While this area is relatively well-researched from a scientific perspective, less is known about the Aboriginal view of the effects of burning on the environment.

Today most burning of Aboriginal land occurs during the course of hunting expeditions on weekends or school holidays, or during trips to country undertaken for cultural reasons such as site visits, clearances and school camps. It was noted that while a trip may be designed with a specific purpose in mind, in reality it is likely to be multifunctional with people checking on country, hunting and burning as the opportunity and/or need arises.

There was considerable overlap between findings from the literature, interviews with non-Aboriginal informants, and the local case study findings as to why Aboriginal people use fire. Reasons for Aboriginal burning discussed in the literature and by non-Aboriginal informants include to make the land more productive, to 'clean up' country, for ease of access, for maintaining grasslands, for hunting animals (including introduced species), for ceremonial and religious reasons, for protecting certain areas, such as sacred sites and infrastructure) from wildfires, for warmth and cooking and to signal one's presence and activities on country.

Comparisons between the responses of Aboriginal people and non-Aboriginal people interviewed for this study, however, reveal different emphases on reasons for burning. Non-Aboriginal people tended to emphasise roadside burning during vehicle breakdowns as the most common reason why Aboriginal people burn nowadays. Yet, while this was mentioned by Aboriginal people it was not the most commonly cited or important reason for burning. At least one non-Aboriginal person thought that some young people might burn for fun or out of boredom, and there was speculation that people might burn while drunk for revenge and retribution. In relation to the latter there were only two reports by Aboriginal people of property being burnt, and in both cases it was Aboriginal property burnt by other Aboriginal people. While some non-Aboriginal people considered that Aboriginal people burn country for no apparent reason, the local case studies indicate that, with the possible exception of drunks and children playing with fire, when most people set fire to country they do so purposefully.

The local case studies indicate that Warlpiri often burn country with more than one purpose in mind, long having observed the immediate and longer-term effects of burning. In relation to this point, botanists such as Latz have noted that apparently unintentional environmental benefits may result from Aboriginal fire practices. For example, by burning around areas such as watercourses, certain sacred sites and mulga stands, there is a greater chance for habitat of various fauna to be protected from large, hot fires. Although the literature tends to differentiate reasons for burning country according to practical economic, ecological, cultural or religious reasons, the reality is that for Warlpiri there is overlap between these different categories. Thus, even the burning of vegetation for so-called economic reasons, such as hunting, generally involves cultural and religious considerations and is considered to be a way of looking after country.

3.7.2.2 Who can burn

Questions of who can burn and/or instruct others to burn an area relate to Warlpiri social organisation and land tenure. The Tanami is comprised of different estates or countries within which there are places of religious significance for which different groups of people have rights and responsibilities. Membership of the groups is based on a system of patrilineal descent. In this system the descendants of male members of the patrigrup are called *kirda* and children of female members of the group are called *kurdungurlu*. Burning should not take place on country without the involvement and supervision of knowledgeable senior *kirda* and *kurdungurlu* for the country. Gender is also an important consideration. Consultation with senior male traditional owners is important to ensure that men's sacred sites are not encroached upon, and where women are associated with a particular site, senior women must be involved in consultations over proposed land management activities that could affect the site.

At Willowra and Nyirripi it tends to be older men and women who direct the burning of country in culturally appropriate ways, either lighting fires themselves or instructing younger people to do so. Little information was obtained on this question at Yuendumu. Young children learn about fire from

female kin, who chastise them for lighting fires inappropriately. The local case studies revealed that while children may play with small fires, they are normally in the company of responsible adults and it is unusual for them to set fire to country unless directed to by adults.

3.7.2.3 Fire technology today

The research revealed that people continue to burn vegetation in the customary manner, using new technology as befits the particular context. People use matches or cigarette lighters to directly set fire to spinifex, sometimes flicking lighted matches into spinifex grass from the last vehicle of a convoy while travelling through Aboriginal land. They also light firesticks and grass torches, which they use to ignite vegetation in the traditional manner. In addition to these fire techniques, senior knowledgeable men and women may employ the power of traditional songs to influence the size, direction and spread of a fire.

3.7.2.4 Factors affecting people's decisions to fire country

Among non-Aboriginal informants there was no consensus as to when Aboriginal people set fire to country, either in relation to the past or present. Views on this topic also varied in the literature. Some non-Aboriginal people reported that Aboriginal people burnt all year round while others thought that, in contrast to the more western approach of burning after the rains, Aboriginal people burnt during the cooler times prior to rain.

The local case studies indicate that for Warlpiri today the ideal time to burn is in the dry season around August/September, when the prevailing wind is from east to west and before summer rain. However, when deciding whether to set fire to country people also take into account other factors that influence fire behaviour: for example, height and density of vegetation (fuel load), wind direction and strength, temperature, time of day and the previous fire history (for example, whether it has been continuously patch burnt). Decisions to burn may also be influenced by social considerations, for example, proximity of a burn to a community, presence or absence of desired animals, whether people have customary rights to burn an area and the likelihood of the right people being in that area again at a more appropriate time. It may be for these reasons that one informant declined to conceptualise culturally appropriate burning using absolute terms such as 'good' or 'bad' time. That said, in general people do not set fire to country when it is extremely hot, windy and dry. Environmental considerations, however, may not always be uppermost in people's minds when deciding to light a fire. For example, in situations of potential danger (e.g. a vehicle breakdown) men may light signal fires to attract help when fire otherwise would be considered inappropriate. Yet even in this context, it is unlikely they would further endanger their lives by totally ignoring environmental conditions.

3.7.2.5 Strategies for controlling unwanted fire

People felt that there was not a lot they could do to extinguish bushfires caused by lightning or carelessly lit fires that had escaped. Fires are generally left to burn out. To prevent unwanted fire in times of high risk, people cover burning embers from a cooking fire with sand and they may smother escaped flames by beating them with branches. When threatened by fire, older men and women may sing *Jukurrpa*, using the power of the song to change the fire's direction. While back-burning was not observed during the research, it was noted that people burn vegetation to create fire breaks, for example, around camps and houses, and to protect certain areas from hot fire. The local case studies reveal that while Aboriginal people – especially those who are middle-aged and older – freely light fires, they do not do so carelessly. They burn with purpose, using techniques derived from a hunter/gatherer mode of production and observing cultural protocols passed down from one generation to another. This constitutes the main method of preventing dangerous fire: helping to ensure that fire is beneficial.

3.7.2.6 Changing burning patterns

Interviews with non-Aboriginal people revealed some misconceptions about current burning practices in the southern Tanami region. While some were aware that Aboriginal people continue to burn in a customary manner, others thought that burning was not relevant to people's lives and as a result they no longer knew how to burn properly. The latter view creates a false dichotomy between past and contemporary burning practices and does not reflect the local case study findings of important continuities. This is not to say, however, that there has not been change and that burning occurs today on the same scale as in the past. It is clear from all sources that there are significant differences in the extent of land burnt today and the frequency with which it is burnt when compared with earlier periods.

There was no consensus among the non-Aboriginal informants or in the literature as to how Aboriginal patterns of burning have changed since pre-contact times. Some non-Aboriginal people thought that people burn larger areas today than in the past because more people are travelling longer distances in vehicles. There was a concern that these larger fires burn out the same areas continually, resulting in decreased biodiversity. Others claimed that on Aboriginal lands people burn smaller areas than in the past, because men no longer use fire to hunt large animals and women mostly conduct small-scale burning around communities, thus increasing the likelihood of large, hot fires in distant areas. Both the literature and the Nyirripi case study indicate that men are more likely than women to burn larger fires in more remote areas. However, at Willowra, while women may hunt and burn separately from men, they also undertake extended trips on country together when patch burning occurs. While some gendered patterns of burning emerged, the topic would warrant further investigation.

It was often assumed by non-Aboriginal sources that Aboriginal people were responsible for most fires along roads, with little mention made of lightning or other agents. Some non-Aboriginal people speculated that it is mostly young Aboriginal men aged 18–25 who burn along roads; others thought that middle-aged men are more likely to be mobile and burn along roads, while another pointed out that young women may also be burning along roads given their increasing access to cars. Discussions by non-Aboriginal people of burning along roads often did not differentiate between major roads used by the public at large, public roads used mainly by Aboriginal people and bush roads or tracks used predominantly by Aboriginal people within Aboriginal land. Factors such as type of road, tenure of land surrounding a road or track, proximity of a road to pastoral or other non-Aboriginal land and reasons for travel are relevant to discussions of Aboriginal burning strategies and conflicts surrounding burning. For example, around Willowra patterns of burning are influenced by factors such as likely availability of particular types of bush food, the composition of a hunting party, and people's affiliations to land. Patch burning while hunting along dirt tracks in this area is likely to be far less contentious for non-Aboriginal people than if drunks carelessly set fire to pastoral land adjacent to a major highway. While mobility is clearly related to burning patterns, to date little has been written comparing past and contemporary Warlpiri patterns of travel (including who travels and why they travel) and how this relates to changes in burning regimes.

In general, Aboriginal people feel free to burn on Aboriginal freehold land but refrain from doing so on non-Aboriginal land. People access Aboriginal land for hunting, gathering and burning via dirt tracks and public roads, making detours into surrounding areas. Therefore the network of roads and tracks in a region will influence patterns of burning: the more inaccessible the country the less often it is burnt, while many areas surrounding residential settlements, outstations and roads attract frequent burning. Large areas of the Nyirripi region lack access tracks and are not regularly burnt. In contrast, a good network of tracks in the Willowra region means that people can access much of the country in the old pastoral lease area, although there are few roads in the adjoining Central Desert Land trust area. Extensive cross-country travel tends to occur only when people are equipped with four-wheel-drive vehicles, long range fuel and water tanks and radio or telephone contact, as for example, during CLC trips.

3.7.2.7 Cultural norms, rules and protocols concerning fire use

The primary focus of Aboriginal people in the southern Tanami with regard to burning is on cultural and natural resource management. For Warlpiri and Pintupi these are intimately related, with spiritual and social considerations influencing decisions about the physical environment. They believe that the customary law which they observe today in relation to the management of land was laid down in the *Jukurrpa*, the period when ancestral beings ‘brought order, meaning and obligation to the world, so that all of its constitutive elements, natural and human, became amenable to common lawful processes and regularities’ Meggitt (1972: 71). Customary law encompasses both ‘explicit social rules’ and a ‘morally right order of behaviour’, both of which are enforced by senior men and/or women of the community (Meggitt 1972). The research revealed a range of Aboriginal customary rules, protocols and prohibitions that inhibit and shape Aboriginal burning practices in the southern Tanami today and which relate to local systems of land tenure.

As noted in the literature for Aboriginal people elsewhere (for example, Myers 1986), Warlpiri concepts of country differ from those of non-Aboriginal people in numerous ways. Warlpiri believe themselves to be descended from ancestral *Jukurrpa* beings who gave form to particular areas of land, and whose essence continues to imbue sacred sites in these areas. These areas are referred to in English as ‘estates’ or ‘countries’ and their ownership is determined by patrilineal descent. Although Pintupi land tenure is different from that of Warlpiri, there are similarities. Ancestral spirits that inhabit different countries are believed to have the capacity to inflict harm on people if country is treated inappropriately.

Commonly, restrictions on burning can apply to sacred sites, stands of trees (such as mulga) and individual trees that are deemed to be culturally significant for religious or other reasons. Restrictions may also be placed on burning vegetation around certain water sources, with only particular people being allowed to do so. Restrictions inhibiting burning are perhaps most stark where gender restricted areas are concerned, for example, ritual storehouses, ceremonial grounds and, as mentioned already, sacred sites. If people violate these restrictions, they risk retribution from not only humans but also from the spirits of the land. As noted by Bradley (2001: 301) for the Yanyuwa of the Gulf of Carpentaria, ‘fire has a good ecological effect only if it is used properly and with proper emotional relations and respect for spiritual power’. Warlpiri also prohibit the burning of traditional burial places.

Burning restrictions can vary according to context and with different categories of people. Moreover, the restrictions may have the character of customary ‘rules’ readily articulated by senior culturally knowledgeable people, or they may be taken for granted and be part of the accepted way of doing things. The question of who can burn and/or direct others to burn a particular area partly relates to the structure and distribution of religious knowledge in Aboriginal society. Thus, not all the members of a descent group affiliated with a particular country have the same rights to make decisions about country. As mentioned earlier, these rights are vested in the senior knowledgeable men and/or women (including both *kirda* and *kurdungurlu*) of a descent group, depending on whether the places in question are associated with men or women, or both.

The context-dependent nature of Warlpiri protocols and restrictions on burning can seem frustrating to outsiders. Their apparent variability coupled with the fact that they are not written down and codified as are European fire ‘laws’ can make them seem ambiguous or contradictory, with the result that they may be dismissed. Yet Aboriginal cultural beliefs and practices concerning the landscape and fire have major implications for outside parties wanting to become involved in fire management on Aboriginal land. Lack of understanding about and willingness to incorporate Aboriginal systems of land management could result in damage to Warlpiri places of significance and undermine collaborative attempts for fire management in the region.

3.7.3 Fire perceptions, issues and conflicts

Warlpiri were rarely aware of or concerned about fire issues outside of their lands. They considered that, for either cultural or practical reasons, they had little control over burning that occurred outside their country. For Aboriginal people in the southern Tanami region, major conflicts over fire arose when the ‘wrong’ people burnt their country, thus risking damage to cultural and natural resources, including sacred sites and other places of cultural significance. Violation of cultural protocols concerning Warlpiri land management can lead to serious social conflict among Warlpiri, which can undermine and disrupt collaborative fire management attempts.

3.7.3.1 Roadside ignitions

Although many non-Aboriginal people perceived road-side ignitions as the major source of conflict over fire, this was not the case for Warlpiri. While it was of some concern, it was not the major issue for them unless wildfires burnt within their country. Although Aboriginal people were frequently held responsible by non-Aboriginal people for roadside fires, neither non-Aboriginal informants nor the literature attributed wildfires started alongside roads to drunks. Here it should be pointed out that there is little evidence available as to the identity of people lighting wildfires beside public roads. Moreover, while some non-Aboriginal informants perceived roadside ignitions negatively, claiming that they reduced plant biodiversity by increasing the spread of the highly flammable buffel grass along roadsides, others claimed that burning along roadsides created fire breaks, which helped prevent large hot fires spreading across even wider areas.

As previously mentioned, Warlpiri use roads to access country, frequently patch burning along them. They consider that in cases of vehicle breakdown, it is legitimate for people to light controlled signal fires along roads in Aboriginal land to attract help. However, while it is acceptable to light small signal fires near the road corridor, concern was expressed about people venturing further away from the road to burn unless they possessed customary rights in the area. In response to questions about Aboriginal people lighting wildfires along public roads in the Nyirrpī–Yuendumu region, some informants surmised that they may have resulted from careless roadside ignitions.

There is evidence that people’s ability to maintain surveillance over who uses roads and ignites fires beside the roads is greater in areas where there are no major public roads linking settlements and towns. At Willowra, Warlpiri informants thought it unlikely that Aboriginal strangers would travel through the region unless invited by people with kin links to the community. People said that they inspect fires; if a roadside fire escaped, they would find out who lit the fire and their reason for doing it. The close-knit nature of Aboriginal settlements coupled with the fact that Aboriginal people are keen observers of the landscape means that they are likely to learn the identity of a person who lights a bushfire if it is in relatively close proximity to a settlement. The research revealed, however, that the more distant a fire, the more anonymous it is, and the more likely people assign responsibility to someone from the settlement nearest the fire.

It is difficult for Aboriginal people to control outsiders lighting fires beside public roads such as the Tanami Highway. The latter passes through country belonging to many different Aboriginal groups and is used regularly by a wide Aboriginal and non-Aboriginal public. It is thus possible that non-locals are responsible for some of the roadside ignitions and wildfires that occur in the southern Tanami. At Nyirrpī, there were complaints about Aboriginal people setting fire to country for which they had no traditional rights. At the same time, both the literature and non-Aboriginal informants pointed out that many fires in the southern Tanami are started by lightning.

3.7.3.2 Bushfires NT: laws and restrictions

Most Aboriginal people interviewed for the local case studies were unaware of the nature of bushfires laws and restrictions, although some had heard of people arrested for burning on pastoral properties. This did not mean, however, that they profligately set fire to other people's land. Most respect the fact that pastoralists do not want Aboriginal people burning their pastoral leases and said that they refrained from doing so.

There is potential for conflict between Warlpiri and Bushfires NT over burning, given that the latter prohibits burning from October through to March and Warlpiri do not confine burning to a particular time of the year. This is a major area of concern because in undertaking customary burning on their lands, Warlpiri run the risk of being prosecuted. While in theory Warlpiri may apply to Bushfires NT for permits to burn during 'off-fire season', most are unlikely to do so given the general lack of awareness about bushfires laws. Moreover, as reported for Indigenous people elsewhere (Kull 2004: 90), Aboriginal burning is rarely planned in the abstract; rather, people burn opportunistically as they travel through country, taking into account socio-cultural factors as well as environmental considerations. In addition, low levels of literacy among the Aboriginal population and the difficulty of requesting a permit from a remote settlement, where many people do not have regular access to fax or email communication, make it difficult to obtain permits to burn.

3.7.3.3 Concern about wildfires

People accept that fire caused by lightning occurs with relative frequency, is inevitable and is part of the natural order. Uncontrollable destructive fires feature in Warlpiri mythology, and some older people have vivid memories of escaping such fires themselves. Adults were fearful of the destructive aspects of wildfire and its potential to cause damage to people, property and places and objects of religious significance. People had varied ideas concerning the effects of hot fires on the natural environment. However, the responses were limited by the fact that the issue was discussed in the abstract using highly relative terms such as 'big' and 'hot'. There was, however, a general belief in the ability of plants to regenerate after fire – even hot fires – and for life to be sustained underground in roots, seeds and burrows. In response to comments from the researchers that hot fire can seriously affect regrowth of vegetation, some Warlpiri argued that there have always been big, hot fires in their country and yet the country always regenerated. On the other hand, some people were worried about the loss of baby birds and animal young in big fires, while others observed that it can take vegetation a long time to recover after a large and intense fire. One man who had worked previously with scientists in the Tanami believed that big, hot fires could affect the survival of certain animal species. The issue warrants further exploration. It appears that many people have not witnessed the ecological devastation wrought by big, hot fires as the latter are more likely to occur in inaccessible areas not regularly burnt. Despite variation in knowledge of the effects of hot fires, people were highly conscious of the fact that culturally appropriate burning is not happening in the more remote areas and acknowledged the need for more frequent burning of these areas. Warlpiri were also concerned that some youth, who had not been taught 'the right way' to burn, were indiscriminately lighting fires that could cause damage.

3.7.3.4 Malicious fire

There were few reports of malicious fire involving the destruction of other people's property, and the examples provided concerned Aboriginal people setting fire to another Aboriginal person's property out of jealousy or conflict. The indications are that this is not something that occurs with any regularity, and when it does happen, is a matter for police. No evidence was found that Aboriginal people deliberately use fire to threaten non-Aboriginal people or maliciously burn pastoral land. Of course, what is regarded as malicious by one person may not be regarded in the same way by another. It seems that conflict over Aboriginal burning is more likely to arise in regions such as Nyirripi, where pastoral boundaries border Aboriginal freehold land and where roads used by Aboriginal people go close to pastoral land. With

regard to bushfires alleged to be lit by Aboriginal people in these areas, Warlpiri attributed blame to substance abusers and suggested that the bushfires were accidental (for example, signal fires that had escaped).

3.7.3.5 Limited means for controlling wildfire

People felt that there was not a lot they could do to extinguish wildfires, as they have limited or no access to fire response units or equipment to fight fire. While there was no fire-fighting equipment at Willowra apart from small extinguishers, at Yuendumu fire fighting was under the control of the police. Funding is required to provide and maintain equipment to fight fires at Willowra and for training in further Bushfires NT fire-fighting methods. The Nyirrpri case study did not address the issue of fire equipment and response units.

3.7.3.6 Conflict arising from mixed messages about burning by Aboriginal people

The research revealed the potential for conflict to arise between Aboriginal people and non-Aboriginal people from mixed messages about the benefits of burning by Aboriginal people in the southern Tanami. On the one hand, Warlpiri are being encouraged to burn in a customary manner by non-Aboriginal people involved in land management who share Warlpiri concerns that lack of regular burning contributes to hot fires; on the other hand, Warlpiri are aware that many non-Aboriginal people, including some police, pastoralists and wildlife personnel are anti-fire. The Bushfires NT restrictions mentioned earlier add yet another layer of complexity. Non-Aboriginal people interviewed had mixed views as to the value of Warlpiri fire knowledge and strategies, with some being highly critical of the effects of burning by Aboriginal people on the environment and having little appreciation of Warlpiri viewpoints. At the same time, there is a very real problem of conflicting information with regard to non-Aboriginal views about best fire practice. It became apparent during the course of this study that the task of creating a fire management strategy in the southern Tanami is made more difficult because the individuals and organisations concerned with the task do not necessarily have a clear, unified vision of what they are trying to achieve themselves.

3.7.3.7 The importance of observing local governance structures in collaborative fire management

For Warlpiri and Pintupi, the southern Tanami is not open space over which anyone can roam and burn, but is comprised of a vast network of places having religious and social significance for which particular people have responsibility. Importantly, Aboriginal people want to retain control over when and where they burn with regard to their social organisation, land tenure and cultural resources. For effective fire management to take place, Aboriginal perspectives and protocols concerning management of country need to be incorporated into planning processes. As the Willowra experience demonstrates, conflict can arise from community rangers or other parties undertaking burning on areas for which they have no traditional authority. It was observed that burning without the involvement of senior traditional owners can undermine local systems of land management, creating dependency on outsiders. The CLC is the appropriate body to conduct consultations with senior traditional owners regarding proposals by outside parties.

3.7.3.8 Variation in fire management and burning strategies among different Aboriginal groups

Comparisons between the local case study findings and the literature reveal that while there are similarities, there are also differences in burning strategies between Warlpiri and Aboriginal people from other socio-linguistic groups in central Australia. For example, the literature indicates that in the past more burning occurred in the sandy spinifex country characteristic of the southern Tanami than in better-watered hilly country characteristic of Arrernte country. Differences arising from variations in

ecological environments and the land tenure systems can mean that findings based on local case studies with one group may not be applicable to another. Greater attention needs to be paid to differences between groups from environmental and socio-cultural perspectives.

3.7.4 Livelihoods and what people would like to see happen with fire

Constraints on the fieldwork meant that it was not possible in this study to examine how fire management can be linked with livelihood activities except in very general terms. However, Aboriginal people expressed interest in the following fire-related activities: burning for land management using traditional strategies, work-based training in fire prevention and burning strategies from a non-Aboriginal perspective, sharing of tradition-based and scientific fire knowledge with non-Aboriginal researchers, and the transfer of Aboriginal fire techniques to younger generations. Of particular interest are livelihood projects that enable people to visit their traditional country in order to undertake burning, hunting and gathering and to teach and record Aboriginal ecological knowledge for the benefit of younger generations.

Further consultations and research are required to explore the viability of future economic fire-related opportunities. It is clear that given the lack of employment opportunities and range of problems faced by Aboriginal communities today, the introduction of livelihood projects focused around fire concerns and issues could provide an important focus and support for Aboriginal communities. Increased opportunity for people to burn both more regularly and in more remote areas will benefit fire management in the southern Tanami region. It is also likely to lead to other beneficial outcomes. For example, it will provide opportunity for older Warlpiri to transfer aspects of their ecological and religious knowledge to younger generations, increasing their practical knowledge of country. It will also provide opportunities for people to hunt, gather and obtain bush food, with the potential for better health outcomes.

Apart from suggested livelihood activities, the researchers were asked to identify types and scale of support required to increase burning. The main form of support requested was use of properly equipped vehicles and an increased network of tracks so that people could undertake burning activities in remote and inaccessible areas. Four-wheel-drive vehicles equipped with tools, adequate water provision and the means to communicate with other vehicles, police and communities are essential if the range and frequency of people's burning activities are to increase.

There is substantial Aboriginal interest in having tracks graded to increase vehicle access to remote and relatively inaccessible areas. At the same time, in addition to general concern over damage to places of cultural and natural significance (for example, biodiversity hotspots), some senior people at Willowra have raised concerns that an increase in linking roads between settlements/towns would diminish their ability to maintain surveillance over use of the roads and people's behaviour in their country. Further consultation is required with senior traditional owners of different areas in the Tanami regarding potential impacts of more tracks and roads, the routes of the roads and how provision of more roads would be part of a fire management strategy that incorporates Warlpiri protocols concerning cultural resource management. This could be undertaken by the CLC, which is frequently involved in consultations with traditional owners over mining exploration in large sections of the Tanami Desert. It may be feasible for the CLC to negotiate on behalf of traditional owners for mining companies to leave access tracks in particular areas.

Aboriginal people spoken to during the course of this research were interested in collaborating with outside agencies to manage fire in the Tanami region. In addition to collaborative fire management, a number of people were interested in sharing knowledge with scientists and non-Aboriginal people concerning Warlpiri customary burning and ideas about best practice burning from a non-Aboriginal perspective. At present, information concerning western scientific burning issues and practices is generally not accessible to Aboriginal people in the Tanami area unless they are provided with opportunities to learn in meetings, workshops or Ranger type programs.

It is apparent from the local case studies and literature that further, more detailed research on Warlpiri fire knowledge and strategies would contribute to the existing store of knowledge concerning biodiversity in the southern Tanami. However, the success of such research is dependent on culturally relevant forms of investigation and activities that take into account Warlpiri perspectives, structures and practices. It is clear from the research conducted that Warlpiri environmental knowledge is best understood by non-Aboriginal people through observation and discussion with the assistance of Warlpiri interpreters and researchers trained in both social science and scientific methodologies.

3.7.5 Awareness and responsibility for fire

The role of increasing awareness and responsibility for fire was largely confined to the core researchers and Bushfires NT, and did not involve the consultants used in this study. The researchers used visual aids, including remote sensing maps showing local fire history, booklets such as *Warlu! Fire! Tell us what you think*, and reports about fire field trips to raise people's awareness of risks associated with lack of burning and inappropriate burning of the landscape from ecological and non-Aboriginal viewpoints. Formal and informal discussions with Warlpiri and Pintupi were supplemented by a Bushfires NT awareness workshop at Willowra. Involving 12 mostly young Warlpiri males, the workshop focused on the importance of managing fire and the techniques, skills and equipment required to apply good burning strategies. Although the workshop was limited in scope, responses to it were positive and showed evidence of increased fire awareness among participants.

From the local case studies it emerged that environmental awareness in relation to fire risks varied between age groups and was influenced by factors such as a person's knowledge of traditional burning strategies and local ecology, experience of the destructive effects of fire and exposure to science-based fire knowledge. In general, Aboriginal people are not familiar with 'Western scientific' knowledge and reasoning concerning fire and are sometimes confused about differing positions held by scientists and pastoralists (who they perceive as historically anti-fire) with regard to fire and burning. While older Aboriginal people are aware of fire risks arising from lack of culturally appropriate burning, this did not necessarily mean that they took action to remedy the situation.⁹ The reasons for this are varied and include lack of resources, competing priorities and government interventions in local communities that limit people's ability to access large and distant areas of country for lengthy periods of time in order to burn.

3.8 Detailed recommendations

It is recommended that:

1. Aboriginal perspectives and protocols concerning management of country be incorporated into planning processes to enable effective collaborative fire management to take place in the southern Tanami region.
2. Support be provided to increase fire-related livelihood opportunities for Aboriginal people.
 - Fire management needs to be given recognition as part of legitimate work, and paid accordingly, such as through community ranger employment.
 - Practical support needs to be provided to Aboriginal people who are burning in a culturally appropriate fashion. The motivation and knowledge of such people are key factors for sustainable outcomes (Lambin 2005).
 - Support is required for Aboriginal people who want to burn in outlying and inaccessible areas. The need for more access tracks should be determined locally, as it is clear that there are different Aboriginal viewpoints on this matter. However, this research has shown that many

⁹ For a discussion about assessment of environmental risk perception in relation to environmental awareness, see Kottak 1999.

Warlpiri would like support in financing equipment, vehicles, graders and water supplies in remote areas to be able to conduct their cultural obligations and ‘look after country’ by burning on their own terms.

3. Effective cross-cultural communication strategies be developed and adhered to in the planning and implementation of a collaborative regional fire management strategy in the southern Tanami region. In doing so, the following matters need to be considered:

Information and training

- Clear, consistent and accessible information is required on fire knowledge, issues, effects and history of the region from the perspective of all land holders. This will require additional resources to those presently available and coordination.
- The Bushfires NT training workshop held at Willowra as part of this study was the first such workshop to be conducted with Warlpiri in the southern Tanami region. Although it was limited to one day, the response by Aboriginal people was positive. Follow-up is now required in the form of a pilot study workshop involving three-way communication and dissemination of information from Aboriginal, Bushfires NT and scientific perspectives. Training by Bushfires NT in techniques of fire prevention and control should be evaluated and lead to an accredited qualification for the involved participants that is equivalent to the Certificate I in Fire Fighting. This workshop should be trialled at Willowra. Depending on the results of the evaluation, similar workshops could be undertaken in other Aboriginal settlements in the region.
- Culturally relevant strategies to communicate effectively with Warlpiri about fire management need to be developed. This will take time and requires skilled participants, additional resources and long-term planning to be effective. Effective visual tools should be developed that take account of people’s literacy levels and cultural backgrounds. For example, maps of fire history, bush food areas and sites of significance are more effective when presented in colour and use meaningful symbols. Being on country and having the opportunity to engage with fire practices and issues is likely to produce far better cross-cultural outcomes than merely talking about good burning practices in the abstract.

Consultation

- It is important to ensure that community ranger programs and activities involve careful consultation and planning with senior TOs who have responsibility for, and in-depth local knowledge of, the country where any burning is to take place. This will limit the potential for disputes between families and between Aboriginal and non-Aboriginal people over these activities. In consulting with people about fire strategies, conflicts and development of management plans it is important for researchers to take into account factors that influence outcomes. For example, informant’s age, gender, familiarity with local region, land tenure associations and depth of cultural knowledge and practices should all be taken into account.
- Consultation with the relevant people who hold the right to speak for land is essential prior to any proposed land management activities involving outside parties. Permits and ethics approvals may need to be obtained as an initial step in this process.

4. Greater support be provided to Aboriginal people to facilitate tradition-based fire-related knowledge transfer.
 - The conservation and transfer of Aboriginal ecological knowledge is a matter of some urgency in the southern Tanami, as Aboriginal people who have significant ethno-ecological and socio-cultural knowledge combined with life experience of the area are aging. While research projects would help facilitate this process, other practical activities should also be implemented, for example, the provision of greater funding and support for elders to work with community rangers and scientists in the practical application of burning. Greater support in cultural activities and programs that already exist in communities could enhance the opportunities for tradition-based activities and projects to occur. This could potentially result in the production of various educational materials such as locally made videos and books that present Aboriginal knowledge and perspectives on fire in both Warlpiri and English.
 - Collaboration is required with bush tucker researchers to develop a multi-faceted fire strategy that supports Warlpiri burning, hunting and gathering.
 - More detailed research is required on Aboriginal patterns of burning and management of fire than was possible during this study. Such research should address Aboriginal perceptions of fire effects on different habitats, different patterns of burning along different kinds of roads and in different areas, categories of people lighting fires and strategies to minimise perceived problems. How the research is conducted is important. Fire research that focuses on narrow scientific concerns and uses a simple question and answer method is bound to be unproductive. It can lead to different parties talking past each other and individuals making decontextualised statements that are ambiguous and/or contradictory. Warlpiri ecological knowledge is situated knowledge and uses different modalities; it is best understood by non-Aboriginal people through observation and discussion of people's practices with the assistance of Warlpiri interpreters and researchers with a background in the culture.
5. Community-based fire advisory committees be established to advise on fire management strategies and activities.
 - The composition of the committee should reflect culturally appropriate governance structures, involving representatives from different Traditional Owner groups, and not just members of formal community structures such as community councils and people employed in land management.

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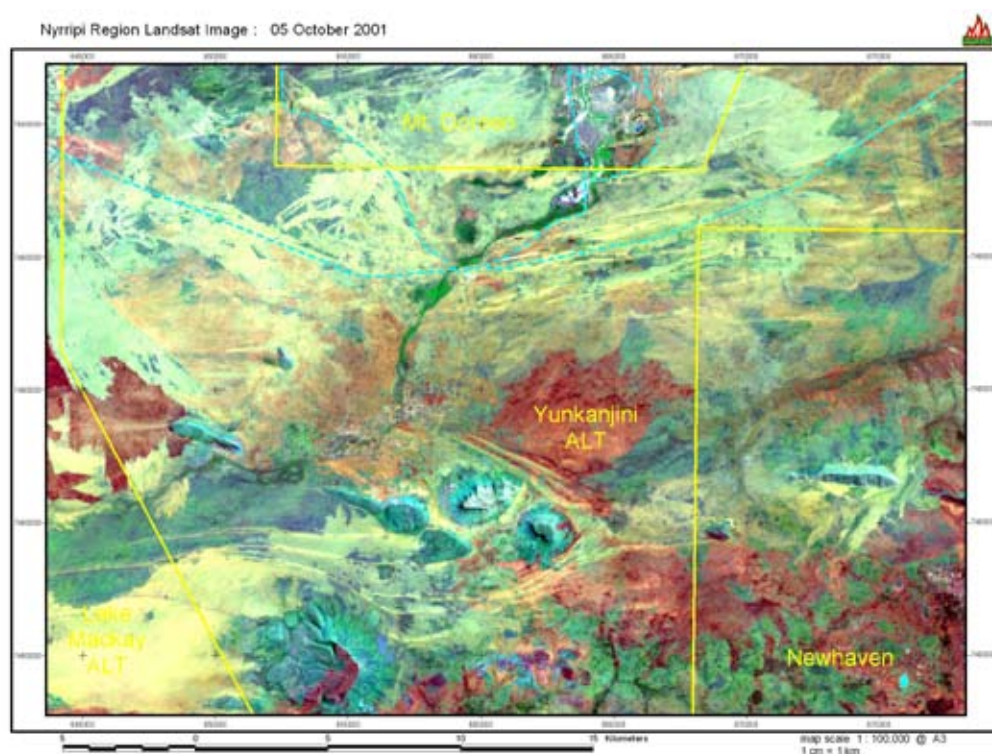
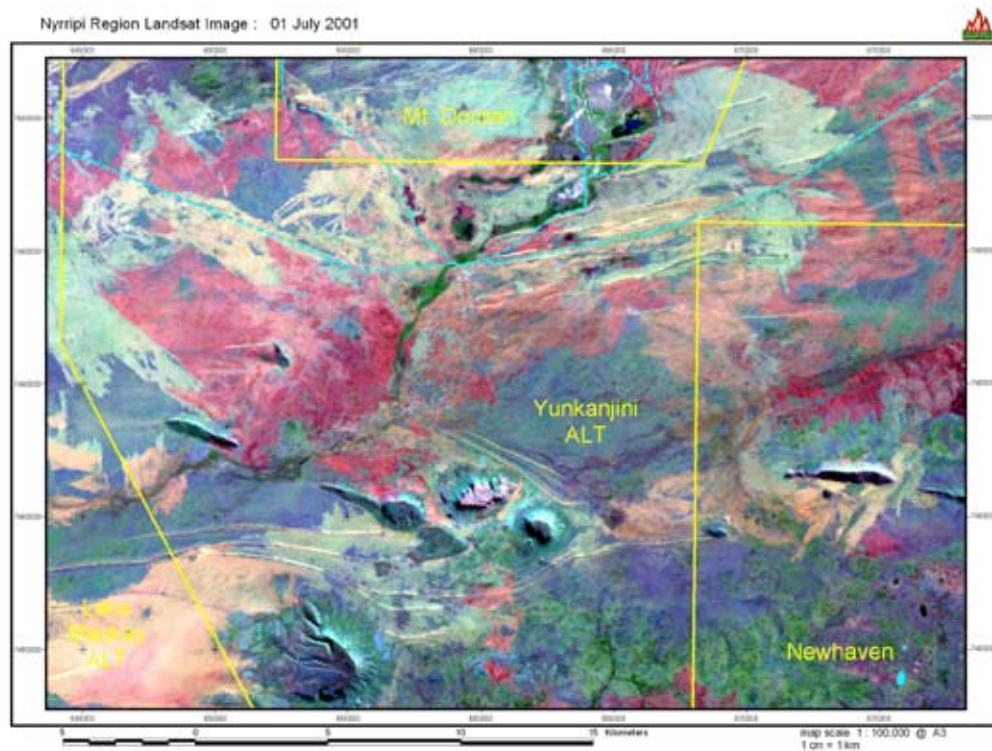
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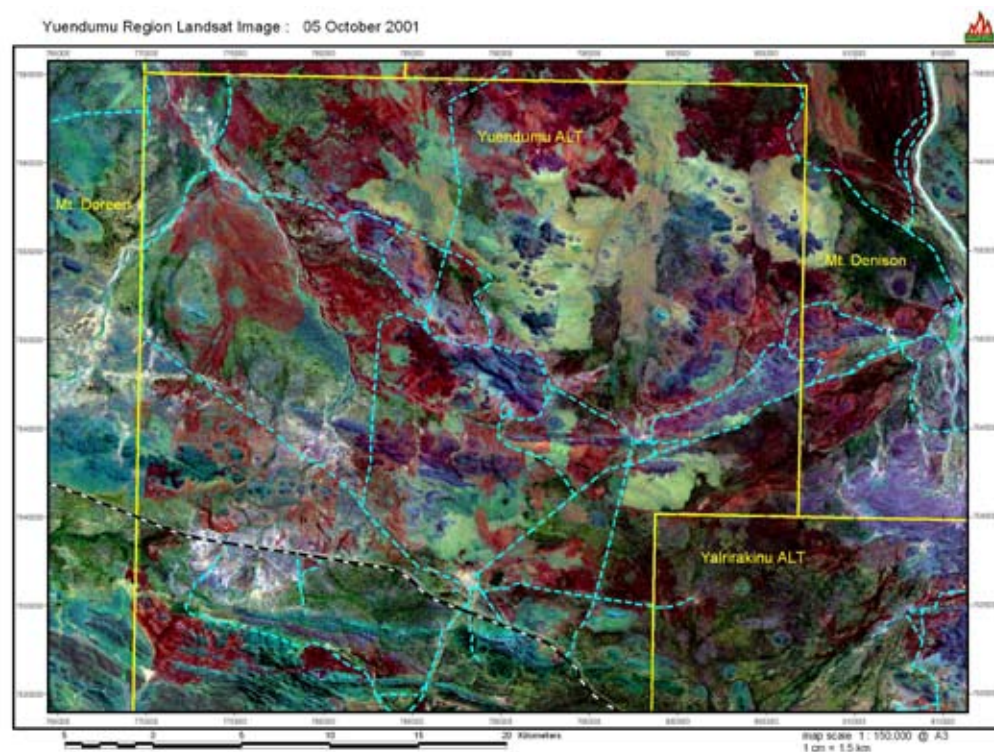
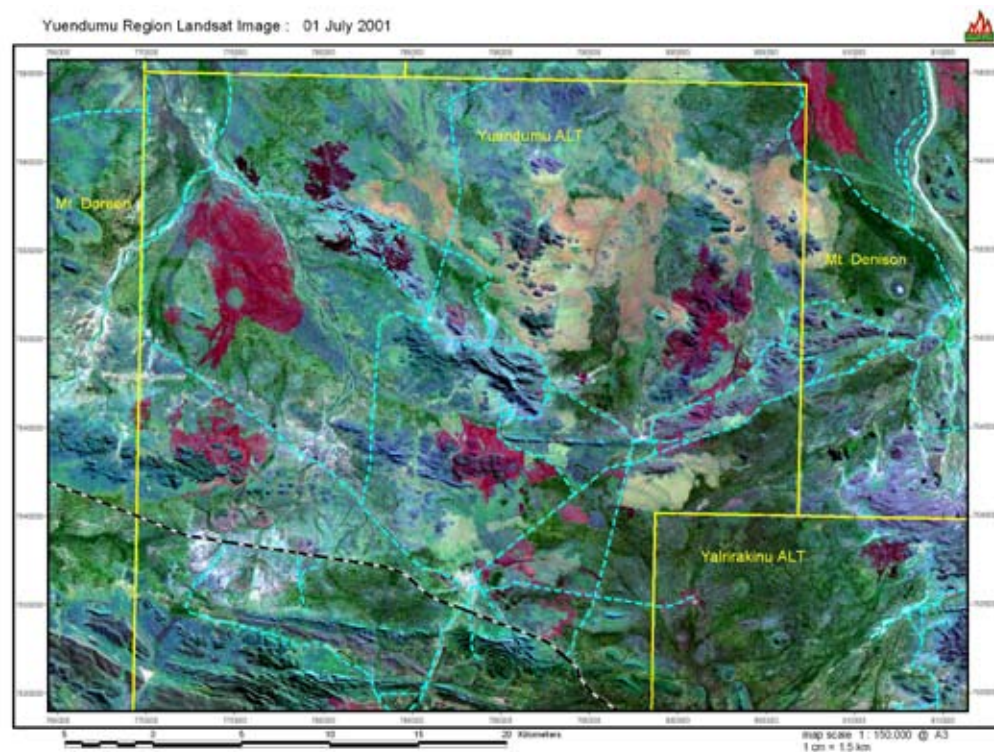
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3.10 Appendices

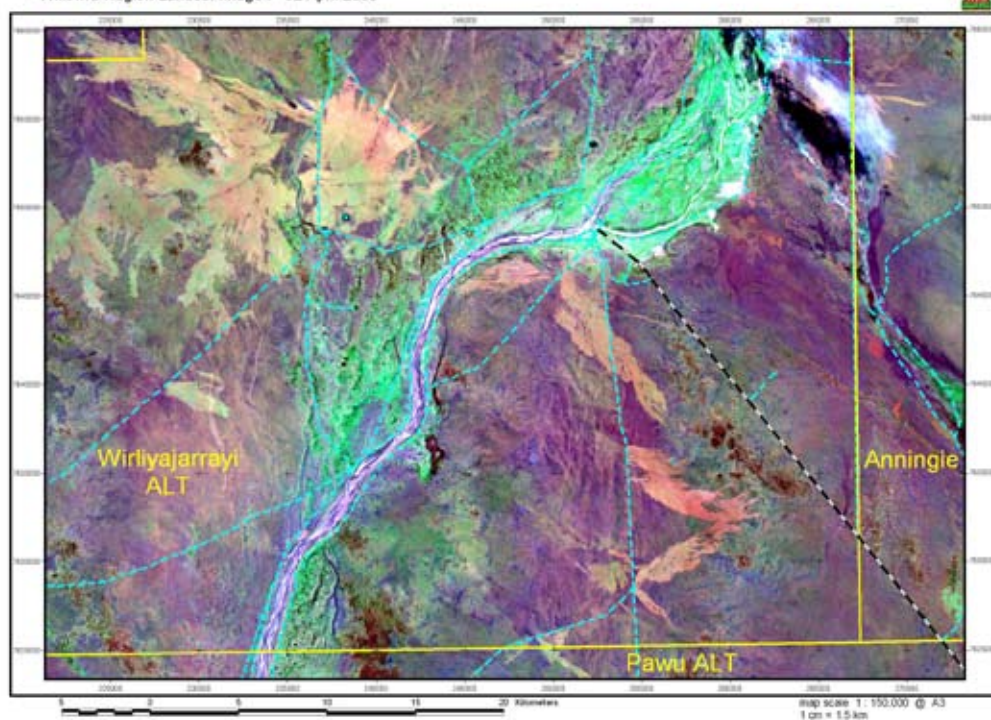
Appendix 1: Fire history maps

Two examples from each settlement have been selected from 42 maps that were used as communication tools during fieldwork

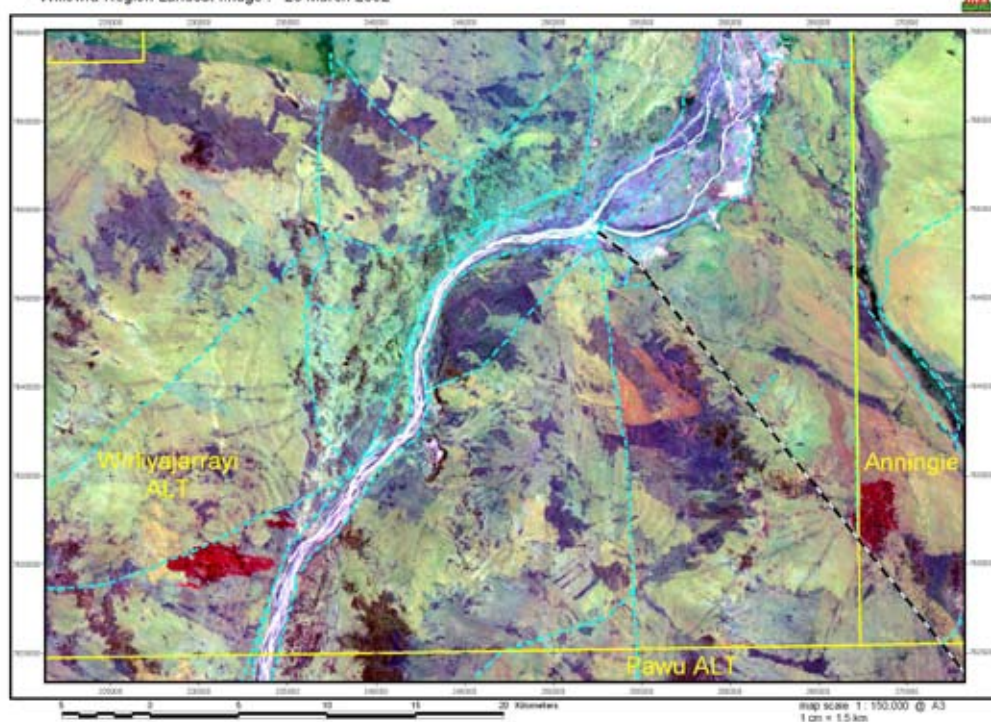




Willowra Region Landsat Image : 02 April 2000



Willowra Region Landsat Image : 23 March 2002



Appendix 2: Pastoralist story book (original in A3 format)

***Tell us what you think
about fire...***

**The Desert Fire project is asking
people from aboriginal communities
& pastoral properties what they think
about fire to help with:**

- **Communication & Understanding**
- **Support & Employment**
- **Looking after country well**

This is what pastoralists have said....



The major fire issues for pastoralists are:

- Damage to infrastructure (fences, buildings, water pipes)
- Fear of losing valuable feed from wild fires
- Problems of shrubs taking over after fire



- Lack of knowledge of using fire as a management tool
- Fear of being fined or not following the law properly
- Breakdown in community structure & relationships,
caused by deliberate or accidental ignition of
uncontrolled fires
- Damage to native vegetation



Some existing uses of fire by pastoralists include:

- Controlling woody shrub growth (especially Mulga)
- Creating fire breaks along fence lines and tracks
- Breaking up country

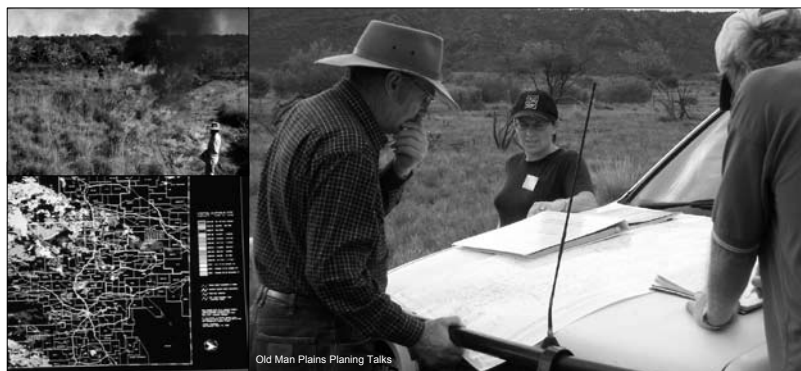


- Promoting green pick for cattle
- Encouraging cattle to utilise Spinifex country
- Controlling weeds



What is needed to help pastoralists better manage & use fire:

- Regional fire management planning (across tenures)
- Fire management plans for their properties



➤ Better understanding of the effects (both good and bad) of fire in different regions and seasonal situations

➤ Prosecution of arson offenders causing malicious damage by wildfires

➤ Research & development of information & demonstrations



Bond Springs Fire Site



Discussion on infrastructure protection and tools

Out of the consultations with pastoralists other issues came out that relate to aboriginal communities like:

➤ Wanting pastoral leaseholders and aboriginal communities living & working together happily

➤ Native title processes to be explained better to the wider community, & procedures made more transparent

➤ Resource management laws & procedures (eg. NT Weeds Act) to be applied & enforced across the whole NT, regardless of land tenure



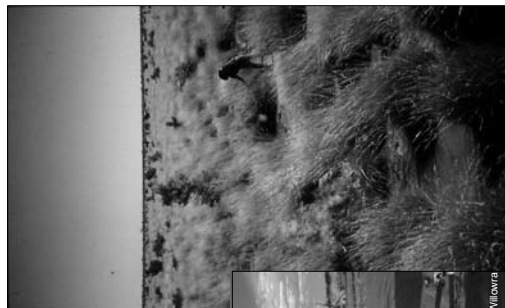
We want to know what you think about fire & related issues to tell the pastoralists, so that it may help:

➤ Aboriginal people & pastoralists to understand one another better

➤ Work together better

➤ Help people get good information about fire

➤ Have better support to burn



Smokeless fire trip with ladies from Wilawarra

➤ Have a better understanding about fire laws

➤ Support in fire use for bush tucker livelihoods

➤ Fire related land management work on aboriginal & possibly pastoral properties in the future



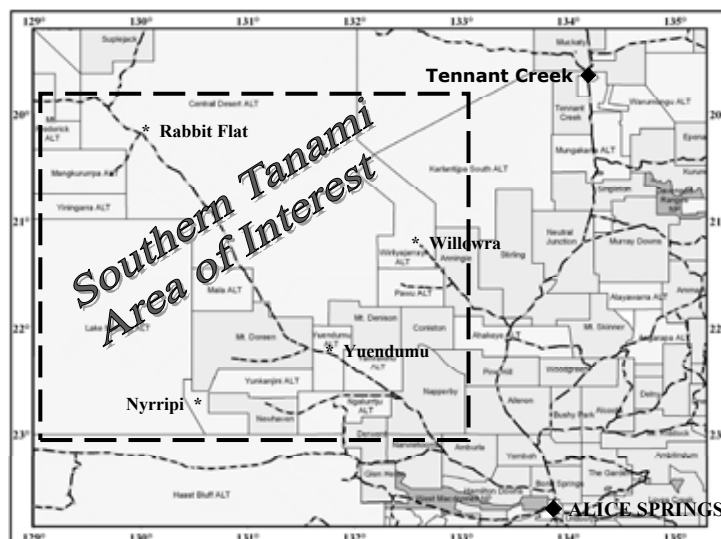
Desert Fire consultation with Wilawarra

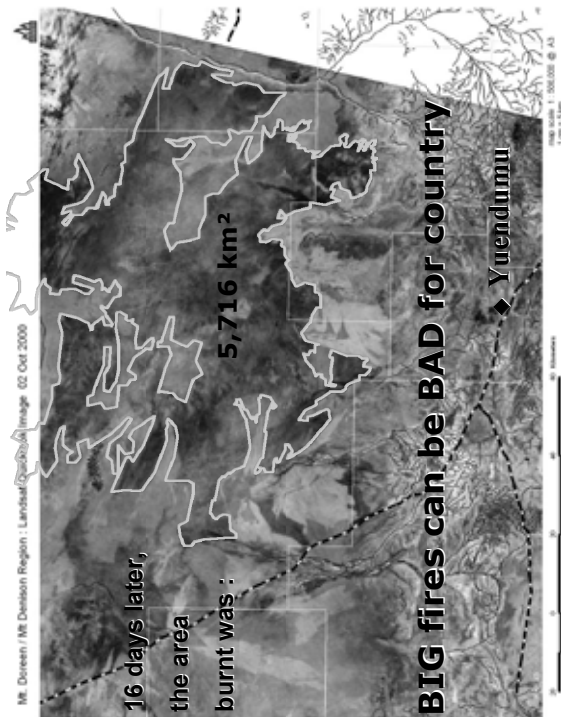
Appendix 3: Fire presentation at Yuendumu



Desert Fire : Tanami Desert Sub-Project

- **Principal investigators**
 - **Bushfires Council NT**
 - Grant Allan
 - **Parks and Wildlife NT**
 - Kasia Gabrys, Glenn Edwards, Angus Duguid
 - **Central Land Council**
 - Richard Tuckwell, Kirsten McLean (PhD student - ANU)
- **Project Objectives**
 - to assess our perception of unfavourable fire regimes
 - to overcome the social conflicts associated with fire in the southern Tanami Desert, and
 - to prepare a regional fire management strategy endorsed by all land managers





Increasing Awareness and Responsibility for Fire

- ♦ The challenge is managing a big area with few people
 - ♦ Talk about good fires and bad fires
 - ♦ Learn how to prevent bad fires
 - ♦ Discuss opportunities for burning from aircraft and helicopters
- ♦ Take responsibility for fires
 - ♦ A person who lights a fire must be responsible for the country that gets burnt
 - ♦ Don't burn other peoples' land and resources

Development of a Regional Fire Management Strategy

- A coordinated program by Bushfires Council involving all regional land managers; including Aboriginal, Conservation, Pastoral and Mining
 - Reduce big fires
 - Keep fires within country
 - Do not light fires on someone else's land
 - Sharing information on how, why and when to burn
 - Working individually as a first step
 - Working together in the future

Community Involvement in Fire Management Programs

- ◆ Provide support and information to schools, after-school and CDEP
 - Maps, photographs, videos and posters
- ◆ Bushfire training courses
- ◆ Encourage use of internet fire sites
 - Demonstration and training

Future Employment Opportunities in Fire and Land Management

- ◆ Support community ranger programs
- ◆ Increase skills and knowledge about fire
- ◆ Help identify money and funding programs
- ◆ Link with other projects, like Bush Tucker



Additional Desert Fire Projects

- **Acacia shrublands and ecosystem health**
 - Charles Darwin University
 - Guy Boggs, Dave Bowman, Don Franklin and Anstee Nicholas
 - Bushfires Council NT
 - Grant Allan
 - to use the changes in the distribution of mulga (*Acacia aneura*) and spinifex (*Triodia* sp.) as an indicator of landscape change
- **Response of birds to fire in mulga woodlands**
 - Australian National University
 - Adam Leavesley
 - To learn if the species of birds in mulga country changes after major fires



Appendix 4: Bushfires NT story book (original in A3 format)



On Wednesday 31st of August Shane Brumby and Rod Herron from BFC came out to Willowra Community which is situated approximately 350kms north-west of Alice Springs.

12 community members attended the training day, who were;

Metshane Long
Jonathon Jurrah
Hamish Ross
Alfred Martin
Ernest Haines
Greg Williams
Aaron Williams
Freddy Williams
Samuel Walker
Jodi Walker
Lucinda Williams
Glynette Jurrah
Annastacia Ross

Rod and Shane presented a BFC power point presentation to the Willowra trainees, who responded well to the main messages of the talk. The main aim of the presentation was to outline the importance of taking responsibility for fire by;

- understanding how dangerous it can be
- taking responsibility for managing fire on your and other people's land
- not burning on other people's land
- prescribe burning around your property and neighbouring boundary lines
- when it is a good and bad time to burn and
- various techniques, skills and equipment required to apply good burning practices





Aaron Williams being guided by Shane on how to use a fire hose



Dion Long being instructed by Rod on how to use a fire hose



Freddy Williams being guided by Rod on how to use a drip torch

After learning how to use BFC equipment around the community, the group moved to an area under Freddy Williams (Traditional Elder for the area) instructions, where he felt that there needed to be some prescribed burning done.

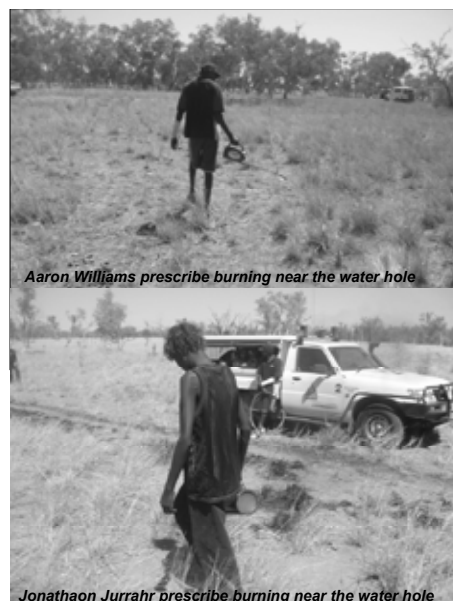


Rod from BFC inspecting the burnt tractor with Samuel Walker

Before the group got to the water hole where the burn was to take place, Freddy showed everyone his tractor that had been burnt in a recent fire which he was upset about. He was not sure who had lit the fire, yet took the opportunity to tell all the young people in the group how upset he was about it.

Shane and Rod showed the trainees how to create break lines using roads and hose down techniques. Also wind direction and fuel loads were discussed and an area around a regularly used water hole was burnt to keep the fuel load down.

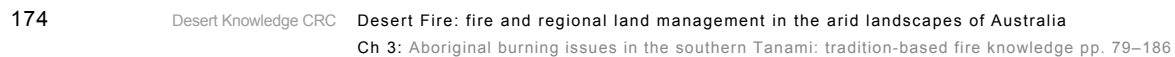
Over all the day was a success. The training day also created discussion within the community with one of the heads of council asking Desert Fire for support a community fire meeting where older men and older women can discuss with the younger members of the community areas which are not to be burnt and the lores that apply when burning these areas. This meeting is to take place in October 2005.



Aaron Williams prescribe burning near the water hole

Jonathaon Jurrahr prescribe burning near the water hole

Supplement of *Journal of the Royal Society of Medicine* (1999) 92, 1111-1112



Appendix 6: Annotated bibliography on Aboriginal burning in the southern Tanami and district

Tanami – Warlpiri specific

Some of the references in this section may not always be specific to burning by Aboriginal people. However, the environmental data on the Tanami are necessary to formulate a future fire management strategy for the region and therefore have been included in this section. In total, the researchers only managed to allocate a handful of detailed references on burning by Aboriginal people in the Tanami as the majority tend to only briefly mention it. The key documents for the topic are the ones that have been more extensively commented on.

Incorporating Aboriginal burning with current environmental land management

The only document known to the authors that extensively documents current Aboriginal perceptions of fire towards land management is the work of **Rose (1995a)**. This is a large body of work that gathers Aboriginal land management perspectives from all over central Australia with a Warlpiri section on fire. Probably the most well known and referred to publication on Aboriginal plant use and fire is *Bushfires & bushucker* by **Latz (1995)**, which includes research into Warlpiri plant use and names and a very comprehensive ecological overview of central Australian ecology in relation to plants used by Aboriginal people and their relation to fire. Latz also gives examples of Aboriginal people using fire as a tool to assist in food plant cultivation.

Fire ecology, management, and Aboriginal impact

The only information found on aerial burning in the Tanami Desert was the work of **Latz (1975a)**. Combined flora and fauna fire research was undertaken by **Gibson and Piercey (1981)** and **Gibson and Southgate (1982)**, in two consecutive reports outlining the effects of prescribed burning. Fire- and flora-specific information on the Tanami includes reports by **Gibson (1984)**, **Latz (1975b)** and **Latz (1974)**, which discuss various plant species fire regimes and responses. **Paltridge (2005)** discussed patch-burning strategies and the way they impact on threatened desert animals, with the work that she undertook with the Aboriginal people at Nyirrpri community. Other relevant fauna information, which is not necessarily fire specific yet is important for land management purposes and necessary information for fire planning, includes **Paltridge and Southgate (2001)**, **Lundie-Jenkins (1993)**, **Saxon (1983)**, **Gibson (1986)** and **Bolton and Latz (1978)**. Some 25 internal ecological reports by PWSNT also contain useful ecological information on the flora and fauna of various sections of the Tanami Desert.

Aboriginal knowledge, history and relevant background

The work of **Nash (1990)** is one of the only works found that directly describes Warlpiri-specific fire activities. Nash focuses on the Warlpiri vocabulary that is relevant to fire as well as cultural etiquettes and relationship towards fire. He also outlines some field observations of Warlpiri burning and people's general attitudes towards burning. Probably the best known work on Aboriginal burning is *Black Lightning* by **Kimber (1983a)**, which outlines the Aboriginal relationship towards fire for the Pintupi, Warlpiri, Ngalia and Anmatyerre people as well the European historical accounts of Aboriginal fire use. Kimber also provides the most extensive personal observations of Aboriginal burning for the region, outlining the various reasons for and perceptions of burning by Aboriginal people. The work by **Cane and Stanley (1985)** is probably one of the most comprehensive overviews of central Australian and Warlpiri people's living conditions, social and economic aspirations and land use activities. This detailed and comprehensive report contains a lot of relevant and specific information, including details about population statistics, topography, climate, flora and fauna and Warlpiri land and fire use. The recent *Warlpiri Dictionary Electronic Database* by **Laughren et al. (work in progress 2006)**, has some insightful documentation of words and phrases that are relevant to some of the more detailed Warlpiri knowledge of fire, such as the use of different plants for making different types of cooking or healing fire.

There are only a few accounts from before the turn of the century of early explorers having visited the Warlpiri Homelands, including **Gosse (1874)**, **Stuart (1863)**, and **Warburton (1875)** and, to a lesser extent, **Gregory (1969) [1856]**, who primarily ventured on the northern outskirts of the Warlpiri Homelands. Only Stuart and Warburton briefly mention burning by Aboriginal people, with all three explorers having limited contact with the Warlpiri. Later **Davidson (1905)** and **Gee (1911)** travel through the Tanami and provide more substantial incursions into Warlpiri lands with the discovery of gold in the area. Davidson also records Aboriginal people burning in the Tanami Desert in 1900. The work of **Meggitt (1966, 1974)** provides important study of the Warlpiri people, their history, cultural changes, movements, settlement and a general overview of the area. **Young (1981)** also provides historical accounts and details about the disputes the Warlpiri faced with European settlers. **Peterson (1978)** is a good reference on people's methods of hunting and gathering that incorporate fire.

Political, legal, and educational

Moloney and Tangentyere Landcare, Land and Learning Program (2005) have recently produced an educational booklet that focus on 'good' and 'bad' fires on Aboriginal lands, with a reference to Warlpiri uses of fire. A more Warlpiri-specific educational story is compiled by **Nampijinpa (2003)** that describes a Warlpiri fire dreaming story at Warlukurlangu. This story is also told in more depth by **Nampijinpa (1994)**. The **CLC (1988)** video recording filmed in the northern Tanami is a good visual account of traditional fire ceremonies, fire uses, perceptions and knowledge. However, it does not contain any English translation of this un-edited, all Warlpiri spoken recording. Some of the footage from this video is used in a more general production about people and fire in **Hogarth (1990)**, which does provide a brief interpretation of some of the events, such as Warlpiri men's fire ceremonies, that have been filmed.

Central Australia and district

Due to the limited research conducted on the topic of burning by Aboriginal people in the NT region of central Australia, references from surrounding and very similar landscapes were also gathered, including relevant work from eastern West Australia, in particular the Western Desert and from the north-west of South Australia. Works have been clustered under the various topics with limited commentary on specific publications unless of great relevance to the Tanami; however, most of the works presented here are important background to Aboriginal fire research in more general terms.

Incorporating Aboriginal burning with current environmental land management

Works of **Latz (1983)** and **Latz and Griffin (1978)** provide important information on the impact that current Aboriginal land management has had on food plants and environment. **Walsh's (2009)** PhD thesis has a very relevant section on burning by Martu Aboriginal women from Western Australia from an ethnobotany perspective. **Walsh and Mitchell (2002)** provides important guidelines to conducting land management research and work with Aboriginal people, while **Pearson and Ngaanyatjarra Council (1997)** also discuss some relevant, yet more brief strategies of working with Aboriginal people on land management issues. **Baker and Mutitjulu Community (1992)** discuss Aboriginal and non-Aboriginal approaches to fire management at Uluru, while **Allan (1984)**, **Saxon and Allan (1984)**, **Griffin (1984)** and **Griffin et al. (1986)** outline various aspects of the Uluru fire strategies. **Liddle (2003)** discusses fire in relation to joint management at Uluru. **Yates and Morse (2003)** produce the first fire strategy for the APY lands in SA.

Fire ecology, management, and Aboriginal impact

Griffin and Friedel (1985) is one of the most comprehensive articles written about fire impact on the ecology of central Australia and provides a summary of early explorers' records of fire sightings. **Griffin and Allan (1986)** focus on fire ecology and management of Aboriginal-owned lands. **Griffin (1988)** provides a broad overview of history of fire in central Australia, including Aboriginal use of patch burning, impact on small mammals and the need to conserve resources in the future. Griffin's more recent work **(1992)** concentrates more on biology and management, within a similar context. **Harris (1990)** looks at Aboriginal

and European use of land over time, while **Short and Turner (1994)** focus on mosaic hypothesis in relation to medium-sized mammals. **Allan and Southgate (2002)** and **Bowman and Panton (1993)** deal with more wide ecological changes in relation to Aboriginal burning.

Aboriginal knowledge and history

Burbidge et al. (1988) discuss Aboriginal knowledge of mammals. **Finlayson (1943)**, **Douglas (1962)**, and **Gill (1968)** provide good background historical accounts of Aboriginal people in the Northern Territory, though with very few reference to traditional burning. **Strehlow (1964, 1965, 1972)** provides some of the most detailed accounts of Arrernte people's traditions. **Gosse (1874)**, **Spencer and Gillen (1899)**, and **Carnegie (1898)** provide explorers' accounts of the region. **Griffin and Lendon (1979)** provide good background information of three Aboriginal homelands in central Australia. **Tindale (1940)** provides information on the distribution of Aboriginal groups. **Gould (1969)** gives a rich account of subsistence behaviour among the Western Desert Aboriginal people that has a good overview of Aboriginal fire knowledge. Further good background papers on Aboriginal resource use and relevance to land management include **Kimber (1976)** and **Kimber (1983b)**, which focuses on the Aboriginal people of the Simpson Desert and surrounding lands. The aims of the paper are to indicate the nature of resource use and resource management. **Tonkinson (1978)** concentrates on the Mardudjara Aboriginals in a similar way. **Tindale (1959, 1974)** provides valuable information on the distribution of central Australian tribes and their customs.

Traditional Aboriginal burning techniques

Bird et al. (2003) provide a very good account of Martu Aboriginal women and fire in the Western Desert and the differences in women's firing to that of the men. Further work is conducted in the Western Desert by **Bliege and Bird (2006)**, concentrating on Aboriginal burning regimes. **Burrows et al. (2000)** provide another important document from the Western Desert of the account of the Pintupi people's use and techniques of fire. An earlier work by **Burrows and Christensen (1990)**, also in the Western Desert, serves as a particularly important document in relation to patch-size burning history and documentation. Another important Western Desert documentation on Aboriginal use and effects of fire is by **Gould (1971)** who provides a very well written and researched account on Aboriginal use of fire from an economical and ecological perspective. Another good, though more general overview, is presented by **Nicholson (1981)**, who uses original explorer accounts and depicts Aboriginal burning techniques.

Political, legal and educational

These particular documents may not necessarily be central Australia specific; however, they are relevant to the Northern Territory laws and therefore apply to central Australia. They include good publications by **Head and Hughes (1996)**, **Hughes (1995a, b)**. Good educational information on fire includes the Desert Fire radio program **ABC (2005)** as well as **O'Malley (2004)** which gives proceedings from an Indigenous land management workshop.

Broader research relevant to central Australia

This section lists research from other parts of Australia that makes reference to or is relevant to Aboriginal burning and land management in central Australia. The works include broad historical, ecological, and anthropological research that sets more of a background to the topic.

Incorporating Aboriginal burning with current environmental land management

Andersen et al. (1998); Baker (2003); Bowman (1992, 2002); Braithwaite and Roberts (1995); Brandl (1976); Burgess et al. (2005); Burrows et al. (2004); Burrows (2003); Burrows and Van Didden (1991); Christensen and Burrows (1986); Cooke (2000); Head et al. (1992); Hill (2003); Hill et al. (1999); Hill et al. (2004); Horsfall (1991); Jones (1980); Kimber (1993); Lewis (1989); Nakashima (2000); Robinson et al. (1995); Rose (1995a,b); Russell-Smith (1995, 1997a,b, 2001); Russell-Smith et al. (1997, 2003); Schulz (1998); Walsh and Mitchell (2002); Whitehead et al. (2003); Worboys et al. (2001); Yibarbuk et al. (2001).

Fire ecology, management, and Aboriginal impact

Beaton (1982); Bogusiak (1992); Bowman and Prior (2004); Bowman (1998, 2003a,b); Braithwaite (1995); Burrows (1998); Chisholm (1994); Clark (1981, 1983); Costello et al. (2000); Craig (1997, 1999); Dyer et al. (2001); Flannery (1994); Flood (1983); Ford (1985); Giles (1889); Gould (1971); Gould (1980); Griffiths (2002); Hallam (1975); Hassell and Dodson (2003); Haynes (1991); Head (1989, 1994); Hodgkinson (1982); Horton (1982, 2000); Hughes and Sullivan (1981); Jones (1969, 1975, 1995); Kershaw (1981, 1986); Kohen (1995); Marsden-Smedley and Kirkpatrick (2000); Merrilees (1968); O'Neill et al. (1993); Preece (2002); Price and Bowman (1994); Veth and Walsh (1988); Walsh (1990); Ward and Sneeuwjagt (1989); Ward et al. (2001) .

Aboriginal knowledge and history

Abbott (2003); Bradley et al. (1997); Braithwaite (1991); Davidson (1947); Fensham (1997); Hallam (1985, 2004); Horstman and Wightman (2001); Jones (1968); Pyne (1992); Rose (1997, 2005); Sheard (1964); Tilmouth (1994).

Aboriginal burning techniques

Aschmann (1977); Bowman et al. (2004); De Graaf (1975); Gott (2005a,b); Graaf (1976); Hallam (1975); Haynes (1985); Kohen (1996); Lewis (1982); Vigilante (2001).

Political, legal, and educational

Andersen (1999); Australasia (2002); Bowman and Vigilante (2001); Bradley (1995); Davis (2003); Langton (1998); Vines (1987).

Appendix 7: Recommendations towards a fire management strategy in the southern Tanami: aims, ideas and methods

These recommendations arose from initial discussions with non-Aboriginal fire and land management professionals at the beginning of the DKCRC research project.

Collating information

- Collate historical fire information for each land tenure in question, including rain records for the last 100 years wherever possible.
- Draw on information from good fire management plans such as Finke Gorge NP, Narwietooma and Utopia.
- Look at other good fire models beyond central Australia, such as in the Kimberley region.
- Look at the main roads that have issues and the different vegetation types, with the need to burn at various sections.
- Look at fence lines and break lines and how people do things and why.
- Collate information on fire-related Dreaming stories in the region.
- Collate information on flora and fauna statistics on the study site.

Burning breaks

- Roads help to serve as fire breaks; therefore, burn along roads more, in particular smaller and less-used roads that do not get burnt as regularly.
- Create double roads around settlements, using a grader and burning the strips of vegetation between the roads.
- Create more tracks into areas people want to be travelling into, which will ultimately lead to more burning and ‘break up’ the country more.

Fauna considerations

- Create different-sized and -aged patches to create a variety of different habitats, through small-scale patch burning (this is particularly relevant to the Warlpiri women who still hunt and gather with fire, as they do this on a small scale and therefore should be supported in this).

Bush tucker considerations

- Bush tucker is one of the last attempts to give people a reason to go out on country and to burn, even with only some 5–10 species being used nowadays compared with some 100 in the past. Yet fire plays an important role in regeneration of these key species, with harvest success being dependent on appropriate fire regimes.
- Linking fire to bush tucker would save money and resources for the bush tucker industry and simultaneously support biodiversity, as well as bring health to people going out on country to burn and to collect seed and food.

Weather considerations

- Apply good and immediate fire management principles when large rainfalls occur and big fires follow – make people aware of how important it is to burn straight after the rains so that the fuel loads do not get out of hand as they have in the past (i.e. 1999–2003).
- Using rain patterns as part of fire management is a crucial factor which needs to have some sort of response mechanisms set up that involve the whole rural community collectively.

Mapping

- Use various overlays of maps, such as vegetation (i.e. sites of botanical significance [SOBS]), geology, fire history and infrastructure (i.e. fences).
- Map out sites of cultural significance if they have been identified by the right people as requiring protection from fires (i.e. sacred sites, ceremonial and burial places, etc).
- Map out Dreaming stories if people are open to sharing them – there are potentially many valuable lessons to be learned that are relevant to western scientific management, through understanding such stories. For example, lightning storm Dreaming stories that describe the direction in which storms travel and start fires: storms have been sometimes observed to still travel and start fires in these areas today.
- Find out which are the biggest risk areas that need protection from fires.
- Simplify GIS information to suit various levels of education when appropriate.
- When using fire history maps, consider appropriate colour schemes that people can easily understand, that is, the usual use of red to identify a fire can mean danger and it has been suggested that fire can be represented in the colour black, which signifies area of country that has been burnt.
- Teach people how to make maps to find out where fires are on their land.
- Designate an area at the council notice board where fire maps that include neighbouring properties can be checked daily.

Education

- Organise fire-training programs for interested community members.
- Use various forms of educational tools, such as:
 - roadside signs with quotes such as ‘take care with fire’
 - radio messages such as ‘not your land, not your country’
 - fire poster competitions with schools using meaningful images and appropriate language such as Warlpiri with English translations
 - PowerPoint presentations, videos and story books.
- If supported by the community, organise a Warlpiri-specific fire workshop. This could be followed by a workshop in which young people learn from Aboriginal elders (both Warlpiri and non-Warlpiri), This would require several days of practical bush trips on more neutral lands (i.e. Newhaven), under the guidance of traditional owners.
- Develop individual fire management plans with appropriate *kirda* (managers) and *kurlungurlu* (policemen) for certain country.

Employment – ranger groups

- (If appropriate) have the community rangers be the major drivers of the fire strategy for the area once the group has become established (there may be some unwanted repercussions from this, however, such as disputes about community rangers burning on the wrong ‘country’ in the wrong way, or having community rangers perceived as the new caretakers of fire, therefore stopping the people who are currently burning from being active with fire).
- Have community rangers control fires for structural fire-fighting purposes.
- Is it valuable to get community rangers to start using GPS to map the fires that are on site and to start using Cyber Trackers.
- Ranger programs could create fire breaks between the sub-leases and stations.
- Have Bushfires NT (and potentially pastoralists) support community rangers to burn fire breaks along pastoral properties.
- Incorporate traditional with contemporary fire techniques, with Newhaven as the test case.
- It would be good to start at the community scale, such as protecting community assets, which could involve the council paying for rangers, for example, to burn regularly around people’s properties.

Supporting tradition-based users

- Provide greater assistance for people to travel to more remote parts of their country in the way of:
 - greater access to suitable vehicles for burning and hunting that get used only for these activities
 - construction of new tracks to more remote areas and maintenance of current tracks/roads
 - permanent water facility provisions in more remote regions.
- Hire traditional owners who have good fire knowledge on consultant wages to advise on fire from the Traditional Owner’s perspective.
- Pay people consultancy rates at \$300 per person per day, or \$150 per person per day of group consultancy.

Logistical considerations and limitations

- Communities need access to graders and tractors.
- People who go out with traditional owners will only be able to go to certain parts of the country and take only family and their policemen.
- Certain areas of Aboriginal land are sacred and cannot be burnt or included on maps for fire management plans.
- Drawing together a fire management plan requires guidance and coordination, otherwise nothing happens.
- The first phase of mosaic burning takes a long time to implement and the fuel loads must be studied beforehand.
- It is important to gather people’s perceptions of burning over time, and therefore it is necessary to get people’s concepts and understanding of history.
- It is difficult to consult with all appropriate families for all land tenure areas within a restricted period of time.

Communication

- Information should be presented in a way that makes sense to young and middle-aged people alike.
- People should be given the chance to talk about their knowledge first. It is a good idea to ask questions about where they want to burn before ‘educating’ them.
- Communities that have already had a lot of research done in them before are usually more approachable.
- A maximum number of groups should be approached, and familiarity should be established with the active senior members of each group. Becoming a resource and participant in community activities, such as hunting, will help create positive relationships.
- Be aware that research methodology can influence outcomes. For example, longer term participant observation is likely to produce more reliable findings than rapid research involving burning instigated by the researcher.
- Using communication techniques that make sense to people is crucial. Use practical activities to convey information. Techniques such as sand drawings, history photo time lines and photo stories can help bridge the gap between Aboriginal and non-Aboriginal practices.
- People should be encouraged to talk about and develop fire planning.
- A mutual understanding of each other’s values within different communities should be encouraged.
- People should be encouraged to talk to Bushfires NT before they burn and they should feel as though they can ask for advice.
- People need to be shown why big, hot fires are bad.
- Smaller, family-based fires should be concentrated on and men and women should be given the opportunity to talk separately.

Formulating good questions

- Use Warlpiri translators when appropriate.
- Context is important to different ways of knowing. For example, while people may understand scientific ways of categorising wind and temperature in relation to fire, they may conceptualise the relationship of these elements to fire in different ways.
- Fire knowledge is primarily learned by doing rather than by talking. This was the main difference between Western and Aboriginal ways of knowing about fire.
- Some ideas for questions included:
 - How effective is fire at the moment?
 - How many times have they burnt?
 - How hot do they burn?
 - Why are people burning?
 - When is the right time to burn? (Better to leave this question to last, as asking the ‘why’ may tell you the ‘when’.)

Appendix 8: Recommendations for fire research

These recommendations arose from initial discussions with non-Aboriginal fire and land management professionals at the beginning of the DKCRC research project.

Gaps in knowledge and possible future fire research

- Research into where people actually burn and how many people come and go from the settlements (R. Kimber 2006 pers. comm.).
- Find out which tracks people take and how often (R. Kimber 2006 pers. comm.).
- More work could be done on asking people the local names for different plant species and their flammability (F. Walsh 2004 pers. comm.).
- The women's perspective on fire is important and could have more work done on it (D. Gibson pers. comm. 2005).
- There is only fragmented knowledge of past and present techniques (D. Gibson pers. comm. 2005).
- The broad data that are mainly missing on fire are techniques, practice and location (J. Morse pers. comm. 2005).
- There is a lot of theory about fire yet not much has been trialled, and we know very little about fire behaviour (J. Morse pers. comm. 2005).
- There needs to be a critique of the fire bibliography and clear annotations in the gaps of knowledge about fire (J. Morse pers. comm. 2005).
- Conduct research across different land tenures and make comparisons (D. Alexander pers. comm. 2004).
- Find out what sort of assistance people need in regards to fire (D. Alexander pers. comm. 2004).
- Find out what people's perceptions are of fire at different times (D. Alexander pers. comm. 2004).
- Provide a detailed profile of a particular group of people and their activities to do with fire, potentially as a PhD project over the duration of three to five years (J. Morse pers. comm. 2005).
- Conduct research into the early references of the explorers for the various regions that are under research (R. Kimber pers. comm. 2006).
- Look at the management of corridors along the roads in the study site areas (G. Allan pers. comm. 2004).
- When conducting research with Aboriginal people, the economical and ecological points of view need to be incorporated with anthropological knowledge (J. Morse pers. comm. 2005) and not just from a scientific perspective. The primary research methodology to date has been from a scientific perspective (R. Tuckwell pers. comm. 2005).

Fire management, research and activities on Aboriginal lands in central Australia to date

The following is a list of what various informants have discussed throughout their interviews, identifying relevant fire work conducted on Aboriginal lands in central Australia, which include:

Fire management strategies:

- APY Lands Fire management strategy (Yates & Morse 2003)
- Newhaven Bird Sanctuary fire management plan (P. Latz pers. comm. 2006)
- Iwupataka Committee (Ingerreke Outstations Resource Services – Jay Creek) fire management plan
- Uluru fire management strategy (J. Morse pers. comm. 2006)
- Warburton Community fire management strategy.

Various relevant projects conducted on Aboriginal lands:

- Santa Teresa Community worked with Tangentyere Council and Parks and Wildlife to educate children about fire through fire trials (M. Mooney pers. comm. 2004, G. Horne pers. comm. 2004).
- Grant Allan from Bushfires NT took out fire satellite imagery to various community schools in the past (A. Johnson pers. comm. 2004).
- Bushfires NT had a fire program running between 1991 and 1993 at Utopia (T. Secker pers. comm. 2004).
- In the 1990s Bushfires NT (formerly Bushfires Council of the NT) had a media campaign that included various radio advertisements, signs and posters that were aimed at Aboriginal people, discouraging burning on other people's lands (T. Secker pers. comm. 2004).
- The CLC land management unit has supported people in various settlements such as Lajamanu, in land management-focused burning. At the time of the research there was a fire education program being organised for Yuendumu.
- Christopher Shaw worked at Julalikari Council and was supported by Bushfires NT to work on fire management plans for the Tennant Creek area. There were 30 communities involved, yet what stage the plans reached is uncertain (R. Tuckwell pers. comm. 2004).
- In the early 1980s David Nash and David Alexander worked in the northern Tanami with 20 old men who were knowledgeable about fire. Most of them have since passed away, yet two videos were recorded from these consultations titled 'Fire on the Mind', and are held in the CLC Library (D. Alexander pers. comm. 2004).

Recommended fire information to gather and organisations to contact

- Patarr Aboriginal community in the Gibson Desert in WA are probably the closest people to their land and would be worth pursuing research with (J. Morse pers. comm. 2005).
- Kilikara and other communities that are more on the fringe are actually 'doing things' and would be worth chasing up (J. Morse pers. comm. 2005).
- Talk to Iwupataka Committee in regards to their fire management plan for Ingerreke Outstations, Jay Creek (S. Marty pers. comm. 2004).
- Talk to Tjuwanpa (Hermannsburg) Council about their fire management planning (P. Donohoe pers. comm. 2004).
- Collaborate with the Jaru Pijirrdi and Mt Theo at Yuendumu on fire education (Y. Musharbash pers. comm. 2005).
- Papunya, Mt Liebig and Haasts Bluff have been approached to run a ranger program and may be good places to approach for fire management work in the future (P. Donohoe pers. comm. 2004).
- It would also be good to start working in the Mt Allen area as well as engaging with the Coniston and Napperby groups as they are facing similar issues and travelling through a similar area (G. Allan pers. comm. 2004).
- Make available Finke Gorge and Narwietooma fire management plans for distribution and educational purposes (P. Latz pers. comm. 2005).
- Research into the 1991–1993 Utopia burning program and history (T. Secker pers. comm. 2004).
- Find the article from *The Australian* in 2002 about Traditional Owners burning in Tennant Creek (D. Alexander pers. comm. 2004).
- Research further into Arnhem Land fire project information and publications, for example, collaboration with fire between Oenpelli and Bulmen (F. Walsh pers. comm. 2004).

- Research further into the Kimberley Bohemia Downs project at Fitzroy Crossing in the Central South (F. Walsh pers. comm. 2004).
- Research into the work done on fire at St Vidgen station through the Tropical Savannas CRC (F. Walsh pers. comm. 2004).

Recommended people to contact in the central Australian region (this list was supplied during initial consultations for this project)

- Yuendumu: Henry Cake, Benny McDonald, Shorty Janagala, Thomas Rice, Tommy Watson, Harry Dixon, Reilly Oldfield, Harry Nelson, Ruth Stewart, Judy Granites, Coral Callagher, Long Maggie White, Peggy Brown, Nancy Oldfield, Ruby Forrester, Bessie Simms, Cowboy George
- Warren Williams (Land Management Officer CLC Yuendumu)
- Lindsay Williams (Yuendumu Council Chairman)
- Bess Price (Warlpiri language and cross-cultural consultant Yuendumu)
- Veronica Dodson, Jo Bird (one of the 20 or so men left from the Lajamanu area who were interviewed in the early 1980s by David Alexander and David Nash)
- Jarred Driver (the son of one of these Traditional Owners from Lajamanu)
- Christopher Shaw (Tennant Creek)
- Christopher Shaw (See Shaw) (Julalikari Council, Tennant Creek)
- Patrick Hookey (Fire consultant for Uluru)
- Peter Yates (APY fire management plan consultant)
- Bruce Rose (Environmental management)
- Lisa Watts (wrote MA thesis with Simon Fisher around the Mt Doreen area)
- Rebecca Smith (Batchelor Institute of Indigenous Tertiary Education (may be starting up a Nyirrpi ranger program).

Recommended people to contact in other relevant regions

- Ben Cross, Guy Will, Andrew Craig and Carol Palmer (all of whom were said to have worked on the Kimberley fire project)
- Tom Vigilante (PhD analysis of burning techniques by using explorer records in the East Kimberley)
- Andrew Edwards (Bushfires NT, Darwin – ran the Arnhem Land project)
- Jeremy Russell-Smith (Bushfires NT, Darwin – also involved in Arnhem Land project)
- Ian Morrison (Darwin-based researcher looking into burning around riverine areas)
- Ben Cook (has good knowledge of Aboriginal burning practices in the Top End)
- Terry Monie (Top End regional fire reviews; NLC).

