

Cape York Peninsula Fire Management Strategy



EXECUTIVE SUMMARY	3
INTRODUCTION.....	4
BACKGROUND:	5
CURRENT SITUATION	7
FUTURE DIRECTION.....	8
THE FOUR COMPONENTS:	9
ON GROUND OUTCOMES.....	9
1. A COLLABORATIVE APPROACH TO FIRE MANAGEMENT	9
2. UTILISING EXISTING FIRE MANAGEMENT CAPACITY WITHIN THE SUB REGIONAL CLUSTERS.....	10
3. FIRE MANAGEMENT ADDRESSING MULTIPLE ECOSYSTEM OUTCOMES.....	10
4. HAZARD MITIGATION	10
5. CARBON ACCOUNTING.....	10
6. SOPHISTICATED PLANNING CAPACITY	10
7. FIRE KNOWLEDGE CONDUIT	11
SUB REGIONAL GROUPS UTILISING NATURAL RIVER SYSTEMS AS FIRE BARRIERS.....	12
1. <i>Jardine River to the tip of Cape York,</i>	<i>12</i>
2. <i>Jardine River to the Wenlock (West) utilising the Peninsula Development Road,</i>	<i>13</i>
3. <i>Jardine River to Pascoe Rivers (East) utilising the PDR and the “Frenchmans Road”,</i>	<i>13</i>
4. <i>Wenlock/Pascoe to Archer River (East) of the Peninsula Development Road.....</i>	<i>13</i>
5. <i>Wenlock to the Archer River west side of Peninsula Development Road.</i>	<i>13</i>
6. <i>Archer to the Coen River.</i>	<i>13</i>
7. <i>Archer/Coen to the Holroyd River west side of Peninsula Development Road.</i>	<i>13</i>
8. <i>Holroyd to the Coleman River</i>	<i>14</i>
9. <i>Coen to the Stewart River east side of Peninsula Development Road.</i>	<i>14</i>
10. <i>Stewart to the Moorehead River on the east side of Peninsula Development Road.</i>	<i>14</i>
11. <i>Moorehead to the Hann River on the east side of Peninsula Development Road.</i>	<i>14</i>
12. <i>Hann to the Normanby and Laura Rivers east of Peninsula Development Road.</i>	<i>14</i>
13. <i>Normanby to the Bloomfield River</i>	<i>14</i>
14. <i>Normanby to the Laura River.....</i>	<i>15</i>
15. <i>Laura to the Palmer and Kennedy River on the South side of the PDR.</i>	<i>15</i>
16. <i>Palmer/Mitchell River to the King/Hann River on the North side of the PDR.</i>	<i>15</i>



17.	<i>Mitchell to the Alice River</i>	15
18.	<i>Mitchell/Alice/Morehead Rivers to the Coleman River</i>	15
	18 SUB-REGIONAL AREAS PROPOSED.	15
	IMPLEMENTATION DETAIL	18
	METHODOLOGY	18
	FIRE PLANNING.....	19
	FIRE VERIFICATION	19
	SPECIFIC TOPICS ADDRESSED DURING FIRE PLAN PREPARATION:.....	19
	METHODOLOGY CONTINUED.	23
	BIODIVERSITY	23
	SUSTAINABLE FARM PRACTICES.....	23
	COMMUNITY SKILLS, KNOWLEDGE AND ENGAGEMENT	23



EXECUTIVE SUMMARY

A long term fire management strategy for Cape York Peninsula is needed to guide strategic direction, empower more action to support a coordinated implementation program.

This process is intended to focus attention on the future of a fire management program built around communication, engagement and participation. A framework has been developed that will give direction on processes, systems and structures that enable integration and clear understanding of social, economic, ecological and political considerations, conflicting requirements and a community driven consensus on the best course of action at a sub-regional scale.

In 2001, 10.5 million of the 13.5 million hectares that comprise Cape York Peninsula were burnt. Fire management practices are essential. There are two vital reasons:

- Maintaining biodiversity,
- Protecting life, property and the safety and wellbeing of residents and visitors.

The missing component in the improvement of fire practice has been the lack of capacity to respond to the issues through a lack of resources, a lack of long term commitment by funding agencies and a scarcity of experienced fire practitioners to guide and mentor fire management activity.

This strategy proposes to improve fire management in the Cape York Peninsula Bio-Region through building a framework whereby all land managers are engaged in co-operative sub-regional fire management utilising the natural major river systems as potential barriers to fire spread that act to define natural sub-regional boundaries.

This Regional Strategic Plan has two purposes:

- **to facilitate regional fire management planning by providing guidance to meet the needs of the Cape York community;**
- **and to support fire management planning and its implementation by encouraging and coordinating stakeholder engagement at sub-regional and regional levels, by providing access to relevant research, development and data.**

Cape York Sustainable Futures is strongly committed to the ownership and long term operational delivery of this fire strategy and will find the resources to implement this program. There is strong community support for this plan of action and initial steps are being taken to build the sub-regional community frameworks necessary for success to be achieved.



INTRODUCTION

A better understanding of the role of fire in the unique landscapes of Cape York Peninsula, and the impact of fire management practices on conservation, indigenous cultural heritage, production and traditional ownership values is fundamental to effective long term natural resource management in the region.

An agreed broad long term fire strategy would help guide strategic direction, empower more action and assist in the development of a better coordinated and cohesive implementation of responsible fire use. This process is intended to focus attention on the future of a fire management program built around communication, engagement and participation. A framework has been developed that will give direction on processes, systems and structures that enable integration and clear understanding of social, economic, ecological and political considerations, conflicting requirements and a community driven consensus on the best course of action at a sub-regional scale.

There have been numerous strategies and plans discussed in studies such as the “Cape York Peninsula Land Use Study” and workshops such as – “Firestick to the 21st Century” Cooktown 1999 to identify fire use and strategy appropriate to Cape York.

In particular, the workshop in Cooktown enabled a strong local resident and associated ancillary stakeholder representation of what should and should not be implemented. Within these written reports and many others are specific documents and resultant study research papers for best practice fire use on grazing land management, weed control, conservation management, cultural, healthy country, and wildfire mitigation.

The basic outcome of recommendations from the Cooktown workshop indicates the priority focus involves the safe and responsible use of fire consistent with stakeholders’ objectives.

Since this time the knowledge around the current application and use of fire in the extensive landscapes of Cape York has improved dramatically due to the satellite based remote sensing data that maps fire activity in near real time and publishes that information through interactive web sites potentially accessible to the most remote communities in the Cape.

The missing component in the improvement of fire practice has been the lack of capacity to respond to the issues through a lack of resources, a lack of long term commitment by funding agencies and a scarcity of experienced fire practitioners to guide and mentor fire management activity. Implementation of coordinated strategies and collaborative relationships between different groups of fire users has been minimal with the large distances and sometimes abrasive relationships between these groups adding to the difficulty of forming effective working partnerships necessary to progress fire strategies effectively.



BACKGROUND:

Land use is important in determining the impact of fire management. There are numerous uses of fire as a tool for land management and the dynamics of fire behaviour align with the influence of the weather on the vegetation.

Fire history information is available from early European pioneers observations Cook and Banks (1770), Kennedy (1848), Hann (1872) Jack (1879) Jardine (1864) Mulligan (1873) that discuss how fire was used and what the country looked like.

Fire in Cape York is a constant each and every year and this is clearly shown in the satellite monitoring. The total area burnt varies from year to year but comparative to the rest of Queensland Cape York has the greatest level of fire activity in the state. There are many stakeholders that fire affects and with the increase in tourist and recreation activity the risk level is gradually increasing.

It appears the biggest challenge for landholders in Cape York who are actively engaged in fire management is coming to grips with the sheer size of the areas being managed and the reduced human presence and people on the land. Changes in the modes of transport from foot and horseback to vehicle coupled with increased costs of labour access and maintenance together with the concentration of indigenous communities in regional townships has meant that much of the landscape is unpopulated. (Mike Delaney Cooktown Fire Workshop, 1999.)

Land managers use natural features as much as possible to manipulate fire using roads, rivers and natural “green flats” to burn or not to burn desired areas.

There is increasing use of mechanically constructed fire breaks. (Human involvement with Fire – Cattle Management - Alan Holmes Cooktown Fire Workshop, 1999.) Because nutrient supplements must be fed as a “supplement” to standing feed, not as a substitute, grazing property managers generally support pre wet season burns over post wet season (early dry season) burns. Many people consider this situation more closely reflects the “natural” circumstance – fires lit by lightning immediately prior to the wet season when a good bulk of dry material is available.

Prior to human settlement, fire was generated by natural causes and, along with climatic change and earth forming processes, helped influence the evolution of ecosystems and the constituent flora and fauna. (Indigenous Issues and Land/Fire Management – Cape York Peninsula –D.G.Fell Cooktown Fire Workshop, 1999). Evidence based on palaeoecological and archaeological research in south east Cape York indicates that Aboriginal people lived in the region for at least 35,000 years. (Stephens K and Head L 1995 Palaeoecological of archaeological and swamp sites in SE Cape York Peninsula In. Quinkan Prehistory: The Archaeological of Aboriginal Art in SE Cape York Peninsula. Morewood and Hobbs. (Eds.) This research suggests that there was a basic stability in the regional vegetation structure, prior to the onset of regular firing of the land by Aboriginal people, about 5,000 years ago.

(Fell D.G.) states “What is now recognised by regional Aboriginal representative bodies having to deal with natural resource management issues in the Cape York region is that local Aboriginal groups need to be well organised. The ad-hoc and



disjointed manner in which indigenous organisations have developed is in response to the pressures on local groups to form representative bodies to deal with complex issues such as land claims and the many programs brought into the community by external agencies. The result is an unstructured, unbalanced, overlapping, and inappropriate approach to natural resource management. Traditional owners are struggling with the new and pressing demands of managing their homelands.”

Clans may use fire differentially to other clans similarly as non-indigenous properties use fire differentially, each for different objectives. This needs to be recognised but it also needs to be recognised that individuals or individual conglomerates need to use fire responsibly. Any fire strategy for the whole of Cape York needs recognition that each individual landholder is responsible for the management of it and as custodian will have total ownership, good or bad.

Fire has been part of the landscape for eons of time and has been discussed for decades in numerous studies by researchers and land occupiers, written in history, evaluated and monitored, practiced, preached and probed. Still the debate continues and differing opinions prevail between properties of differing land use types, between properties with same land use type and even within legislating government agencies. However, all will agree on two overarching outcome constants of “environmental” and “economical” driven objectives for fire use and suppression. There is a third aspect revolving around dis-respect and irresponsibility. Consequently, regulators introduced legislation that ensured “life” became paramount with “loss”.

The adage of “cannot see the forest for the trees” can be applicable when legislation is not interpreted or practiced in alignment with local need and affinity of that land knowledge. Australian history has proven this with the devastating mega fires that keep re-occurring, for example Ash Wednesday, Black Friday, and Black Saturday and so on. Wildfires or unwanted and unplanned fire has increased in comparison to prescribed fire, subsequently the biodiversity or vegetation type and canopy cover changed accordingly. There are more trees than previous but one species may dominate due to this regime, contributing to habitat “loss”. Early Indigenous Australians burnt all year round creating a variable fire regime on the landscape, present day Australians have lost that capacity following the centralised convenience of living standards and the placement of boundaries and ownership. Congruently, Fire Authorities also now polarised from centralised areas no longer see or understand fire use as a tool that can be so cost effective and efficient; in contrast, the cost now is enormous in more ways than just dollars.

Fire is clearly recognised as an invaluable land management tool for a range of purposes. “Fire is pivotal to the functioning of ecosystems in Australia, affecting the distribution and abundance of the continent’s unique and highly diverse range of plants and animals” (Bradstock et al. 2002. Flammable Australia: The Fire Regimes and Biodiversity of a Continent.) It plays an integral part in shaping the vegetation communities that form viable habitats for flora and fauna on Cape York. Fire plays a part in erosion control, land condition (ground cover, species composition, woody thickening and weeds) and pasture quantity and quality. It is important to recognise, however, that inappropriate fire (notably but not restricted to wildfire) is also a key threat to rural industries, especially grazing, and to conservation values at species, habitat and ecosystem levels. On the other hand, the absence of fire in the



landscape can quickly change these habitats by reducing healthy biodiversity to a dominant monoculture.

Vegetation is what fuels fire and it can, if inappropriately managed or left unmanaged, present a huge threat to life and property, fixed and temporary man-made infrastructure and tourist visitation recreation.

CURRENT SITUATION

In 2001, 10.5 million of the 13.5 million hectares that comprise Cape York Peninsula were burnt. Under the CYP Fire Management Program (funded under Natural Heritage Trust 2 and Caring for Our Country) the area burnt annually reduced from an average 8 million hectares to 5.5 million hectares (Source Cape York Sustainable Futures firescar mapping database). This is still three times the area affected by the 2009 Victorian bushfires. In 2006 savannah burning accounted for almost two percent of Australia's greenhouse gas emission (Department of Climate Change, National greenhouse gas inventory, 2006.). Unmanaged fire on CYP is therefore also a carbon emissions issue.

Cape York Peninsula is an important, ecologically diverse region of tropical Australia. With a population of about 18,000 (Bureau of Statistics), Cape York Peninsula, is renowned for its biodiversity and untouched nature, and is a drawcard for visitation.

As a result, fire management practices are essential. There are two vital reasons:

1. Maintaining biodiversity,
2. Protecting life, property and the safety and wellbeing of residents and visitors.

Three distinctive cultures are found on Cape York; Aboriginal, Torres Strait Islander and non-indigenous.

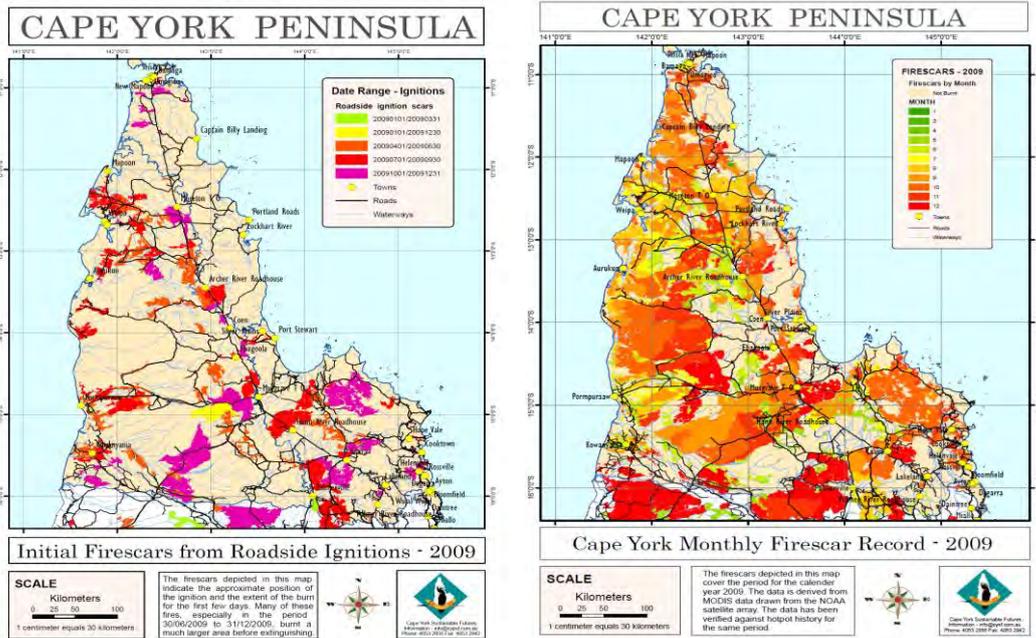
The economic base is considered narrow. Industry includes tourism, mining, raw materials, fishing, camping and recreation, grazing, tree plantation and some small cropping. Grazing is the predominant industry. Isolation and distance have been key components inhibiting environmental and economic change.

Access has improved greatly in the last decade, with newly constructed bridges and culverts enabling increased people movement and extended access periods, even during the wet season. Improved access has increased tourism and visitor numbers to the Cape, which has reduced the location's remoteness. Human activity has in turn increased the frequency of wild fires on Cape York. There are five fire ignition sources in Cape York Peninsula:

- Accident
- Negligence,
- Arson (including unauthorised ignition)
- Natural causes
- Deliberate ignition for a fire management purpose

Four of these are the result of human activity. The linkage suggests that any future fire management strategy will primarily be directed at the human use and misuse of fire in the landscape.





Conflicting land use and fire experience amongst Cape residents also creates division between neighbours. The only way a united ownership of fire management can be achieved harmoniously is through consultation and communication. An arbitrary border or a fence line does not stop a fire unless there are constructed earth firebreaks. In a monsoon area, earth breaks will result in greater erosion every year, with an increased impost on financial and environmental costs. Where possible it makes good sense to minimise earth breaks by utilising natural systems.

There are a number of major river systems throughout CYP that act as natural fire breaks. Although most rivers do not run during the dry months they act as effective natural breaks due to either the heavy canopied riparian zones that shade out grass fuels, or bare sandy river beds. With careful forethought and planning these natural barriers can be utilised into local fire management strategy for greater protection of man made and natural assets.

Aboriginal elder's stories inform us that they historically commenced their burning from the edge of rivers and creek systems (1997 North Australian Fire Workshop - "Burning Mulgura" Kulumbaru in the Kimberleys). Burning was undertaken throughout the season in a mosaic of temporal, spatial and intensity dimensions. European settlement changed the focus to boundary fences and roads that are not necessarily aligned to topography or vegetation communities. These same elders believe cattleman's burning practices are closest to traditional practices and further believe that the younger indigenous and European generations burn too much and too frequently from roadsides.

FUTURE DIRECTION

This strategy proposes to improve fire management in the Cape York Peninsula Bio-Region through building a framework whereby all land managers are engaged in co-operative sub-regional fire management utilising the natural major river systems as potential barriers to fire spread that act to define natural sub-regional boundaries.

The major focus of this project is to engage land managers to ensure a collaborative and consultative process is in place. This would encourage shared ownership of the fire management program. Without this focus any sub regional or regional strategic



fire management plan will fail. Engaging the stakeholders will in the long term reduce social, economic and environmental costs.

The fire management strategy would achieve outcomes through engaging the managers and caretakers of the land, the people who are responsible, and support those who are in tune with their environment and have an affinity and historic connection with the land.

The program has four components, each aimed at engaging all land managers, focusing on ownership of fire management across the subregion, utilising the major river systems as natural fire boundaries.

The four components:

- (i) *Providing property scale fire management planning:* Assisting landholders to achieve sustainable land management for their individual needs and goals;
- (ii) *Establishing sub regional fire management planning structure:* Involving the land managers in a management structure based on sub – regional areas utilising major river systems as natural fire break barriers.
- (iii) *Monitoring, evaluation and developing satellite derived fire scar and hot-spot data:* Local interpretation, alignment and amendments to the fire action plans/guides according to the factual activity recorded through independent mapping and through monitoring and interpreting seasonal conditions and trends.
- (iv) *Identifying strategies to improve the resourcing of implementation and training activities.* Enabling a platform to pass down knowledge and skills from one generation to the next.

A collaborative approach to fire management requires skilful facilitation. Coordination requires continuous engagement with expertise across varied rural issues, science, and most importantly, communication skills. Cape York Sustainable Futures has a proven record in these fields having conducted the Cape York Fire project for the last 12 years.

This program will build on previous work funded by the Tropical Savannas Management Cooperative Research Centre, NHT1&2 and CFOC. It also structures implementation of previous proposals arising from discussion from the Cape York Peninsula Land Use Study (CYPLUS) stages 1 & 2, and the Northern Australian Fire Workshop held in Cooktown in 1999.

ON GROUND OUTCOMES

1. A collaborative approach to fire management

This program will provide a proactive and collaborative approach rather than a reactive approach to fire management. Fire planning will be based on property clusters in each region and expansion of land owner networks. The project is essential because wildfire activity occurs annually, landholders require near real-time



information during the fire season to manage this threat, and with more frequent and severe fire seasons predicted under climate change scenarios these challenges will only increase over time.

2. Utilising existing fire management capacity within the sub regional clusters

It is envisaged that land managers across all land tenures indigenous, grazing and government land will contribute substantial long term knowledge and experience in the planning and implementation of effective fire management programs. Training and mentoring programs will need to be provided to enhance the practical component of fire application and facilitate the development of a sustainable long term fire management program for the future. The strategy activities and timeline milestones will need to have a long term focus as mentoring programs and change of practice takes time to evolve and be accepted across the community.

3. Fire management addressing multiple ecosystem outcomes

The fire planning component will be linked to delivery of best practice holistic fire management outcomes in Biodiversity, Healthy Country and Grazing Land Management. The aim is to build capacity through communication and knowledge sharing at a sub-regional group level to break down barriers and get people to work together cohesively to overcome current issues.

4. Hazard mitigation

The purpose of fire management activity is to “Protect Life, Property and the Environment”. This will be achieved through proactive hazard mitigation to avoid the impacts of extensive uncontrolled and unplanned fire events that burn out large areas, reduce the patchiness of unburned areas and impact on economic, environmental and cultural values of the landscape.

5. Carbon accounting

Carbon accounting opportunities are causing a change of focus in the direction of fire management activity. Reducing carbon emissions will require a reduction in the area of the landscape burnt each year and a shift to lower intensity early season burning that increases the amount of patchiness within the burn area and reduces emissions of methane and nitrous oxide from fire activity. The changes in burning activity as a result of this program will be monitored to calculate carbon emission savings.

6. Sophisticated planning capacity

The strategy will further develop fire planning capacity throughout Cape York Peninsula. The monitoring and evaluation framework established through the North Australia Fire Information website and the regional planning workshops inherent in this strategy will drive the refinement of localised property fire plans. Weather and fuel curing variables from north to south and west to east will be monitored and interpreted to help drive fire management decision making and change fire regimes over time.



7. Fire knowledge conduit

CYSF have established a collaborative linkage working closely with the Northern Australian Fire Information site (NAFI) through satellite monitoring, fine tuning and customising data for local stakeholders and Cape York land managers. This enables an ongoing supervision of management activities and innovative approaches for improving adaptive fire management in Cape York Peninsula. Noticeably, there is a consistency of aligned issues in the Tropical Savannas of Northern Australia, given the savannah vegetation communities are similarly shaped by monsoonal weather patterns. It is therefore important to maintain close linkages across Northern Australian agencies. This approach broadens the consultative concept, diminishing 'silos' and enhancing synergy. This approach will be further supported through program linkages to the recently formed Queensland Bushfire Consortium to foster ongoing skills and knowledge resilience within the Queensland context.



SUB REGIONAL GROUPS UTILISING NATURAL RIVER SYSTEMS AS FIRE BARRIERS

A natural river system or non-flammable vegetation, such as a heavy canopy riparian zone, a rainforest, or a rocky escarpment will create a natural barrier to fire which can be utilised in fire management regimes. In Cape York Peninsula major river systems act as such barriers and data captured from CYSF fire scar mapping over the last 12 years shows which river systems are most effective.

Between these natural river barriers are a number of properties with differing management objectives and land use priorities i.e. grazing, mining, tourism, recreation, environmental, sanctuaries, healthy country, cultural significance, townships, utility services, etc. Fire will be seen as a friend or foe of these differing groups depending on their individual circumstance. The intent is to identify these clustered groups within the natural barriers and initiate a collaborative fire management plan. The aim is to focus on environmental and economic sustainability. A guided consultative approach will build capacity by fostering ownership of fire management plans by stakeholders.

Using natural barriers as fire breaks, particularly in high annual rainfall monsoonal areas, is a far more economically and environmentally sound management practice than using man made fire trails and roads which cause erosion and enormous annual maintenance costs. Any earth fire trails should compliment natural barriers and sub regional planning will avoid duplication of these. Through a Cape York region-wide fire management planning process the capacity for best practice and use of innovative approaches will be enhanced greatly.

This strategy will require a long term commitment by the stakeholders of Cape York Peninsula to ensure the transition into mainstream management practices and service delivery by both community and government. Coordination and facilitation of this outcome will be required in the longer term.

Given the vast area and large number of suitable river systems the implementation of this strategy will be implemented in a staged manner with initial activity directed to sub-regional areas with a demonstrated interest in and support of the strategy direction. More rapid outcomes can be assured by employing local facilitators in the more highly populated or more complex land use cluster groups.

Sub regional areas bordered by river systems that have been identified, include:
(these area definitions are indicative only and will be the subject of ongoing consultation and change over time)

1. Jardine River to the tip of Cape York,

(Complexity high)

Highly populated Indigenous area with multiple communities. A range of tourist enterprise supporting a major infrastructure and transport centre. Fire is used traditionally every year and is of no major threat to life or property. Research may be required on biodiversity base or vegetation habitat evaluation. A consultative fire management group with local traditional knowledge would enhance capacity in building relationships and training younger generations.



2. Jardine River to the Wenlock (West) utilising the Peninsula Development Road,

(Complexity medium)

Area of Indigenous, Mining, Environmental Wildlife Sanctuary, Grazing and National Park interests with some transient visitation. Adaptive fire management in this area is vital in maintaining ecological sustainability of habitat type, the lack of fire may be a danger to parts of this area.

3. Jardine River to Pascoe Rivers (East) utilising the PDR and the “Frenchmans Road”,

(Complexity medium)

Area of Indigenous, Mining, Tourist Enterprise, Grazing and National Park interests with some transient visitation to places of significance. Adaptive fire management in this area is vital in maintaining ecological sustainability of habitat type.

4. Wenlock/Pascoe to Archer River (East) of the Peninsula Development Road.

(Complexity medium)

Area with high visitation access roads to Lockhardt River and Portland Roads communities bordering National Parks. High Rainfall area particularly on the eastern fringe enhancing fire proof rainforest vegetation. Ignition sources are highlighted along the major road corridor and fire season is much later than other parts of Cape York. Wide concern that the lack of fire is threatening biodiversity.

5. Wenlock to the Archer River west side of Peninsula Development Road.

(Complexity high)

Pilot area with mixed composition and high people movement due to permanent and transient population with the townships of Weipa, Aurukun, Napranum and Mapoon. Between these two river systems lie numerous major access roads and a diverse range of property management objectives.

6. Archer to the Coen River.

(Complexity low)

Fire prone area consisting mostly of National Park and Indigenous managed land with graziers a minority. Transient movement during the tourist season with some camping.

7. Archer/Coen to the Holroyd River west side of Peninsula Development Road.

(Complexity high)



Grazing belt with indigenous homelands. A highly fire prone area with approximately 75 percent of the land mass burnt annually. High maintenance and major mitigation strategies needed.

8. Holroyd to the Coleman River

(Complexity high)

Major arterial access road between Musgrave and Pormpuraaw, considerable number of grazing properties and conservation areas (National Parks). High permanent and transient population around the Pormpuraaw Township and high maintenance fire mitigation required on properties.

9. Coen to the Stewart River east side of Peninsula Development Road.

(Complexity medium)

Wetter areas with later seasonal fire activity, properties are Indigenous, National Park and grazing bordering the township of Coen.

10. Stewart to the Moorehead River on the east side of Peninsula Development Road.

(Complexity medium)

Area of conservation/tourist lodge, fishing, grazing and National Park/Indigenous properties. High transient movement during the tourist/dry season.

11. Moorehead to the Hann River on the east side of Peninsula Development Road.

(Complexity low/medium)

Area of grazing and environmental properties with some tourist enterprise areas. Concern area for threatened and endangered species (Golden Shouldered Parrot) and fire management plays a huge role in habitat management for its survival.

12. Hann to the Normanby and Laura Rivers on the east side of Peninsula Development Road.

(Complexity medium/high)

Area of grazing and National Park/Indigenous properties with some tourist enterprise, recreation camping/fishing areas with high transient movement during the tourist/dry season. Highly fertile area with large flood plains resulting with annual abundant vegetation requiring vigilant annual fire management.

13. Normanby to the Bloomfield River

Complexity very high

Area of grazing, mining and National Park/Indigenous properties with some small crops, tourist enterprise, recreation camping/fishing areas with high transient movement during the tourist/dry season. Concentrated population area around Hopevale, Cooktown and Wujal Wujal. Complex mosaic of higher rainfall vegetation mosaics in the southern areas.



14. Normanby to the Laura River.

(Complexity very high)

Area of Grazing, Mining, National Park/Indigenous properties, Mixed Crops/Farming, Tree Plantations, Tourist Enterprise, recreation camping/fishing areas with high transient movement. Concentrated population areas around Laura and Lakeland Downs. High risk area in wildfire threat and mitigation strategies is essential, resourcing for response and proactive actions is considered highly important.

15. Laura to the Palmer and Kennedy River on the South side of the PDR.

(Complexity medium)

Area of Grazing, Mining, Indigenous, Tourism, Historical Heritage Significance. Rugged country for most with biannual fire issues where hazard mitigation through strategic aerial incendiary implementation will greatly assist property owners.

16. Palmer/Mitchell River to the King/Hann River on the North side of the PDR.

(Complexity medium)

Area of Grazing, Mining, Indigenous, Tourism, Historical Heritage Significance. Rugged country for most with biannual fire issues where hazard mitigation through strategic aerial incendiary implementation will assist property owners immensely.

17. Mitchell to the Alice River.

(Complexity medium)

Identified grazing, Indigenous, tourism with some national park and mining.

18. Mitchell/Alice/Morehead Rivers to the Coleman River on the west side of the Peninsula Development Road.

(Complexity high.)

Highly fire prone area consisting of grazing, mining and Indigenous homelands, access track through wilderness where inconsiderate fire setting often by non-landowners is a constant threat to livelihood.

18 SUB-REGIONAL AREAS PROPOSED.

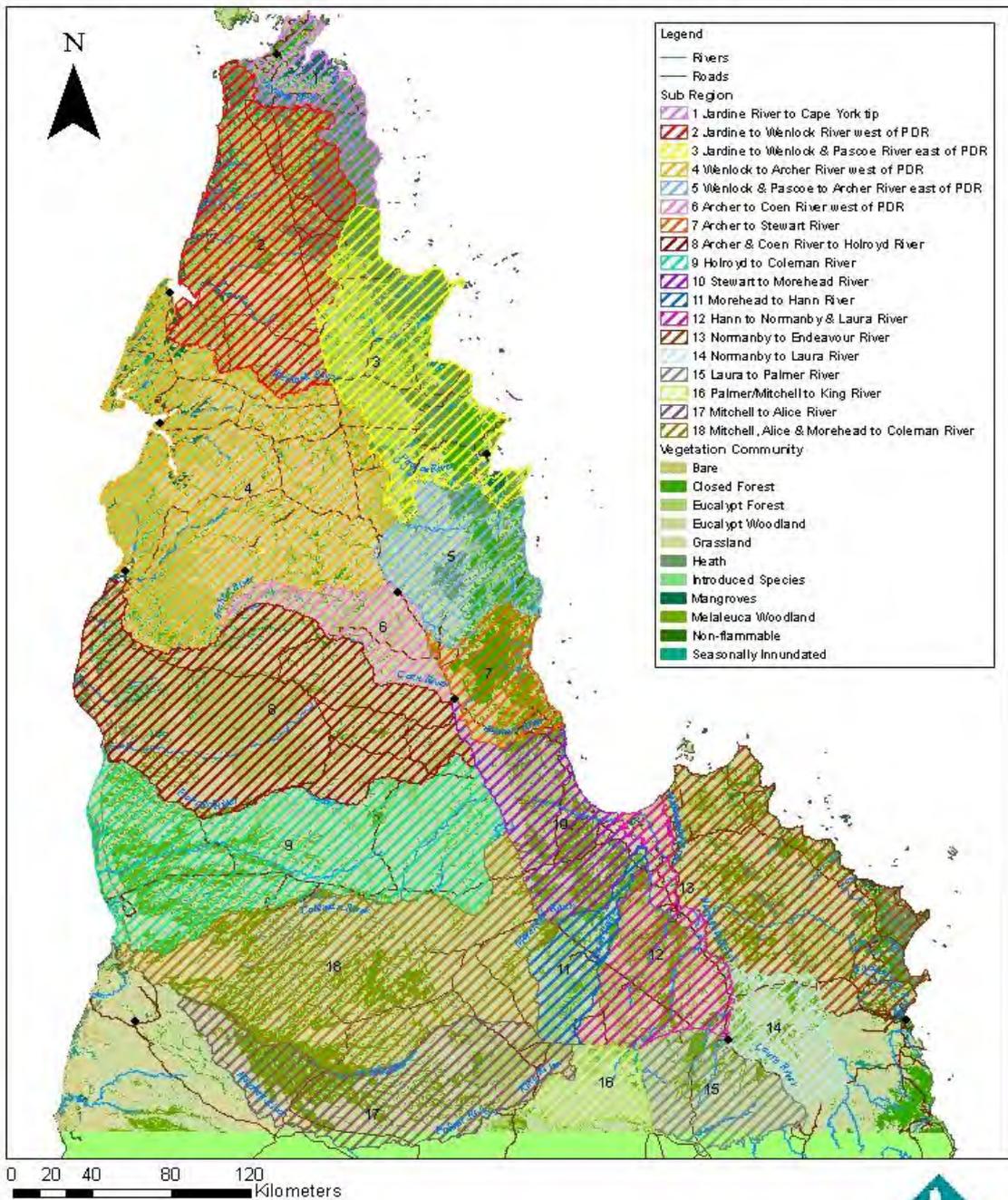
Diversity of land use in each Sub Regional Cluster determines the complexity of coordination and given the size of the Cape York Peninsula bio-region the strategy will be staged over 10 years. The first 5 years will set up a frame work of property scale fire management plans, dove tailing into a sub regional plan.



- Selected sub regional implementation plans will be resourced progressively as funding permits.
- Monitoring will continue informing what changes in strategies are required and where appropriate.
- These initiatives will provide identified targets for employment and subsidies for Indigenous Rangers, Primary Industry and Conservation Managers throughout Cape York Peninsula.
- Coordination, facilitation, extension and training will need to be expanded significantly to develop the regional capacity to implement this strategy.



Cape York Peninsula Fire Sub Regions



Map produced for CYSF Fire Management Project
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IMPLEMENTATION DETAIL

Methodology

Fire plans will be prepared progressively across all 18 sub regions. A fire management officer will work with individual property owners to assist in meeting land use objectives by the appropriate use of fire in the landscape. The approach focuses on sustainable land use and addresses fire hazard, fire risk, ecological requirements of native ecosystems, and fire use for weed control and pasture productivity.

The strategy will include all land tenures across Cape York where land owners are prepared to collaborate and participate in the strategy. This approach will be progressed by initially working in selected sub regions where land owners have expressed an interest to be involved or where there is a history of established collaborative activity. Traditional owners and Land and Sea Ranger representation will be sought out to represent indigenous land areas as appropriate. Property scale fire plans will be written in a way that directly translates to annual operations.

These plans link environment and economic goals with land management. By their nature they require monitoring and annual review. Since fire hazard changes on an annual basis (depending on the previous fire history and seasonal conditions) and fire affects pasture composition, weed occurrence, biodiversity conservation and infrastructure protection, it is fundamental to sustainable land management.

Landholders will generally belong to any of the following groups:

- Indigenous Traditional Owners,
- National Park and USL,
- Grazing,
- Mining,
- Government and Local Government bodies
- Environmental bodies,
- Private conservation groups (e.g. Australian Wildlife Conservancy, Bush Heritage Trust)
- Tourist businesses

Linkages will be established with ancillary groups:

- Education, RTOs, CSIRO,
- Fire agencies (Queensland Fire and Rescue Service; Rural Fire Service)
- Land management agencies (DERM, MAIN ROADS, AGFORCE, etc)
- BOM
- Northern Australia Fire Information service
- Geosciences Australia

Fire plans will be delivered and supported on a one to one basis. The properties will be 'grouped' geographically within the sub-regional framework. This will be supported by sub-regional implementation plans developed progressively as outlined above. The nature and complexity of fire management, by necessity, requires consultation and co-ordination between neighbours. The property and group approach will minimise travel costs and result in consistency within and



between regions.

The participants will require assistance with mapping and training. Participants will receive (or develop) vegetation maps, property topographic maps, fire history maps, infrastructure maps, fire zoning maps, fire action maps and wildfire response procedures. These maps will enable preparation of sub-regional fire action maps to assist in regional fire planning and planned burn implementation.

Fire Planning

1. Initiate sub regional group meetings/workshop identify membership, constitution, governance as required;
2. Through this consultation, identify and formalise the sub regional boundaries;
3. Contact eligible land managers and instigate property planning priorities;
4. Visit properties, present base maps, discuss planning framework and gather property specific data;
5. Draft subregional broad scale plan and consult with participants to finalise;
6. Update mapping to reflect the outcomes of the visit, prepare draft plan and property maps such as proposed fire zones and wildfire response procedures;
7. Establish on-property vegetation monitoring sites to evaluate fire management outcomes through TRAPS & National Parks (Data processes are in place through both);
8. Implement mitigation through aerial incendiary;
9. Establish weather recording on properties;
10. Establish and resource appropriate fire fighting equipment, personnel and training;
11. Purchase additional imagery if required for evaluation baseline;
12. Monitor NAFI and contact managers if fire activity is in an area (early alert);
13. Map the results of fire plan implementation and sub-regional fire activity on an annual basis using NAFI. Use this data to review action plans for the coming year;
14. Obtain feedback from landholders to verify data for the NAFI site and improve mapping processes.

Fire Verification

An ongoing feedback loop will be established with the range of land managers to confirm or negate the presence of fire in different areas, as indicated by satellite recorded firescar and hotspot data. This will allow the mapping process to be refined for different land types

Specific topics addressed during Fire Plan preparation:

- Land management priorities;
- Current fire practices in the region and on the property;
- The role of fire as a land management tool;
- Importance of fire regime (intensity, frequency, season and size) and fire



- behaviour;
- Implementation action plan and wildfire response plan;
- Ecosystem responses to fire;
- Pasture responses to burning;
- Managing tree–grass balance;
- Climate, fire and risk management;
- Response action plan per property;
- Training needs;
- Disaster mitigation; and
- Sub regional collaboration opportunities.

The one-to-one approach, but with groups of contiguous properties, is the most appropriate means to deliver fire planning. Fire behaviour is affected by innumerable variables, people have different views on fire exclusion or fire use, as well as different land use objectives, land types and resource capabilities. The proposed approach fits in with day-to-day land management activities. The overall approach is strategic and integrated as property clusters form sub-regions, sub-regions form regions. The end result will be greater consistency and co-operation in applied fire management across north Queensland.



ACTION	OBJECTIVE	MILESTONES (5 years)
Fire Management Planning at Property Scale	Identify infrastructure and environment base fire risks exposure.	<ul style="list-style-type: none"> • Engage all property owners • Map property tracks, water points, infrastructure, ignition threats/risk • Map fire history frequency intensity. • Identify fire fighting resources • Set up weather recording systems and seasonal effect • Develop fire action plan strategy
Sub Regional Fire Management Planning	<p>Identify stakeholders and overlay individual property plan strategy.</p> <p>Scope changes to individual plans for wider cost effective & efficient interaction with sub regional & neighbours plans.</p>	<ul style="list-style-type: none"> • Facilitate cluster group meeting/workshop and identify strategic approach • Implement strategic aerial & ground hazard mitigation burning. • Debrief and review season fires. • Produce subregion plans/map • Engage scientific advice on biodiversity positions. • Initiate pre-season meeting/workshop • Identify impacts on individual properties & solutions • Alterations to aims where appropriate and map • Identify and engage Lead agent to continue coordination process



		<ul style="list-style-type: none"> • Develop fire action plan strategy at sub regional scale
Resourcing & Training	Needs analysis on fire fighting equipment, fire trails and training	<ul style="list-style-type: none"> • Identify experience • Facilitate training and workshops • Source fire fighting equipment needs and shortfall • Engage mentors • Source local coordinator • Source machinery contracts • Training accreditation • Train the Trainers. • Develop communication plan • Target younger generation.
Monitoring and Evaluation	Provide basis for knowledge capture and change for improvement.	<ul style="list-style-type: none"> • Assessment of existing practice by reviewing existing fire history data. • Validate fire history information • Research carbon and biodiversity linkages • Provide evidence of changes to fire management practice achieved and target outcomes.



Methodology continued.

The strategy will need to deliver individual Property Fire Plans and Sub Regional Implementation Plans utilising the capacity of all stakeholders and sourcing additional resources to fund implementation. This initiative will draw on the combined capacity and local knowledge to produce a single cooperative planning program. This will avoid the unnecessary duplication, disparate methodology and extra expense that arise when independent groups attempt similar projects.

Each sub-regional group will have a local stakeholder Consultative Committee and include relevant Government regulatory advisors such as the Rural Fire Service representation to provide the legislative support through the permit to light fire requirements. (Adaptability of indigenous fire practice and European legislation will be discussed at the table)

Biodiversity

Fire, or lack of fire, plays an integral part in shaping the vegetation patterns across the Australian landscape. Fire retardant and fire resilient species in natural rangelands determines the capacity to support sustainable agriculture and to maintain the survival of ecological habitat biota. Since biodiversity is dependent on fire regimes, the management of fire at property and regional levels can sustain or deplete natural biodiversity reserves. Given the flammability of the savannas, fire needs to be consciously appraised, whether it is to be excluded or proactively applied. Regardless of tenure fire plans are essential to prevent (or at least minimise) the devastating effects of wildfire.

Sustainable Farm Practices

Fire plays a key role in land condition (ground cover, species composition, water quality, woody thickening and weeds) and pasture quantity and quality. There is significant scientific and experiential information available but this is not always accessible or easily integrated with day-to-day land management practices. Fire plans enable property management and production goals to be linked with fire activities to provide an effective and practical land management tool.

Wildfire or unwanted fire can also impact heavily on the infrastructure loss and economic sustainability. Governments, business and private enterprise have invested heavily in fencing programs, infrastructure and recreational ventures that require an insurance against unplanned loss, thus proactive fire mitigation makes good planning sense.

The Cape York Economics of Fire in Grazing Lands project found that higher property gross margins (GM)/Adult Equivalent (AE - 400kg animal) were associated both with decreasing average annual burn areas and higher stocking rates. The lesser the area of property burnt each year, the greater the stocking rate, as pasture availability is increased. Most properties have lower stocking rates and gross margins than are possible because they assume they will lose a significant amount of pasture each year to burning.

Community Skills, Knowledge and Engagement

The dynamics of fire behaviour and its social, economic and ecological effects are complex. A joint effort is required to link scientific information with practical land management, to inform science through the observations of experienced people on the land, and to monitor the outcomes of different fire 'treatments'. Best practice can



only be achieved through experiment and experience, research and practicality. This can only be reached through cooperation. Most importantly, this strategy lays the platform for implementation through a consultative approach in formation of the sub-regional group committees at the local level, the people vested with custody of the land.

The strategy is being undertaken at the landscape scale, and it addresses landscape scale change. Individual properties across the cape are very large, thus in themselves represent landscapes. It is proposed that fire planning is facilitated with each individual property, which then cascade upwards to become sub-regions and regions aligned within the natural river system as natural fire break borders, resulting in co-ordinated and consistent fire planning across a broad area.

As fire activity readily crosses property boundaries, each property owner will need to consult with their neighbour at some stage, whether it is to fight a wildfire or proactively use fire for management purposes. Fire management is an annually interactive process, fire plans need to be reviewed each year based on the recent fire history and seasonal conditions.

Thus, it is readily 'adaptive', checking that targets are being met and providing a mechanism for active community response to climate change, increased risk factors or changed land uses. Cluster group meetings need regular facilitation to enhance communication between the stakeholders, particularly at the commencement of the dry season.

Supporting organisations will supply regional data, assisting the process with maps, imagery and technical support in producing fire plans. The plans and the planning process is primarily a focal point of communication with significant outcome in capturing historical evidence through monitoring and evaluation. However, resourcing and recording components are essential.

Operational support is also sought through the partner agencies with in kind, aerial ignition, training in data based technology and suppression equipment. However significant operational and implementation expenditure will be required to support land owners in developing capacity and maintaining strategy delivery over the long term.

