Cape York Peninsula

Appropriate fire management practices to help land managers plan hazard reduction burning and in undertaking planned burns for improved production and conservation outcomes

Fire Management Guidelines

Fire Management Guidelines

REEF CATCHMENTS

Introduction

Reef Catchments and the Bushfire Consortium

Reef Catchments is a community based, not-for-profit organisation that has a proven track record in advancing natural resource management in the Mackay Whitsunday region. Reef Catchments works seamlessly across private and all levels of the public sectors to deliver the results where they matter.

For more information and contact details, visit the website:
http://www.reefcatchments.com.au

The Bushfire Consortium was formed to reduce the threat of inappropriate fire on the unique natural and economic values of the Queensland environment. In Cape York, satellite imaging illustrates that numerous large and intense dry season wildfires have occurred over the last 10 years. The concern is that a drier and hotter climate may further increase the incidence of these fires with consequential economic and environmental impacts. Rural communities recognise the magnitude of these fires, and their effects on life, property, productivity, and the environment. However, the wider community has not had access to good information on appropriate fire management practices until now.

Reef Catchments, in partnership with volunteer rural fire brigades, government and non-government landholders, and the Queensland Fire and Rescue Service, has taken up the challenge of providing the best information available on fire management and planning in the region. These fire management guidelines are the culmination of extensive discussions with experienced members of volunteer rural fire brigades and other respected fire managers and fire scientists.

These guidelines are one of the products of the Bushfire Consortium and are intended to be used by volunteer rural fire brigades and landowners who are on the front line in managing fire in rural communities. They are intended to be used to help land managers plan hazard reduction burning, and in undertaking planned burns for improved production and conservation outcomes.

Using these guidelines

These fire management guidelines have been developed for 15 landscape types in the Cape York Peninsula. These landscape types are composed of vegetation types that require similar fire prescriptions.

Four important factors to consider when planning for fire management are:

1. **Fire frequency** – how often should an area be burnt,
2. **Fire intensity** – how hot does the fire need to be,
3. **Season** – what time of year will usually provide the desired conditions for a planned burn; and
4. **Burning mosaic** – the percentage of ground cover remaining unburnt after a fire.

Other important factors to consider are fuel loads, wind speed, humidity, fuel curing, slope, and aspect.

These guidelines are not intended to account for all circumstances. Seasonal, yearly and even daily conditions can vary dramatically. Plan ahead, to carry out burns when conditions are suitable, and always obtain and adhere to conditions of a permit from your fire warden.

Frequency

GREEN – Under most circumstances the number of years between burns should fall within the GREEN range. This range is generally considered appropriate for hazard management, production and conservation outcomes.

ORANGE – Under some circumstance there may be a need for more or less frequent fire, but this should fall within the ORANGE range. Generally, this would occur as a 'one off' e.g. two fires in three years to reduce a lantana infestation.

RED – Generally, it would be considered undesirable for fire frequency to fall within the RED range. For example these long periods of time between fires would result in undesired vegetation thickening and loss of pasture productivity.

NOTE. Defining frequency by 'years' can be misleading e.g. in times of drought or particularly high rainfall. An average year would be defined by having received +/- 20% of the local average annual rainfall by May.

Season

GREEN – Under most circumstances the desired conditions will be available within the GREEN season/s.

ORANGE – Desired fire conditions will sometimes fall within the ORANGE season/s. Specific requirements for a particular burn will vary under different circumstances e.g. storm burning requires relatively high soil moisture.

RED – Under most circumstances, conditions within the RED range of seasons would result in damaging fire and/or fire that is difficult to control.

NOTE. For information and further explanation of the climate in Cape York, please refer to the following page.

Mosaic

Patchy fuels produced by mosaic burns can be very effective in reducing the intensity and spread of wildfire, without risking the complete loss of pasture grasses, soils and nutrients. This will also protect the land from weed infestations or environmental damage that sometimes results from complete removal of the ground layer from large areas.

Intensity

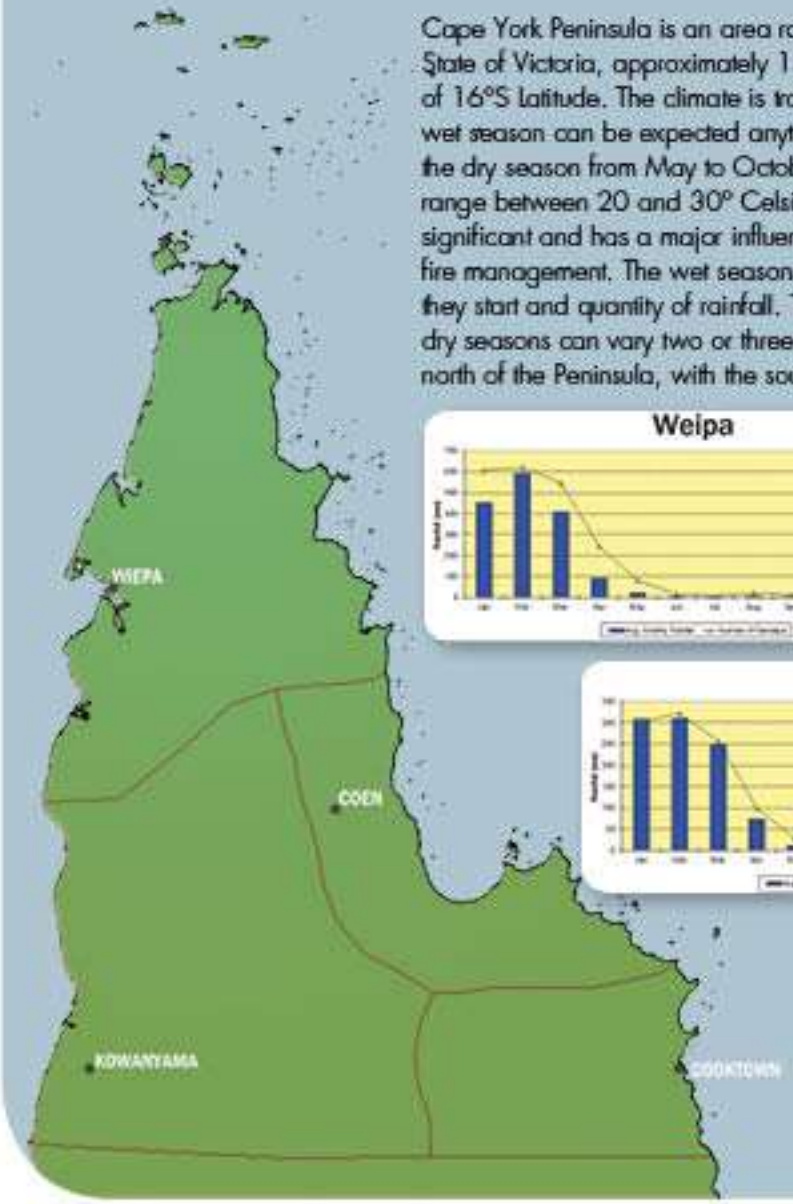
LOW intensity fire is < 1m in height.

MODERATE intensity fire is < 2m in height.

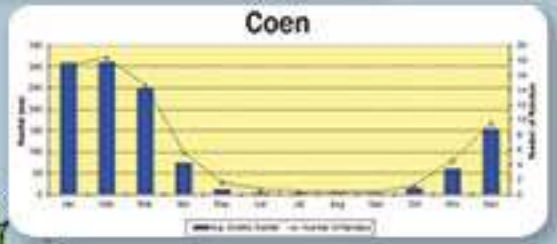
HIGH intensity fire is > 2m in height.

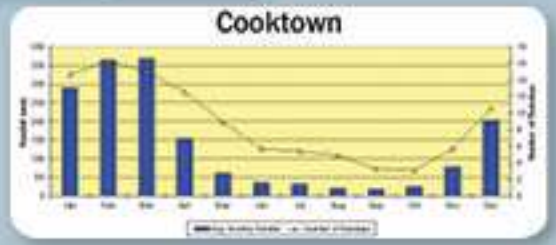
The Bushfire Consortium is a **Reef Catchments** initiative with funding support from the Australian Governments' Caring for Our Country program.

The Climate of Cape York Peninsula



Cape York Peninsula is an area roughly equivalent to that of the State of Victoria, approximately 137,000 square kilometres, north of 16°S Latitude. The climate is tropical and monsoonal where the wet season can be expected anytime from November to April and the dry season from May to October. Air temperatures generally range between 20 and 30° Celsius. The variation in rainfall is significant and has a major influence on fuel growth and therefore fire management. The wet seasons can be variable, both in when they start and quantity of rainfall. The start and finish of the wet and dry seasons can vary two or three months between the south and north of the Peninsula, with the south drying out earlier than the north.





Common descriptions of the five parts of the fire season are:

- The wet season, nominally December to mid April, which provides 80% of the annual rainfall, and the majority of grass growth;
- Early dry season, depending on the wet, is usually May and June, the country and vegetation starts to dry out and grasses cure. Property protection burning commences often with the added benefit of concentrating cattle after the wet;
- Mid dry season,normally July and August, where the majority of grasses are cured and the country has dried out. Planned burns at this time of year should take into consideration the ascending risk of hotter drier days ahead;
- Late dry season is generally September; October and often into November. Often the time of dry lightning strikes and wildfires;
- Storm season, normally November into early December. The first storms provide the opportunity to use fire proactively again. Soil moisture increases and the risk of fire escaping decreases, so fire is used broadly before the vegetation becomes too wet.

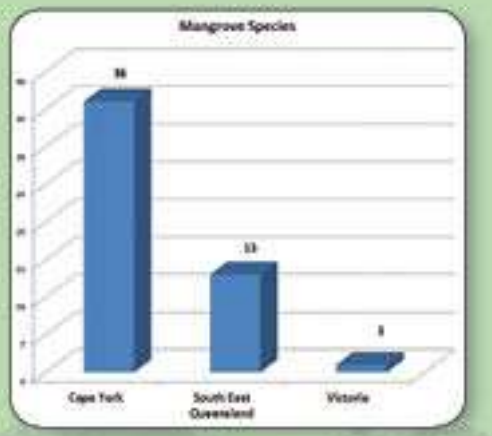
Four rainfall zones based on weather stations have been chosen to provide for the variable rainfall areas across Cape York.The four zones are shown in the adjacent map and are represented by Weipa (average rainfall 2,000mm); Coen (average rainfall 1,200mm); Kowanyama (average rainfall 1,275mm); Cooktown (average rainfall 1,650mm).

Mangroves and Estuarine Wetlands

Burning is generally not recommended in this landscape

Communities consisting primarily of mangroves, as well as saltwater couch, spinifex, lepturus spp., and various shrubs. Occur on sand and dunes and in estuarine wetlands

Mangroves and Estuarine Wetlands



Hazard Reduction

Mangroves are regularly inundated by high tides that maintain high soil moisture and growth throughout the year. They do not present a fire risk and in fact can be useful as 'green firebreaks'. However exceptional periods of dry weather can cause late season fires to burn into these areas resulting in scorching and loss of fringing mangroves. Firebreaks should not physically damage mangroves and it is best to use early season burning in adjacent areas to reduce fuel loads, preventing movement of wildfire. Wildfire hazard reduction relies on management at a landscape level rather than individual property or vegetation boundaries. Mangroves can assist in management of risk but care should be taken that this does not result in damage to these areas.

Production

Mangroves are critical to fisheries as they are breeding and nursery grounds for many North Queensland fish species. These species are critical for both recreational and commercial fishing industries. Damage to mangroves, including from fire, reduces their ability to provide breeding and nursery habitat, and in turn the amount of fisheries production that an area can provide.

Conservation

Apart from their values to coastal fisheries, mangroves, provide essential habitats for a range of conservation dependent species. Minimising fire and other disturbance within these areas provides significant positive benefits for migratory and resident shorebirds, seabirds and the threatened mangrove mouse. Healthy mangroves also assist in filtering excess nutrients and sediment from stormwater runoff preventing these from entering adjacent coastal ecosystems and coral reefs. This provides further benefits for fisheries and other valuable assets.

Regional ecosystems

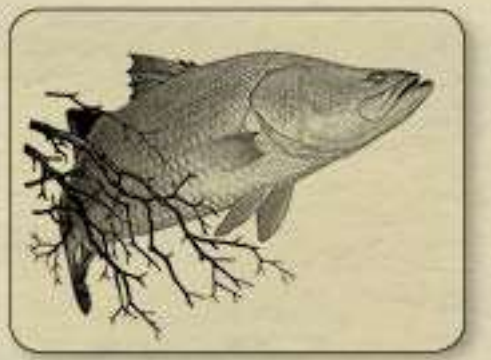
3.1.1	3.1.2	3.1.3	3.1.4
3.1.5	3.1.6	3.1.7	3.2.30

Saltmarsh and Salt Water Couch Grasslands

Saltmarsh and Salt Water Couch Grasslands

Burning is generally not recommended in this landscape

Saltmarsh and Salt Water Couch Grasslands



Hazard Reduction

Saltmarsh and saltwater couch grasslands are regularly inundated by high tides that maintain high soil moisture and ensure continual green growth throughout the year. Because of this, these areas rarely represent a fire hazard risk. Risk is further minimised by the fact that the grasslands rarely accumulate large amounts of fuels and tend to be broken up by patches of saline clay and sparse saltmarsh. The native ground cover within fringing melaleuca woodland and forests is also saltwater couch and this does not represent a high fire hazard. However, in many areas Guinea grass and other exotic grasses have invaded and these can accumulate high fuel loads that pose a fire risk in the dry season. Guinea grass and many other exotic grasses tend to quickly increase their biomass after fire, often reaching a similar fuel load in as little as one season. The most effective long-term fire hazard reduction strategy is to remove these grasses using herbicide such as glyphosate.

Production

Fire does not improve pasture productivity and can lead to a loss of important nutrients. Saltmarsh and saltwater couch grasslands are important filters reducing the amount of sediment and nutrients moving into coastal waters particularly after fires and other disturbances in upstream areas.

Because of high salt levels in the soil, weed infestations are rarely a problem in saltwater couch grasslands and burning for weed control does not generally need to be undertaken. Saltwater couch is a perennial grass and pasture condition is strongly dependant on normal tide cycles.

These grasslands offer viable feed during the dry season but care must be taken to avoid over grazing. Fire should be used in the neighbouring vegetation to prevent tea-tree (*Melaleuca* spp) encroachment.

Conservation

Apart from their values to coastal fisheries, saltmarsh and saltwater couch grasslands provide essential habitats for a range of conservation dependent species.

Minimising fire and other disturbance within these areas provides significant positive benefits for migratory and resident shorebirds, seabirds and the threatened mangrove mouse.

Encroachment by Melaleuca species from neighbouring vegetation and the expansion of mangroves can reduce areas of salt marsh and saltwater couch areas.

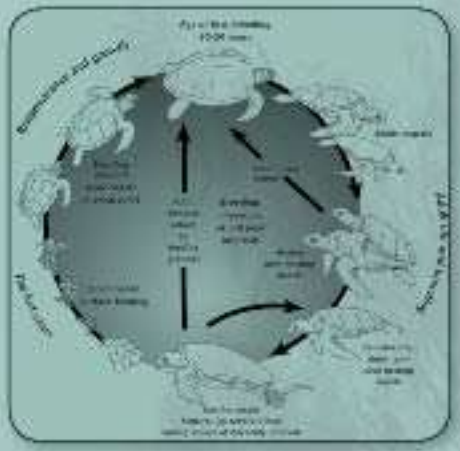
Regional ecosystems

3.2.24 3.2.25 3.2.26 3.2.32

Foreshores and Beaches

Beach she-oak, spoon tree, northern lancewood, lady apple; may also contain Moreton bay ash and Clarkson's bloodwood, often as a canopy tree.

Foreshores and Beaches



Hazard Reduction

Beaches: Burning is not recommended in coastal dune systems and adjacent buffer zone unless for rehabilitation or protection purposes in special circumstances. Exotic grass infestations such as Guinea grass are common along the edges of coastal dune vegetation. Many introduced grasses are favoured by disturbance and rapidly re-grow after fire, often accumulating similar fuel loads in as little as one season.

Hind Dunes: Landowners in some areas may desire protection burning to reduce hazards in hind dune areas. Fire should only be used to gain initial control of weedy areas as part of a long-term weed management strategy. Burn with low intensity fire; ensure good soil moisture is present (e.g. after 50mm of rain), and no more than once every 3 to 5 years. Avoid regular or repeated burning and do not burn in dry conditions when wildfire risk is high. Management of exotic grasses and other weeds is best achieved by using a registered herbicide when the plant is actively growing. Exotic grasses are easily killed after fire with minimal herbicide use.

Production

Clearing and introduction of exotic pasture species coupled with impacts of stock can severely impact on fragile dune systems. Exotic species can out-compete natives in disturbed areas and create higher fire risks.Open dune grasslands supporting native grasses such as black spear grass would tolerate a low intensity fire every 3-7 years. Planned burns should only be conducted when rapid regeneration of the grassy layer is expected; burn with good soil moisture and when there is a good chance of follow up rain. Avoid regular or repeated burning as loss of groundcover and soil nutrients will encourage weeds and less favourable grasses.

Conservation

Beach vegetation, such as she-oak woodlands, has the ability to effectively bind dune sands, reducing erosion. Grasses and shrubs disrupt wind, reducing its speed at ground level, causing wind blown sand to fall and replenish dunes. Beach vegetation and she-oaks in particular are highly sensitive to fire and even very low intensity events will cause death and consequent beach erosion. Also, loss of these trees reduces shading and causes dune sand to become hotter. The sex of marine turtles is dependent on nest temperature and thus these changes can alter the sex ratio in turtle populations.

Regional ecosystems

3.2.5 3.2.6 3.2.34

Beach Rainforest

Beach Rainforest

Burning is generally not recommended in this landscape

Complex vegetation often with vines: main species are Wongai Plum, Damson, Batwing Coral tree, Australian Almond and various Fig species.

Beach Rainforest

Regional ecosystems

3.2.1	3.2.2	3.2.11	3.2.12
3.2.13	3.2.17	3.2.28	3.2.29

Hazard Reduction

The native ground cover within beach rainforest does not accumulate large amounts of fuel and therefore does not represent a fire hazard. However, infestations of exotic grasses and weeds can significantly increase hazardous fuels along disturbed edges of this landscape.

Hazard reduction burning is generally not suitable in coastal areas as Guinea grass and other exotic grasses such as Grader grass quickly increase their biomass after fire, often reaching a similar fuel load in as little as one season. An effective long-term strategy is the use of registered herbicide to reduce fuel hazards where required. Apply when grasses are actively growing, preferably prior to dry season.

Production

The beach rainforest areas are very small and do not offer any grazing value. These areas are better managed for conservation values which in turn will protect adjacent country from erosion. Disturbance caused by stock trampling and the presence of feral pigs can encourage spread of lantana and other weeds into otherwise intact areas. Management of stock access and provision of shade and watering points away from beach scrub and foreshores will reduce the impacts of disturbance in the long term.

Reducing weed impacts by means other than fire around boundaries and in degraded areas will protect, and facilitate recovery of, these sensitive coastal areas.

Conservation

Fire is a key threat to remaining areas of beach scrub (rainforest on sand dunes) - a critically endangered ecological community under the Environment Protection and Biodiversity Conservation Act (1999). Beach scrubs and foreshores are key habitats for many rare and threatened plants and animals and migratory birds. Foreshores are breeding sites for marine turtles and shorebirds such as the beach stone-curlew (pictured top left).

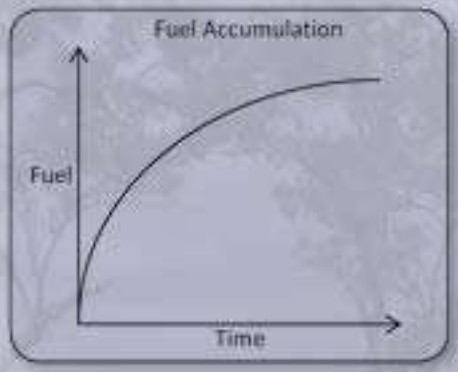
Disturbance of these habitats is commonly due to careless camp fire escapes, 4WD and pedestrian tracks, and stock trampling which leads to weed invasions and increased fire risk. Weed management, rather than fire management, should be used to protect and rehabilitate remaining areas. This will protect coastal habitats and wildlife such as the orange footed scrub fowl (pictured bottom left).

Very careful use of fire in adjacent fire prone landscapes is required; check that there is little to no scorch into beach scrubs and foreshores as an indicator of successful fire management.

Riverine Floodplains and Terraces

Alluvial floodplains with open woodland of Clarksons bloodwood, Molly Redbox, Moreton Bay Ash, Ironbarks often associated with Cooktown Ironwood

Riverine Floodplains and Terraces



Regional ecosystems

3.3.16	3.3.24	3.3.25	3.3.30
3.3.35	3.3.36	3.3.37	3.3.45
3.3.46			

Hazard Reduction

This landscape is most common on the Mitchell and Archer river floodplains, Lakefield and Mungkan Kandju areas. It is capable of achieving maximum fuel accumulation in as little as three years of above average rainfall.

Hazard reduction should usually be undertaken when fuels accumulate beyond grazing capacity in the better seasons. Early season burns should be used for protection against late season wildfires and are usually best commenced near natural or constructed breaks to reduce the area burnt for property protection.

Burn with good soil moisture, to assist in the rapid regeneration of ground cover. Avoid burning any more frequently than every 3 to 5 years. It is also possible to reduce high fuel loads through effective management of grazing along vegetation boundaries between the woodlands and riverine fringes during the dry season.

Production

Alluvial floodplains have soils that retain water to a higher extent than surrounding country. This often prevents access earlier in the season for fire management and grazing. Alluvial floodplains hold good grass coverage, particularly sorghum and kangaroo grass.

Grazing pressures need to be managed so that these grasses maintain their vigour. Part of the management regime for these pastures can include late season storm burning to reduce vegetation thickening by removing seedlings and suckers. Such fires should be generally undertaken after flood events as these are often associated with germination of seeds and the beginning of vegetation thickening.

Conservation

Fire management on floodplains and terraces can take into consideration the need to protect conservation and other values not only in this landscape, but in adjacent vegetation such as Fringing Riverine Woodlands. Small mosaic patch burns will provide protection and the diversity of habitats required to support a range of species.

The Red Goshawk is listed as an endangered species in Queensland, and utilises these communities due to the availability of nesting trees in close proximity to permanent water. These communities also provide a high level of bird numbers and small mammals, providing substantial food for the Red Goshawk. Habitat modification has been the biggest threat to this species induding fires that remove nesting trees and reduce the amount of prey available. Suitable nesting trees are greater than 20m tall, in an intermediate density of forest or woodland within one kilometre of permanent water.

Fringing Riverine Woodland

Silver crowned paperbark: Weeping paper bark with Blue gum, Swamp Mahogany, Leichhardt, cluster figs and Spoon tree.

Fringing Riverine Woodland

Before

After

Hazard Reduction

Managed correctly, riparian zones can often act as useful fire breaks in both planned burning and wildfire response.

Riparian vegetation is often fire sensitive, so hot fires must be avoided whenever possible as these will reduce the usefulness of these areas in managing fire. Burning can often be used to gain initial control over woody weed infestations.

Fire management in this landscape should occur with good soil moisture and using a moderate backing fire to manage vegetation thickening. Fire should be used on a three to five year basis, as a more frequent use of fire can damage the understory composition.

Aerial incendiary in Cape York is a tried and proven method of burning against fringing riverine woodland early in the season as it allows for easy access to large areas of the landscape. Hazard reduction will lessen the impact of late season wildfires.

Production

Riparian zone does not offer much in terms of pasture quantity. However the impacts of grazing, particularly trampling resulting from cattle accessing shade or water can be a concern and may result in poor drinking water quality.

Periodic use of fire in the surrounding flats and floodplains will produce green pick, reducing grazing pressure in the riparian area.

Conservation

Rubber vine infestation is a serious weed threat in this landscape. Fire can be used in the initial control of rubber vine as it reduces the size and vigour of plants and kills seedlings. This initial control is made more effective through follow up with chemical control (see photos at left). Other common threats include feral pigs, heavy grazing and intense fires. Well planned burns can help protect native riparian vegetation from hot fire events.

The spectacled hare wallaby (pictured to left) is an important species that inhabits riparian zones. This species requires old growth tussock grass and other thick vegetation for use as nests which are removed by too frequent fire. The diet of this wallaby is mostly composed of forbs and other broad-leaved vegetation in the pastures, as opposed to grasses. These food items are more common in recently burnt areas. Thus the best habitat for this species is riparian areas that has been long unburnt, adjacent to flats and floodplains which are periodically burnt.

Regional ecosystems

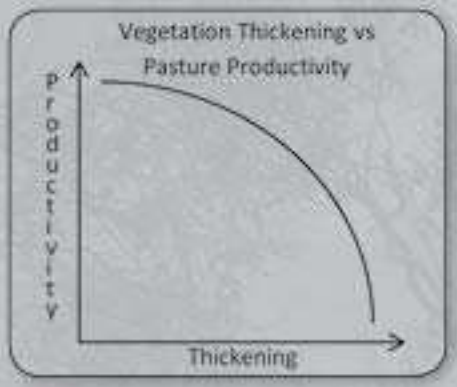
3.3.10 3.3.11

Melaleuca Woodland to Low Woodland

Melaleuca Woodland to Low Woodland

Predominately Broad Leaved Tea-tree with black or yellow Tea-tree present often with a sparse to mixed shrub layer in the taller stands.

Melaleuca Woodland to Low Woodland



Hazard Reduction

Tea-tree (Melaleuca spp.) woodlands are an extensive part of Cape York. Burning as soon as possible after the wet season on property and vegetation boundaries is the initial priority for hazard reduction. Tea tree in this landscape will 'sucker' a result of dry season fire or too frequent fire events which often results in thickening of the vegetation. Protection burns should be against natural features such as riverine scrubs or water courses to reduce the area burnt early and therefore reduce the risk of vegetation thickening. Aerial incendiary in Cape York is a proven method of burning protection fire breaks early in the season, as it allows for easy access to large areas of the landscape.

Production

Wanderrie Grass, which has only moderate grazing value is the common pasture found amongst the tea-tree. When tea-tree woodlands are managed to avoid overgrazing and thickening, the more valued perennial Sorghum and Cockatoo Grasses may occur. A hot backing fire after the first storm in this landscape type can remove suckers and keep the vegetation more open, making it more productive for grazing. Spelling or reduced grazing for a season may be required to build up enough grass fuel for such fires.

The protection burns undertaken early in the dry season, can be utilised during storm burning to break up the size of the area burnt. It is important as part of property fire planning to allow several years between storm burns otherwise thickening of tea-tree can occur. Grazing and fire should be used collaboratively to manage fuel loads on a three to five yearly rotation depending on the extent of the wet season.

Conservation

The tea-tree woodland can range from low sparse woodlands to tall woodlands.

The management of these vegetation types requires a moderate to hot backing fire to prevent thickening. Fire has little effect on the tea-tree once it gets above flame height.

Thickening in tea-tree woodlands has contributed to the decline of many bird species that are iconic on Cape York. This is particularly the case for granivorous (seed eating) birds such as the golden-shouldered parrot, star finch, gouldian finch and buff-breasted button quail. The decline in these species is partially a result of the loss of perennial pastures such as cockatoo grass that these birds rely on during parts of the year. In addition, extensive late season fires destroy most of the seed reserves that have fallen onto the ground. These birds find it difficult to access seeds in thick pastures, so areas that have been 'patch burnt' make better foraging areas.

Regional ecosystems

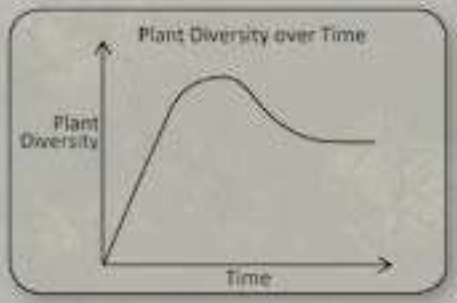
3.3.13	3.3.42	3.3.43	3.3.47
3.3.48	3.3.49	3.3.50	3.3.51
3.3.52	3.5.13	3.5.14	3.5.15
3.5.16	3.5.17	3.5.18	3.5.27
3.7.6	3.10.16	3.11.18	

Acacia Scrubs

Acacia Scrubs

Three main types being Lancewood, Fish Poison Tree and the Arid peach/black plum. Most of the understorey contains juvenile dominant species.

Acacia Scrubs



Regional ecosystems

3.3.44 3.7.2 3.9.6

Hazard Reduction

Acacia scrubs are geographically small but can be useful as part of the natural fire break system because they support only sparse fuels in the ground layer and are relatively fire resistant. Early season burning adjacent to the scrubs can provide areas of reduced fuels offering protection later in the season.

Late season wildfires can damage these scrubs and reduce their effectiveness as fire breaks. Where there has been wildfire damage it is best to undertake early season burning in surrounding areas for the next couple of years to allow the scrubs to recover.

Production

Acacia scrubs offer little production value. In heavier black soils they can provide some native sorghum but generally have sparse pastures and are unproductive.

Conservation

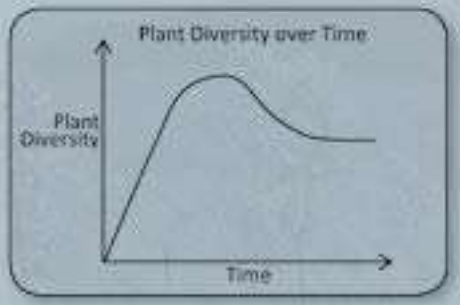
Acacia scrub often occur as small patches within a broader vegetated landscape, adjacent to fringing drainage lines or in isolated pockets. However, from a conservation perspective they often support species that are not found elsewhere. Acacia scrubs and associated understorey species are relatively sensitive to frequent fires and/or high intensity fires. Although they rarely support high fuel loads, dry season wildfires can kill edge trees resulting in a gradual reduction of the stand over subsequent fire events. Acacias have hard seeds that require fire for regeneration so a moderate fire every 5-10 years will assist regeneration and ongoing maintenance of the habitats provided. Generally, burning of this landscape would occur in conjunction with management of adjacent landscapes but care should be taken to avoid frequent fires or hot late season fires.

Heath

Heath

Heath

Heath



Hazard Reduction

Heath is a complex vegetation type that will usually burn completely or not at all, at any given point in time. The best hazard reduction strategy is to not place infrastructure in areas of heath because of the volatility of the vegetation under adverse conditions. Hazard reduction, if required, should be undertaken in adjoining vegetation types.

Burning heath for hazard reduction should commence in the mid-dry season. Planned burns should target small sections where possible, using natural features such as depressions, drainage lines or vegetation change to break the country up into small areas.

Production

Heath does not offer any opportunity for broad scale production in horticulture or grazing. There are small apiary and wildflower assets but these would not generally override hazard reduction priorities.

Conservation

Heaths on Cape York Peninsula are unusual in Australia in the predominance of broad leaved species and high percentage of re-sprouters. Low intensity fires do little to promote regeneration and are generally unachievable. A moderate to hot fire is required to release dormant seeds. Heath diversity reduces over time since the last fire event, as many species are relatively short lived. Heaths that have been without fire for long fire intervals (50+ years) become dominated by Casuarina species. The aim of fire management of heath is to release seeds, promoting regeneration of species, without being so frequent as to reduce the opportunity for plant species to mature and develop seed. A range of smaller mosaic burns with intervals of 6-15 years will most likely be a suitable balance between these objectives. Topographic features and the associated changes in soil moisture can be used to divide the area to achieve a mosaic range of fire intervals.

Regional ecosystems

3.2.15	3.2.16	3.2.18	3.2.19
3.2.20	3.2.21	3.2.22	3.2.23
3.2.31	3.3.33	3.3.53	3.3.54
3.3.55	3.5.19	3.5.28	3.5.32
3.10.12	3.10.13	3.10.14	3.10.17
3.10.18	3.10.19	3.11.19	3.12.16
3.12.23	3.12.26	3.12.27	3.12.28
3.12.31	3.12.33	3.12.34	3.12.38

Eucalypt Woodlands on Sand

Eucalypt Woodlands on Sand

Main Eucalypts are Darwin Stringybark (Messmate); Clarksons Bloodwood; Melville Is. Bloodwood. On Ridges it may contain Yellow Jacket and Ironbark species.

Eucalypt Woodlands on Sand

1000 kg/Ha

2000 kg/Ha

3000 kg/Ha

4000 kg/Ha

Hazard Reduction

The presence of free draining sandy soils within this landscape normally means it dries earlier than surrounding areas. Thus, this landscape is often the area where wildfires commence. Property protection requires breaks to be burnt close to boundary lines or areas of accidental ignition risks such as roads and camping areas.Hazard reduction burning should still provide some diversity in fire type and other fuel management options such as slashing should be considered on a rotational basis. Another strategy is to burn on one side of a natural feature one year and then burn on the other side of the same natural feature in alternate years.

Production

Early dry season protection burns can concentrate cattle and assist in mustering. These early burns not only provide protection against late season wildfires taking pasture from cattle, but ensure there is fuel available for storm burning in adjacent areas. Storm burning is the most effective way of managing vegetation thickening and reducing some weeds. There is often value in planning and co-ordinating the use of fire at a broader landscape scale to gain maximum benefit of the storm season amongst neighbouring properties. The best interval between fires is 2-3 average seasons. Longer or shorter fire intervals can lead to vegetation thickening and undesired changes in the mix of annual and perennial grasses. Note that once suckers get higher than approximately two metres, fire becomes a much less effective treatment for thickening.

Conservation

This landscape is one of the most geographically extensive on Cape York, with the larger part used for cattle grazing. Most of this area is burnt frequently by planned fire to assist in pasture management, or by late season wildfire. Areas that are burnt frequently will still provide suitable habitat for many native species. However some, such as squatter pigeons which prefer unburned grasses for nesting, may be disadvantaged.

Where cattle grazing does not occur (i.e. in conservation reserves) planned burning should be at the least frequent scale (i.e. 4-5 year intervals) to account for the needs of species which do not thrive in areas burnt often. Planned burning should use many natural features (i.e. drainage lines, moisture gradients, fire resistant vegetation) to create mosaics of burnt and unburnt vegetation to assist in fostering perennial pasture species, thus making available seed reserves to threatened bird species.

Regional ecosystems

3.2.8	3.2.9	3.2.10	3.3.26	3.3.27	3.3.31
3.5.1	3.5.2	3.5.6	3.5.7	3.5.8	3.5.9
3.5.10	3.5.11	3.5.12	3.5.23	3.5.24	3.7.4
3.7.5	3.9.2	3.9.4	3.10.7	3.10.8	3.10.21
3.11.4	3.11.13	3.12.12	3.12.13	3.12.15	

Moist Eucalypt Woodland

Tall canopy consisting of poplar gum, molly red box, shiny-leaved box, Darwin stringybark, pink bloodwood, Clarksons bloodwood, Cooktown ironwood, Moreton Bay ash and other eucalypts and corymbias. Sub layer may consist of tea-trees, paperbarks, acacias spp., cocky apple, (allo)casuarina spp., and a ground cover of grasses including black speargrass, giant spear grass, kangaroo grass. Often occurring on alluvial and coastal plains.

Moist Eucalypt Woodland

1000 kg/Ha

2000 kg/Ha

3000 kg/Ha

4000 kg/Ha

Regional ecosystems

3.2.7	3.3.8	3.3.15	3.3.17
3.3.18	3.3.20	3.3.21	3.3.22
3.3.23	3.3.28	3.3.29	3.3.69
3.5.5	3.5.21	3.5.22	3.5.25
3.5.26	3.5.31	3.8.3	3.10.15
3.11.5	3.11.6	3.11.12	3.11.15
3.11.17	3.12.7	3.12.8	3.12.9
3.12.17	3.12.18	3.12.19	3.12.37

Hazard Reduction

Mosaic burning in these communities is critical to ensuring that extensive wildfires do not become uncontrollable in the Cape York region. These communities are best managed by burning every 3 to 5 years during the dry season, when conditions are suitable or after storms. Traditional burning coincides with the first storms as follow up rain is likely to allow groundcover to regenerate quickly. Ensure patches are not burnt annually as this can promote the invasion of weeds, and management should ensure adequate control of weeds following fire events. Reducing weedy fuel hazards prior to burning can be beneficial to the outcomes of a planned fire.

Production

For grazing areas, burn every three to five years when conditions are likely to maintain pasture condition. Pasture recovers more rapidly when there is sufficient soil moisture to stimulate regrowth of the tussock. Burning a few days after rain towards the onset of the wet season is recommended. Fire exclusion will result in expansion of rain forest which gradually shades out pastures. This in turn prevents planned burning, allowing more rainforest expansion and so forth, at the expense of pasture productivity and thus grazing value. Spell country and/or increase the time between fires to allow sufficient fuels to accumulate to carry a moderate intensity fire. Fire is an effective control method for controlling lantana and rubber vine infestations. Avoid burning when conditions are very dry as the fire can be difficult to contain and the fire can remove the mulch layer of the soil which will delay the response of pasture grasses and can cause woody weed invasion.

Conservation

These communities provide habitats for many species endemic to the region. Tree species such as various eucalypts that are associated with permanent water and a dominant grassy undergrowth are important for the endangered Star Finch. These grasses allow for adequate feeding options as well as creating a niche for foraging. Yellow-bellied gliders are vulnerable and only exist on the western fringe of the Wet Tropics World Heritage Area. It is imperative to ensure that tall eucalypts remain healthy after fire, as these are utilised by the gliders for sap-feeding and nesting hollows.

Where areas with a grassy understory are present, a moderate intensity fire every 3 to 5 years is recommended. Maintaining a permanent mosaic of burnt/ unburnt vegetation will ensure long-term availability of diverse animal habitats. Ensure that adjacent vegetation communities that are fire sensitive are protected.

Dry Eucalypt Grassy Woodlands

Mixed Ironbark and Bloodwood species may include Lemon Scented Gum with generally spear grass and kangaroo grass as main grass species.

Dry Eucalypt Grassy Woodlands

Regional ecosystems

3.7.3	3.10.6	3.10.9	3.10.10
3.10.11	3.11.7	3.11.8	3.11.9
3.11.10	3.11.11	3.11.14	3.12.10
3.12.11	3.12.14	3.12.24	

Hazard Reduction

Fire intensity, and therefore difficulty in wildfire control increases as the dry season progresses and soil moisture decreases. This vegetation type generally occurs on the slopes, hills and ranges and can be at high risk from wildfires as uphill fire behaviour creates higher intensity fires. Hazard reduction is required early in the season to break up the country and provide a buffer from wildfires. Topography can make access difficult in places, therefore aerial ignition is the primary method of broad scale hazard reduction. Aerial ignition also offers the opportunity to light ridge tops, creating a downhill moving fire that is less intense than an uphill fire. A consideration with aerial ignition is the amount of range country that should be burnt in any area. Alternatively surrounding foothills and flats can be burnt early to provide protection.

Production

The drier ranges offer good grazing with large tracts of black spear grass and kangaroo grass commonly occurring. Cattle also tend to congregate to the higher, drier ground during the wet season and therefore the protection of this vegetation from wildfire is a high priority. The grasses tend to be robust and benefit from storm burning every three to five years depending on seasons and stocking rates. Storm burning in the drier eucalypt country may require some 'whole of property planning' to ensure that the resulting green pick is not overgrazed during the wet season, following the storm burn.

A fire after the first storm will maintain a good balance of trees and grass. A dense shrub layer or thicker regrowth will probably develop with fire intervals longer than five years.

Conservation

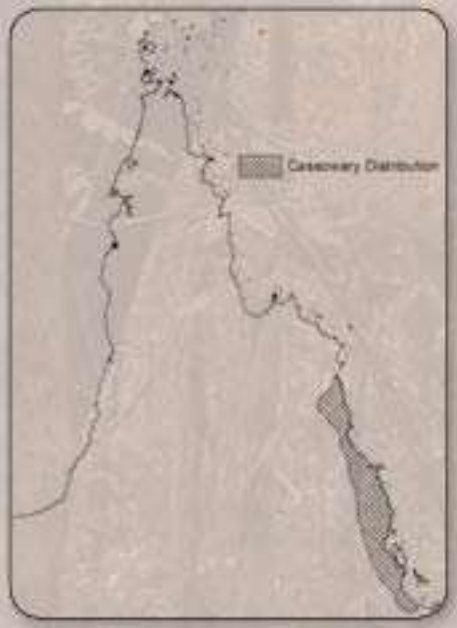
Planned burning in this landscape should aim to promote patchy fires to ensure a mosaic of different vegetation types and time since fire across the landscape. Rangelands are prone to widespread intense wildfires in the mid to late dry season and this is a key threat to biodiversity.

Too frequent fire leads to a loss of vegetation cover, directly threatens gliders, owls and the mature hollow bearing eucalypts they depend upon. Rocky outcrops and scarps are essential habitat for the endangered northern quoll. Do not burn between mid September to mid November when juvenile quolls are most vulnerable to fire.

In potential or known Quoll habitat, small scale patch burns are best. Burn with good soil moisture, either storm burn or just after the wet season as the country dries out. Longer fire intervals before planned burning after a wildfire also help recovery of the habitats for a range of species.

A great variety of rainforests and vine thickets from drier vine scrubs and rainforest in lower altitudes and exposed coastal hills to complex vine forests on mountain plateaus.

Rainforest



Regional ecosystems

3.3.7	3.3.38	3.3.39	3.3.40
3.3.68	3.5.3	3.5.4	3.5.20
3.7.1	3.8.1	3.8.2	3.8.5
3.10.2	3.10.3	3.10.5	3.11.1
3.11.2	3.11.3	3.12.1	3.12.2
3.12.3	3.12.4	3.12.5	3.12.6
3.12.20	3.12.21	3.12.22	3.12.35
3.12.36			

Hazard Reduction

Rainforest edges provide persistent effective fire breaks and are highly valued in wildfire situations. It is important to burn surrounding fire prone landscapes in mosaic patch style to break up fuels and wildfire front to protect rainforest.

Rainforests will generally not burn, however fire scorch of rainforest edges can encourage grassy fuels and weeds to penetrate into the community. Fire may be used along margins to gain initial control of weeds such as lantana, or to control rainforest expansion, however, care must be taken to ensure fire does not intrude into the rainforest. Burn with little or preferably no wind, in areas of high fuel load. Burning small patches is less hazardous than a continuous line.

Good practice is to ignite from the rainforest edge at the top of ridges and hills to allow fire to burn downhill, thus reducing fire intensity.

Production

Rainforest supports little to no grassy understory, thus there is no useful grazing production.

Disturbance encourages weed invasions, so it is preferable to restrict stock access into these communities. Lack of fire allows rainforest species to spread out into adjacent areas of open forest and woodland reducing pasture productivity. In adjacent eucalypt communities, burn to maintain species and canopy composition, with an open understory to reduce undesired rainforest expansion. This will also provide mosaic patches to reduce the intensity of wildfires on the rainforest edge.

Conservation

Where burning edges for weed control, ensure sufficient soil moisture is present and allow for follow up control. Avoid exposing to fire when conditions are hot and dry, as further weed infestations will result, increasing fire risk and reducing integrity of rainforest edges. Reducing the disturbances of fire and weeds on the rainforest edge allows the leaf litter to accumulate on the forest floor, increasing nutrients and providing habitat for various rainforest species.

The endangered Southern Cassowary is a resident of the larger rainforest blocks and seasonally relies on adjacent vegetation for food. Maintaining good rainforest and adjacent forest boundaries will assist in the continuance of this important species.

Wetlands

Wetlands

Wetlands

Wetlands

Hazard Reduction

At both landscape and property scales, wetlands act as fire breaks or a place to secure the ends of firebreaks from surrounding vegetation. Seasonal drying patterns will dictate whether they may be considered at risk from a wildfire event when preparing property level fire plans. However late in the dry season, wetlands can burn and their effectiveness as fire breaks will be lost.

The aim of hazard reduction for wetlands should be to provide separation between the wetland and the surrounding vegetation as soon as practical after the wet. This may be by grazing, machinery, or early burns. This strategy will still allow fire control lines to be tied into the wetland area but will also provide the protection for valuable forage for later in the dry season.

Production

Grazing value of wetlands is important in the dry season as the surrounding pasture becomes less abundant and/or palatable. Consideration should be given to protection of this resource by early season burning. Weed infestations established or made worse by grazing pressures may be at least partially controlled by fire. Grazing on the gradually drying edges of wetlands provides a fuel reduced buffer between the wetlands and surrounding grasslands. Late dry season grazing of ponded pastures reduces the risk of intense fire and is useful prior to wet season flooding, when un-grazed patches can drown. Wetland grasses also benefit from a low intensity fire every 3-5 years to remove rank older grass and stimulate fresh growth. However, great care needs to be taken to reduce intensity of fires to protect fringing vegetation.

Conservation

Wetlands provide many services including protection against soil erosion, maintenance of aquatic habitats, fishery stocks and habitat for many migratory birds. Without grazing, there is a need for hazard reduction burning as early as possible to provide separation between surrounding vegetation and the wetlands as a protection measure against late season wildfires. Avoid very dry conditions as a ground fire can develop in peat layers that can burn for extended periods.

Ponded pasture grasses represent the greatest threat to freshwater habitats as they can completely choke out waterways, even when being grazed. Hymenachne, one of the top 20 Weeds of National Significance, can build up very large fuel loads and severely damage riparian vegetation if burnt in the dry season. Reducing weedy fuel hazards with chemical control approved for use around waterways prior to burning can prevent this from happening.

Regional ecosystems

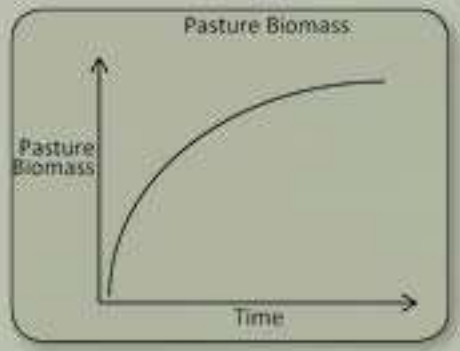
3.2.3	3.2.4	3.2.14	3.2.27
3.2.33	3.3.1	3.3.2	3.3.4
3.3.5	3.3.6	3.3.9	3.3.12
3.3.14	3.3.32	3.3.41	3.3.65
3.3.66	3.3.67	3.5.3	3.5.4
3.5.20	3.10.1	3.10.2	

Grasslands

Grasslands

Grasslands

Grasslands



Regional ecosystems

3.3.56	3.3.57	3.3.58	3.3.60
3.3.61	3.5.29	3.5.30	3.8.4
3.9.5	3.9.7	3.9.8	3.12.29
3.12.30	3.12.32		

Hazard Reduction

Grasslands are at risk of being completely burnt out during wildfire events late in the dry season. Recovery to useful pastures can take up to 3 years.

Hazard reduction in grasslands is further complicated by being very prone to invasion by woody species, particularly broad-leaved tea-tree (Melaleuca Viridiflora), caused partially as a result of early dry season burning. Such burning is usually useful as a protection strategy against late season wildfires. This may be seen as a compromise, that is: accept some thickening of vegetation on property boundaries to protect the majority of adjacent pastures.

Alternatively, the adjacent sand ridges can be burnt early as a protection measure.

Production

Grasslands have an active growing period over the wet season and then tend to dormancy toward the mid dry season. Grasslands contain important grasses for grazing such as native sorghums and kangaroo grass. Some grasslands have melon holes (water holes interspersed in the soil) that support more palatable grasses into the dry season. These can become overgrazed and burning as a management tool can create green pick elsewhere to take pressure off these areas. Do not burn grass lands when the grasses are actively growing because this can adversely affect the species composition and lead to a decline in grasslands grazing values. Storm burning is important every 2 to 5 years depending on rainfall to remove woody thickening and pasture composition.

Conservation

It is important to ensure that fires are no more than five years apart, as an absence of fire can lead to tea-tree invasion. Burning two to five years apart with an appropriate mosaic will ensure that there is an adequate variation in the distribution of fuel and grass ages. A good body of grass is important to generate enough heat in a backing fire to reduce tea-tree encroachment. Storm burns will provide the moisture for healthy grass regeneration.

The golden-shouldered parrot (pictured) is a species endemic to the region, and thrives on healthy grasslands for food, nesting and protection from predation. Irregular burning patterns of a low intensity can fail to regenerate grasses, resulting in an invasion of tea-trees, reducing the extent and quality of available grassland habitat. Tea-trees will allow for predators to enter grassland areas and ambush nests in the termite mounds. Fires early in the dry season allow for seeds to be easily accessible to the golden-shouldered parrot.

CARING FOR OUR COUNTRY

Queensland Government

RURAL FIRE SERVICE

REEF CATCHMENTS

reefcatchments.com.au