

## Stakeholder views on fire management in Cape York, Australia

This non-technical briefing note discusses, in layman terms, the findings of a study conducted in 2004 that mapped Cape York stakeholder perspectives on fire management. An academic paper that describes this study in technical detail is available at

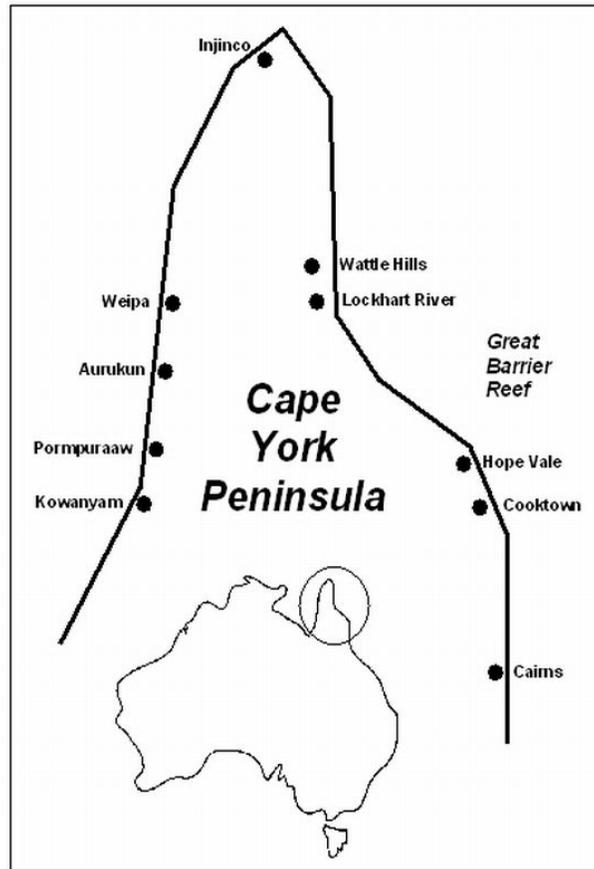
[http://www.sussex.ac.uk/sussexenergygroup/documents/ockwell\\_q\\_and\\_reflexive\\_policy\\_appraisal.pdf](http://www.sussex.ac.uk/sussexenergygroup/documents/ockwell_q_and_reflexive_policy_appraisal.pdf)

### Key messages

1. Fire management is of relevance to global environmental issues including climate change and biodiversity conservation. Getting fire management in Cape York right is therefore of international importance.
2. Despite the importance of achieving sustainable fire management, the science on the ecological impacts of fire is uncertain.
3. There is a strong divide between different stakeholders' perspectives on fire management practice in Cape York. Until recently, no attempt has been made to scientifically map these different perspectives, yet understanding them is central to developing sustainable policy.
4. The study described in this briefing note revealed that stakeholder perspectives in Cape York are divided between four different broad perspectives, namely:
  - Perspective A: Rational fire management
  - Perspective B: Fire-free conservation
  - Perspective C: Pragmatic, locally controlled burning
  - Perspective D: Indigenous controlled land management
5. Each of these perspectives is based on different views of why and how people should burn. Due to the scientific uncertainty surrounding fire ecology none of these views can be said to be more valid than another.
6. Policy would benefit from being developed through participatory processes that provide a forum for stakeholders to deliberate on fire management. This would assist in developing policy that fully considers the cultural, economic and environmental interests and beliefs of different stakeholders.



## *Cape York Peninsula, Northern Australia*



### **Fire management: an uncertain science**

The use of fire by humans is an important global policy concern. In particular, people are worried about its impact on climate change and “biodiversity” (the diversity of plant and animal life on earth which is essential to the health of the ecosystems upon which we rely for food, clean air and water). Fire can contribute to climate change by emitting CO<sub>2</sub> and reducing the amount of carbon stored in trees and soils. It can cause biodiversity loss by changing the natural habitats of different plants and animals, for example by burning land that didn't used to be burned or by not burning land that used to burn naturally.

In Australia a very complicated picture exists regarding the impact of fire on the environment. Fire has been used for millennia by Aboriginal Australians. It is also likely that large areas of Australia burned naturally in the past as a result of lightning and other natural causes. In recent decades, areas such as Cape York in northern Australia have witnessed rapid (in ecological terms) change in how fire is used. Pastoralists, for example, use it to manage the land for cattle grazing and National Park managers use it to try and encourage fire tolerant habitats such as heathland. Modern burning methods include dropping incendiary devices from aeroplanes, which contrast to traditional Aboriginal practices of lighting fires by hand and following them on foot.

Despite this long history of burning, the science on the ecological impacts of fire in Australia is still fraught with uncertainties. Scientists still debate which fire regimes are most suitable. Some evidence, for example, suggests that too high a burning frequency is detrimental to certain vegetation as well as small mammals and invertebrates. Other evidence suggests that too low a burning frequency is detrimental to certain species of birds, as well as species of plant that rely on fire for reproduction.

### **The quest for “sustainability”**

In the face of the different reasons for using fire, and the scientific uncertainty surrounding its impacts, it is not surprising that stakeholders’ perspectives on why and how to burn vary widely in a region such as Cape York. Differing and often opposing views on how and for what purpose to manage land is a problem that policy makers throughout the world face in relation to many environmental issues.

It is now accepted practice in many parts of the world that, in order for land management to be considered “sustainable”, it needs to strike a balance between the environmental, economic and social impacts of human activities, both now and into the future. In a situation where scientific uncertainty exists this inherently requires two things. Firstly, a precautionary approach must be adopted, erring on the side of caution with regard to likely future environmental impacts of any policies or actions. Secondly, policy must be appraised on the basis of participatory processes that provide

a forum to represent and deliberate over the views and interests of all stakeholders, no matter what their background.

### **A study of different views on fire management in Cape York**

A starting point for achieving sustainable fire management policy in Cape York is therefore to understand the diversity of perspectives that exist amongst different stakeholders. In 2004 a scientific study was conducted that mapped these different perspectives. An innovative technique from the social sciences known as “Q Methodology” was used. This involved collecting over 300 statements that had been made by Cape York stakeholders on the topic of fire taken from the following sources:

- Proceedings of two seminars where a representative cross-section of Cape York stakeholders came together to make presentations on their views of the use of fire. These were: *Tropics Under Fire: Fire Management on Cape York Peninsula*. A Public Seminar hosted by the Cairns and Far North Environment Centre, Cairns, 1992; and, the *Northern Australian Fire Workshop “Fire Stick in the 21<sup>st</sup> Century”*, hosted by the Queensland Rural Fire Service, Cooktown, 1997.
- Proceedings of two conferences dealing specifically with pastoral uses of fire in northern Australia. These were: *Fire in the management of northern Australian pastoral lands*. Hosted

by the Tropical Grassland Society of Australia, St Lucia, Queensland, 1997; and *Fire on the savannas. Voices from the landscape*. Hosted by Tropical Savannas CRC, Darwin, 1998.

- Anthropological and other literature on Aboriginal use of fire.

These statements were then filtered down, using strict criteria, to 36 representative statements (see Table 2 on pages 5-7 below). A cross section of 32 Cape York stakeholders were then asked to rank each statement on a scale from -4, through 0, to +4 depending on

how much they agreed or disagreed with them. Participants in the study represented the stakeholder groups detailed in Table 1 below.

The responses were then analysed using statistical techniques that identified similar patterns of responses across participants. This identified four statistically significant clusters (A, B, C and D) of participants that ranked statements in similar ways. Based on a weighted interpretation, the way that someone who exactly represented each cluster of responses would rank each statement is shown in Table 2 on pages 5-7 below.

**Table 1. Key stakeholder groups from which respondents were drawn**

Stakeholder group	Description
Aboriginal	Aboriginal land users and Balkanu (Cape York Aboriginal Development Association)
Government Scientists	Government scientists from institutions including the Queensland Department of Natural Resources and Mines
QPWS	Policy makers and park rangers from the Queensland Parks and Wildlife Service (QPWS)
Other Relevant Government Departments	Policy makers from other relevant government departments including the Queensland Rural Fire Service and Cape York Peninsula Development Association
Independent Scientists	Local, national and international independent scientists
Pastoralist	Cape York pastoralists
Tourist	Australian and international Cape York tourists
Wattle Hills	Shareholders in Scudo PLC, managers of Wattle Hills, a property on Cape York managed around the principle of fire-free regeneration

**Table 2. Weighted rankings for each statement for each of the four clusters of responses**

*Statements were ranked from -4 through 0 to +4 depending on how much respondents agreed or disagreed with them*

Statement		Cluster of responses			
		A	B	C	D
1	Fire as a tool can and will shape the landscape through the hand of man or inevitable natural occurrence.	4	2	3	2
2	Big fires come when that country is sick from nobody looking after with proper burning.	4	-2	-2	1
3	When people burn off the tall grass they are making the country happy, and everything will come up new and fresh.	0	-4	0	-2
4	Fire can play a significant role in land management.	4	2	3	2
5	Many fires are lit by visitors to Cape York	-1	0	0	-1
6	It is most distressing to see a large part of Cape York burnt every year, which kills thousands of animals.	-4	4	-2	4
7	That Aboriginal people used fire to maintain their subsistence base for thousands of years is proof that controlled fires can be a management tool.	1	0	2	0
8	The traditional mosaic burning practices of Peninsula graziers, are basically a continuation of the traditional burning practices of Aboriginal people.	-3	-2	0	3
9	Patchwork burning has benefits for tourism - it's easy to hike along open riverside flats, and easy to see the kangaroos and wallabies which are attracted by the fresh root. These are exactly the same benefits, economic benefits, which are sought by graziers, who need to attract cattle, to concentrate and then muster their cattle, and they are the same economic benefits which were sought by Aboriginal people, who burned grass to make it easy to move around, and to attract game to the fresh shoot.	0	-1	1	1
10	Aboriginal burning destroyed an earlier rainforest which was widespread across North Australia, leading to the creation of an impoverished savanna.	-3	0	-2	-2
11	If there was a natural balance achieved under Aboriginal management it does not mean to say that it is the optimal state for modern Australia in the 21st century.	0	2	1	-4
12	Aboriginal people must be involved in land management on a basis of equality.	2	1	0	4
13	All fires should be planned and carried out in the company of the appropriate traditional land owners.	-1	0	0	3
14	Aboriginal knowledge of fire regimes is important and should not be overlooked by the scientific and wider community.	3	2	1	3
15	Country that has been burned is country which looks cared for and clean.	-1	-3	-1	-3
16	Smokes and fires tell us that everything is good - that people and country are doing the right thing.	-2	-4	3	-3
17	Land that has been burnt is 'quiet country'.	0	0	-2	-2
18	Damaging effects of fire include increased levels of "greenhouse" gases in the atmosphere.	-1	3	1	2
19	Damaging effects of fire include loss of biodiversity through the disappearance of fire susceptible species.	0	4	1	0

Statement		Cluster of responses			
		A	B	C	D
20	Cape York, developed by nature and fortunately relatively underdeveloped by industrialized man, still contains large areas of wilderness which should not be interfered with by humans including (and especially) the insidious, destructive incendiary attacks being made on them.	-3	1	-1	-4
21	We should not make a judgment that one habitat is more desirable than another, but take whatever action is necessary to maintain the habitat diversity we now have.	1	-1	3	0
22	There is no such thing as natural management. We decide just as surely what the landscape will look like by doing nothing as we do if we design a fire management. So we may as well make some attempt to achieve a desired outcome as leave it to chance.	2	0	2	1
23	The question about burning is essentially how much should we attempt to manipulate nature in our research of the ultimate in National Park care, or the ultimate in food production?	-2	0	0	0
24	If we want to go make fire, to burn, every year not to fire, every year. Take about two, three year for the right time got to be burnt.	1	-1	-1	-1
25	The role of fire is specific to an ecosystem, and there are few general rules that apply.	1	1	0	2
26	Research on the effects of different burning practices on the varied forest types on Cape York Peninsula needs to be carried out.	2	3	3	0
27	The technical arguments about burning are peripheral, the question is essentially a philosophical one.	-2	-3	-3	-1
28	We must stop diminishing our reservoirs of nature and spirit through burning.	-4	1	-1	1
29	The greater problems arise from people's perception of fire as a violently destructive agent to be suppressed at all costs.	3	-2	0	-1
30	One of the factors limiting the use of fire is the increase in tourist operations in the area and their opposition to burning from an aesthetic point of view.	-1	-1	-4	0
31	In the arid heart of Cape York Peninsula, we are always going to have trouble with fire, as long as some of us feel a thrill, a quickening of the pulse, as we light up the edge of a road, or feel a grim satisfaction as we watch the flames leap up a hillside, because since mankind first learned to use it, everyone loves a fire.	0	-1	-4	-1
32	The belief that fire has no place on Cape York Peninsula or tropical Australia is akin to a playing of Alice in Wonderland, for that is neither possible or desirable.	3	0	2	0
33	The most severe environmental damage suffered on parks can be directly attributed to wildfires from neighboring properties with a strict no-burn policy. There is no practical fire-break system that could be successful in protecting the parks from such an eventuality.	-2	-3	-3	-3
34	Anyone who lights a fire for whatever reason should be responsible for making sure that fire goes out.	0	3	3	0

Statement		Cluster of responses			
		A	B	C	D
35	People don't talk to each other. They take lawsuits out against each other. In the future, the legal aspects of controlling fire are just going to go through the roof. We must put in place a better cooperative regional view, as opposed to going to court.	1	1	-1	0
36	Queenslanders must retain the right to burn.	0	-2	2	-2

On the basis of recorded interviews where the respondents described why they had ranked each statement as they had, the rankings associated with these four clusters were then interpreted into four different overall perspectives. These are each described below. Numbers in brackets refer to the statement in the table above upon which the interpretation is based.

*Perspective A: Rational fire management*

This perspective expresses a strong acceptance of science based arguments that suggest fire has long been, and will remain, an integral part of the ecology of Cape York (10). On this basis, it strongly endorses the use of fire as a land management tool (1, 4). As one respondent stated in their post sort interview, "If you don't acknowledge the year-long presence of fire in Cape York then you don't have a place in the argument at all." Emotive responses to anthropogenic burning are strongly rejected within this perspective in favour of an understanding of fire based on rational, scientific analysis (6, 28, 29). Responses to statement 6 included: "That's life. People live, people die. Vegetation's the same." One respondent felt that statement 28 "Sounds like something out of a Hari Krishna temple."

*Perspective B: Fire-free conservation*

This perspective is strongly opposed to the current levels of anthropogenic burning in Cape York (3,16). It emphasises global conservation issues such as biodiversity loss and global warming (18, 19) in the context of a need to manage land in a way that reduces current levels of burning in response to contemporary environmental, economic and social conditions (11). As one respondent stated in response to statement 18, "That's the guts of it... There shouldn't be anyone unless they live in the middle of Antarctica and they've never seen a TV or a newspaper, these days, who doesn't believe that climate change is with us. And so that being the case, every bit of fire that can be stopped... should be stopped. Regardless of what the reasons are in terms of the vegetation down here, we shouldn't be thinking about that. Our first reason should be thinking about up there... stop the smoke from going up there..." As well as drawing on scientific arguments in support of an anti-burning position, this perspective, in direct contrast to Perspectives A and C, is not averse to more emotive arguments against burning (6).

*Perspective C: Pragmatic, locally controlled burning*

As with Perspective A, this perspective supports the use of fire for land management purposes (21) and is averse to emotive reactions to burning, although slightly less averse than Perspective A (6, 28). The distinctive element of this perspective is its emphasis on the local control of land management in Cape York by existing land owners (30, 36). As one respondent stated in response to statement 30, “I’d hate to think that any burning done on Cape York was to make it better for tourists.” This perspective also believes in the ability of existing Cape York land owners to use fire responsibly (31).

*Perspective D: Indigenous controlled land management*

This perspective focuses predominantly on the need for Aboriginal control of all forms of land management, including burning (12, 13). Its key emphasis is on the value of traditional Aboriginal burning practices. These are seen as having

supported sustainable human existence on Cape York prior to the European invasion of Australia, which is perceived to have resulted in unsustainable burning practices pursued by the predominantly white land owners of Cape York today (8, 6, 11). Whilst the need for fire research is recognised, this should only be in the context of facilitating the re-establishment of indigenous land practices on Cape York, not reinforcing the current investment in dominant, Euro-centric scientific research (26). Referring to existing research on fire in Cape York, one respondent stated that “There has been very little engagement with Indigenous land managers and what there has been has been poor to say the least. [Current Euro-centric fire research] represents another layer in the process of colonization.”

*Stakeholder groups associated with each perspective*

Table 3 below shows the percentage of stakeholder groups amongst the respondents that were associated with each perspective.

**Table 3. Percentage of stakeholder groups associated with each perspective**  
*Percentages in brackets ( ) denote a significant negative association (in other words these stakeholders were diametrically opposed to this perspective).*

Stakeholder Group	% associated with perspective			
	A	B	C	D
Aboriginal	33.0	0.0	33.0	34.0
Government Scientists	100.0	0.0	0.0	0.0
QPWS	75.0	0.0	0.0	(25.0)
Other Relevant Government Departments	75.0	0.0	25.0	0.0
Independent Scientists	50.0	50.0	0.0	0.0
Pastoralist	50.0	0.0	50.0	0.0
Tourist	0.0	100.0	0.0	0.0
Wattle Hills	0.0	72.7	18.2	9.1

### *Areas of consensus*

It is interesting to note that there is consensus across all four perspectives in terms of their rankings of statements 7, 14, 17, 23 and 25. Apart from statement 14, each perspective is relatively neutral with regard to these statements ranking them within two scale points of one another and never beyond +2 or -2. Statement 14, on the other hand, is ranked between +1 and +3 indicating general agreement regarding the importance of Aboriginal knowledge of fire regimes.

### **Policy implications**

The way in which this study was conducted meant that the influence of the researcher was minimal. The statements used were made by Cape York stakeholders and the interpretation of the results was based on recorded interviews with respondents rather than the researcher's own interpretation. The perspectives above can therefore be assumed to be an accurate reflection of stakeholder perspectives on fire management in 2004.

Clearly there are significant differences between the perspectives. The reasons for humans to burn land, for example, are very different for people adhering to Perspective D (*Indigenous controlled land management*) than for people adhering to Perspective A (*Rational fire management*). It is also difficult to imagine how Perspective B (*Fire-free conservation*) might be reconciled with the other perspectives which are all pro the use of fire by humans. Nevertheless, in the face of the scientific uncertainty surrounding the

ecological impacts of fire in Cape York, together with the global significance of fire as an issue of relevance to climate change and biodiversity loss, sustainable fire management policy needs to be both precautionary and appraised on the basis of all the perspectives identified in this study. This requires the creation of participatory policy forums that draw on best practice from initiatives elsewhere in the world. These should provide a space where stakeholders come together to deliberate and input their views into policy. Useful starting points for deliberation could be the areas of consensus identified above, such as the importance of indigenous knowledge of fire. Importantly, such participatory initiatives must be convened on the basis of a clearly set out process by which they will directly contribute to policy appraisal.

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