Brigalow Belt (North)

Fire Management Guidelines

Appropriate fire management practices to help land managers plan hazard reduction burning and undertake planned burns to improve production and conservation outcomes

CARING FOR OUR COUNTRY

REEF CATCHMENTS

Introduction

Reef Catchments and the Bushfire Consortium

Reef Catchments Mackay Whitsunday Isaac Ltd. or 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 Isaac 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 **www.reefcatchments.com.au**.

The Queensland Bushfire Consortium was formed to reduce the threat of inappropriate fire on the unique natural and economic values of the Queensland Environment. For more information and contact details, visit the website: **www.queenslandbushfireconsortium.net.au**.

Reef Catchments in partnership with the volunteer rural fire brigades, government and non-government landholders, 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 the volunteer rural fire brigades and other respected fire managers and fire scientists. These guidelines are intended to be used by volunteer rural fire brigades and landowners who are on the front line in managing fire in rural communities.

Using these guidelines

These fire management guidelines have been developed for 21 landscape types in the Brigalow Belt (North) region. These landscape types are composed of vegetation types that require similar fire prescriptions.

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

- **Fire frequency** – how often should an area be burnt
- **Fire intensity** – how hot does the fire need to be
- **Season** – what time of year will usually provide the desired conditions for a planned burn
- **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, 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.

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

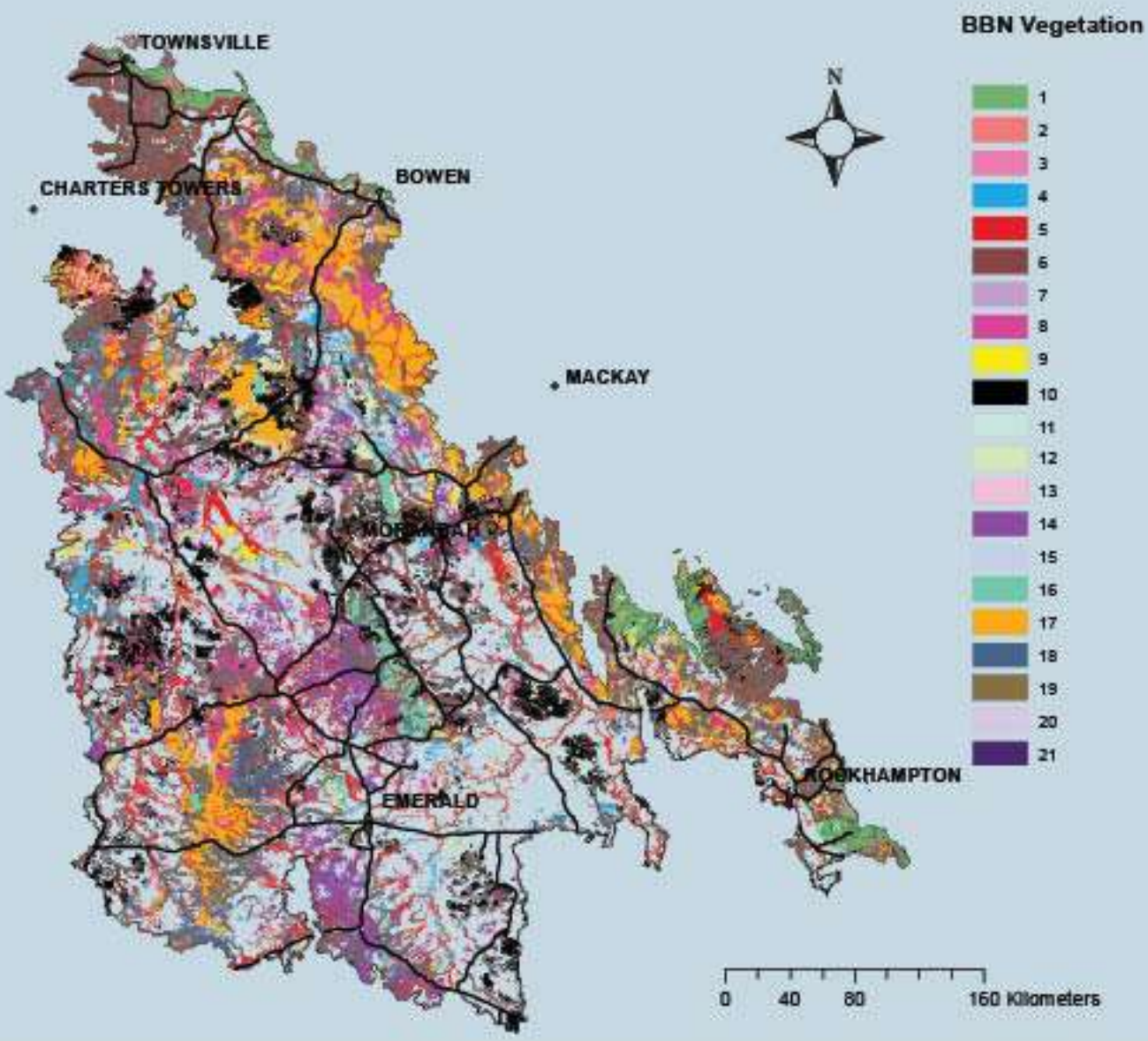
LOW intensity fire is < 1m in height.

MODERATE intensity fire is < 2m in height.

HIGH intensity fire is > 2m in height.

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

Vegetation Groups of the Brigalow Belt North



Mangroves and Estuarine Wetlands

Including saltwater couch and salt marsh flats

Landscape 1

Burning is generally not recommended in this landscape

Mangroves, saltmarsh, saltwater couch, saltpan vegetation, and fringing melaleuca forests and pandanus.

Mangroves and Estuarine Wetlands

Including saltwater couch and salt marsh flats

Barramundi

Hazard Reduction

Mangroves, adjacent saltwater grassland, and salt marsh are continually flooded by high tides throughout the year. Because of this, they maintain a high soil moisture and green growth throughout the year. Wildfire is rarely a risk.

The fringes of these areas can become infested with exotic species such as Guinea grass that can develop high fuel loads along fringing areas between mangroves and other coastal vegetation. There may be a need to reduce these fuels to prevent fire movement along these margins. However this is best done by means other than fire (such as glyphosate herbicide) as some exotic grasses such as Guinea grass are fire promoted and can build significant amounts of fuel in even a single growing season. Therefore fuel reduction burning would need to be done virtually every year to reduce risk, placing a significant burden on the land manager. As a fire promoted species, burning this grass can make the fire hazard worse and this can severely damage mangroves and adjacent coastal vegetation.

Production

Mangroves are well known habitat and nurseries for fish and crustaceans. More recently, it has become obvious that saltwater grassland and salt marsh are critical feeding areas for many fish and crustacean species during high tide periods. A decrease in pasture biomass through fire or overgrazing will reduce the habitat value and therefore fisheries production. Saltwater couch can be highly productive, high in protein and digestible. However if grazed, care should be taken to manage stock during periods of higher tides as the wet soil will easily become rutted which can result in increased salt retention after high tides and eventual scalding. This can result in increased areas of bare soil, limiting the production value for both fisheries and stock.

Conservation

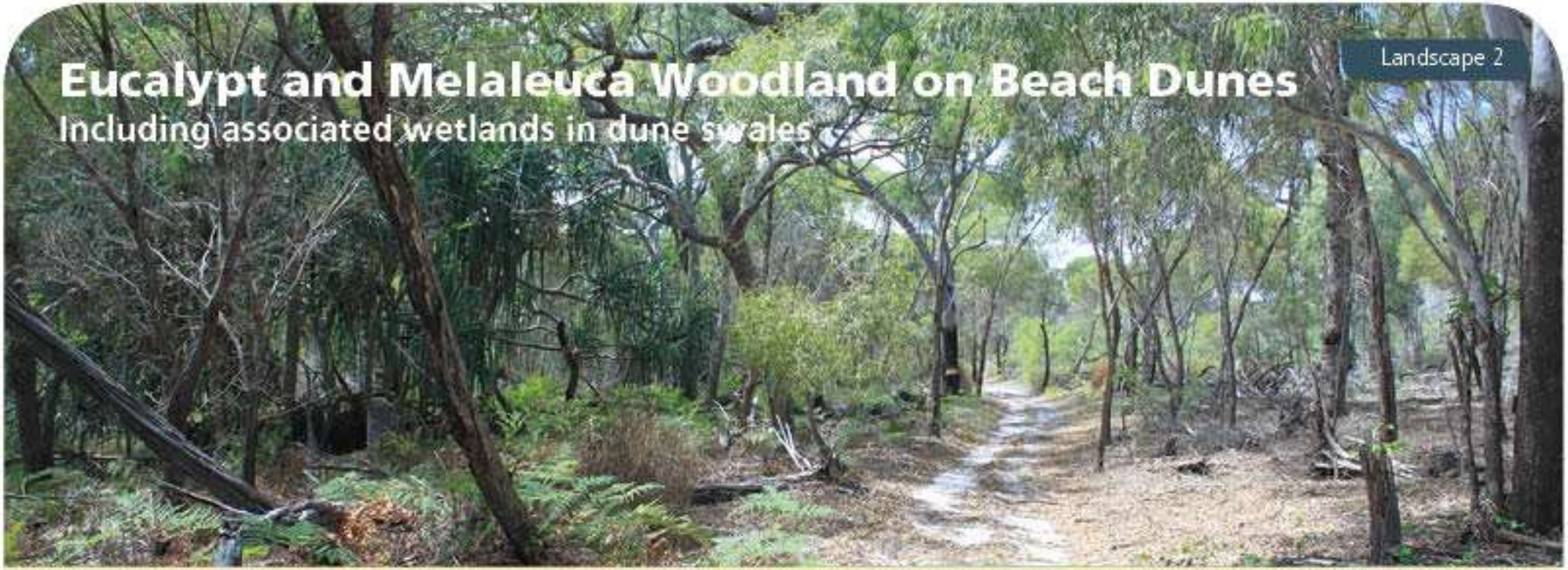
These wetlands are important for the conservation of numerous species including migratory birds and the mangrove mouse. Careful management of the land to maintain production values will also retain conservation values and benefit these species. Maintaining these wetlands in a healthy condition by carefully managing grazing and avoiding fire, will also assist them in filtering excess nutrients and sediment from water runoff preventing these from impacting on coastal fringing reefs and seagrass beds and the wildlife these support.

Regional Ecosystems

11.1.1 11.1.2 11.1.3
11.1.4

Eucalypt and Melaleuca Woodland on Beach Dunes

Including associated wetlands in dune swales



Woodlands of Moreton Bay ash, poplar gum, paper bark, Queensland peppermint with wattles, weeping tea tree and coastal banksias as a shrubby understory and/or sedges and grasslands on coastal dunes.

Eucalypt and Melaleuca Woodland on Beach Dunes

Including associated wetlands in dune swales

Hazard Reduction

Vegetation on the back of beach dunes seldom poses any significant threat. However where there is buildup of exotic grasses such as Guinea grass, some fuel reduction may be required. A low intensity fire with good soil moisture (e.g. shortly after a storm) followed by patch spraying of the recovering grass tussocks should provide good results. Planned burning should not be any more frequent than every 3 years.

Generally native grasses do not accumulate large amounts of fuels compared to exotics; so control of weed grasses will reduce the need for hazard reduction burning and therefore long-term management costs.

Wetlands and swamps can often be used as fire breaks themselves as they will retain green vegetation even when the surrounding areas become flammable. Unless the season is very dry, they do not provide the fuel that would result in a high intensity fire.

Production

Clearing and introduction of exotic pasture species coupled with the impacts of stock can severely impact fragile dune systems and typically results in an increase in weeds such as rubber vine. Generally these areas do not support productive pastures and grazing pressures simply produces a reservoir of exotic weeds that spread into more valuable grazing lands nearby. If weeds such as rubber vine are present in significant densities fire could be used to gain initial control.

Rubber vine seed, seedlings and young plants are fire sensitive and larger plants will be reduced in size allowing more efficient and cost effective follow up chemical control. The longer the stems are heated by fire the better the result will be. Use a moderate intensity backing fire in combination with good soil moisture to produce the best results.

Conservation

Wetlands and swamps within this landscape require fire at a longer interval to retain ground layer diversity and allow young canopy trees to obtain sufficient height to ensure they are not affected by the planned burn. Fires should be of low intensity to create a good mosaic. Fire should not be used more than once every five years. Generally native wetland vegetation will not promote a high intensity fire.

It is recommended that fire is only applied to gain initial control of weeds such as rubber vine, to prevent vegetation thickening and to manage rainforest emergence into woodlands.

Burning as soon as fire will carry after 30–50mm of rainfall will likely achieve the desired results and will be effective in control of many woody weeds.

Disturbance of these habitats is caused by 4WD tracks, stock trampling, and feral pig activity. This allows exotic species to infiltrate the landscape resulting in higher fuel loads and increased fire hazard. Reducing disturbance is a cost effective way to minimise fuel development.

Regional Ecosystems

11.2.1 11.2.5 11.2.4

Beaches and Foreshores

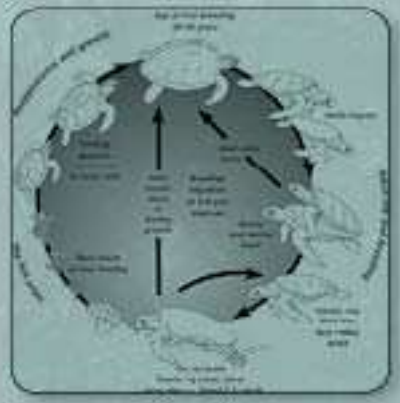
Including "beach scrub"

Burning is generally not recommended in this landscape

Beaches and foreshores including "beach scrub".

Beaches and Foreshores

Including "beach scrub"



Turtle Life Cycle

Hazard Reduction

Coastal dunes are poor in nutrients, high in salt, exposed to other marine influences and rarely accumulate sufficient fuel to support anything but a low intensity fire. Fuel reduction burns are better conducted within adjacent eucalypt and melaleuca woodland. In some cases, exotic grasses and weeds can increase fuel loads to larger amounts. Control of these invasive species is best done by herbidde application as even very low intensity fire kills fire sensitive canopy trees such as beach she-oaks.

Death of these trees results in reduced canopy shading which allows even more exotic species to establish and accumulate fuels. In addition, the loss of these trees reduces the capacity of beach vegetation to capture wind-borne sand and thus the capacity of the beach to recover from periodic storm driven erosion events.

Production

These areas have no production value and even ad hoc grazing can result in the type of disturbance that leads to infestation of woody weeds such as rubber vine.

Conservation

Beach scrub vegetation is highly valued as a conservation asset due to the diversity of species it supports and as habitat for a large number of iconic and/or threatened species such as northern quolls and the rose-crowned fruit doves and other fruit eating pigeons.

Beach scrub is naturally resilient to infestation by weeds if left undisturbed. However this vegetation is fire sensitive and even low intensity fire will damage its margins and result in weed infestation. All practical efforts should be made to keep fire away from these areas. Open beach foreshore vegetation is of particular value in helping stabilise beach fronts, which themselves are critical nesting habitat for marine turtles. These areas should not be burnt.

Regional Ecosystems

11.2.2 11.2.3

Brigalow, Belah, Bonewood & other shrub land

Including alluvial and stoney flats and associated vine thickets

Burning is generally not recommended in this landscape

Brigalow, belah, bonewood and other shrub land including alluvial and stoney flats and assodated vine thickets.

Brigalow, Belah, Bonewood & other shrub land

Including alluvial and stoney flats and associated vine thickets

Hazard Reduction

Brigalow, belah, bonewood and the associated vine thicket species in this landscape do not present a fire threat because they do not develop a significant fuel load. In a typical season they can form part of a natural fire break system that can be used in property fire management planning.

Late dry season wildfires in drier years can damage this vegetation type. Protection of these fire sensitive communities requires fuel reduction burning in the adjacent eucalypt communities.

Reducing the fuel hazard in adjacent vegetation should be done when soil moisture is high. Use natural features or wind direction to burn away from the edge of the brigalow, belah, bonewood and vine thickets to ensure minimal damage from planned fires. Creating a mosaic fire pattern as the adjacent country dries out will improve the protection from late season wildfires and retain patches of pasture for grazing.

Production

These vegetation communities offer little production value. They generally have a sparse ground cover and provide minimal pasture for grazing. In heavier black soils, this landscape can provide some native pasture growth and may be useful as shade areas. Brigalow and belah return nitrogen to soil and some regrowth is often retained to help soils recover their nutrient status. Vine thickets offer no production value but have high conservation values.

Conservation

These vegetation communities are fire sensitive so fire should be excluded. Brigalow and associated acacias are soft seeded so do not require fire for germination. Brigalow and associated trees and shrubs have well established roots and will sucker from these after damage from low to moderate fire events. High intensity fire events will kill the entire plant.

Vine thickets within this landscape type contain areas of significant ecological value. These areas may contain trees such as the bottle tree and other scrub species that are susceptible to even low intensity fire. In addition fires impacting these areas open the canopy and allow grasses such as Guinea grass or buffel grass to invade making them more susceptible to future fires. Protection burns should be undertaken in the adjacent fire adapted vegetation.

The boundary between the fire sensitive and fire adapted community is transitional, so an occasional fire that burns the edge of this landscape is acceptable in efforts to maintain the adjacent vegetation.

Where lantana occurs adjacent to vine thicket and is repeatedly impacted by high intensity fire, it can cause contraction of these communities to the point where they cease to exist. Care should be taken when burning lantana adjacent to vine thickets and avoided if at all possible.

Regional Ecosystems

11.3.1	11.3.5	11.3.8
11.3.11	11.3.34	11.3.17
11.9.1	11.9.4	11.9.5
11.9.8	11.9.10	

Riverine Woodlands and Coolibah Flats

Including freshwater wetlands

Woodlands of Coolibah, blue gum, river red gum with a shrubby understory to grasslands.

Riverine Woodlands and Coolibah Flats

Including freshwater wetlands

Hazard Reduction

Hazard reduction burning within the broader landscape is important to protect late dry season pastures from late dry season fires. It also assists in protecting adjacent fire sensitive vegetation. Hazard reduction burning should begin as soon as the country will carry a fire after the wet season or the first storm.

Progressive burning as the grasses cure will provide a good mosaic of burnt and unburnt areas that will provide protection from late season wildfires. Ideally, vegetation within and directly adjacent to riverine channels should not be burnt as this will form a 'green break' which will prevent passage of all but the high intensity wildfire. In areas of potential parthenium or other vehicle carried weed infestations, avoid repeated burning along roads and access tracks during the early dry.

Dry soil conditions do not allow pastures to compete effectively against weeds. Where practical use local topography and prevailing winds to put in burnt breaks that can be used later. Storm burning along access tracks will assist pastures to compete effectively against weeds, reducing the likelihood of weeds taking hold.

Production

These woodlands can carry a good pasture as do freshwater wetlands which provide a range of grasses and forbs. The wetter nature of these areas means they can offer a late dry season grazing opportunity. A low intensity fire after the first storm can be used to remove rank grass and freshen the pasture.

Late dry season grazing will generally keep fuels low, so the frequency of fire should usually be within a range of five to seven years along riverine terraces and alluvial flats and up to ten years around wetland areas. Burning with good soil moisture is important to prevent weed invasion, so late dry season burning should be avoided.

A slower moving, low to moderate intensity fire may be useful in weed control particularly within parkinsonia and lantana infestations as this is likely to kill seedlings and improve access for chemical control of larger adult plants.

Conservation

Planned burning in this landscape should aim to promote patchy fires to ensure a broad range of understory species and habitat conditions (i.e. age after fire) in the landscape. Ideally, vegetation within and directly adjacent to riverine channels should not be burnt.

Avoid burning the balance of this landscape for approximately three years after a major flood as flooding produces a similar disturbance to burning by providing a seed bed and reducing fuel loads.

A good indicator of fire frequency is that the saplings recruited from the previous fire or flood should be of sufficient size to regrow from their tops after a fire of low to moderate intensity. A variation of early burns as the country dries out, and storm burns will provide a good mosaic of fire type. This landscape should always be burnt with good soil moisture to minimise the loss of habitats such as tree hollows and hollow logs.

Regional Ecosystems

11.3.3 11.3.25 11.3.37
11.3.27

Eucalypt/Melaleuca Woodlands on Alluvial Flats

Including grassy flats

Variable woodlands to grassy woodlands with poplarbox, bloodwood, blue gum, or broad leaved tea tree. Native grasses are predominately blue grass or Mitchell grass.

Eucalypt/Melaleuca Woodlands on Alluvial Flats

Including grassy flats

Regional Ecosystems

11.3.2	11.3.4	11.3.7
11.3.9	11.3.10	11.3.12
11.3.26	11.3.29	11.3.30
11.3.35	11.3.36	11.3.6
11.3.19	11.3.38	11.3.39
11.3.21	11.3.31	

Hazard Reduction

This is an important landscape for undertaking planned burns to protect adjacent fire sensitive vegetation such as 'in channel' riverine woodlands. Burning for production and conservation outcomes would be expected to also achieve property protection goals for this landscape by breaking the area up progressively into a mosaic of burnt and unburnt areas when fuels have cured sufficiently after the wet season. Secure boundaries early and then continue a series of smaller fires rather than broad scale burning. Topography and prevailing winds can be used to conduct smaller burns over several months within the secured boundaries. Aim to burn no more than 30% of a paddock or property in one year; co-ordinate boundary burns with neighbours to prevent frequent low intensity fires and the associated risks of woody thickening and weed infestations.

Production

This landscape is productive country where the fire frequency will be directly related to grazing pressure. A good balance of trees and grass in more heavily grazed areas is achieved by applying a moderate intensity fire every five to seven years. This will assist in the reduction of thickening. Destocking for a period prior to the planned burn will assist in increasing fuel loads in more heavily grazed paddocks in order to achieve the moderate severity required to kill tree suckers. Lighter grazed areas benefit from a low to moderate intensity fire every two to four years to remove old grass. Restrict grazing post-fire when pastures are in the early stage of growth to enable them to achieve vigour. Soil moisture is a critical factor for planned burning in this landscape and early dry or storm season burns will give the best results. Burning during the dry season will tend to favour weeds such as parthenium. Vegetation thickening, increase in lantana, and/or parthenium and subsequent loss of grass cover can occur in heavily grazed areas that are not burned periodically. Control of woody regrowth and dense weed infestations may require hotter fire (fuel loads of 2000 kg/ha or greater may be needed) but control of tree thickening over two meters by fire may be difficult.

Conservation

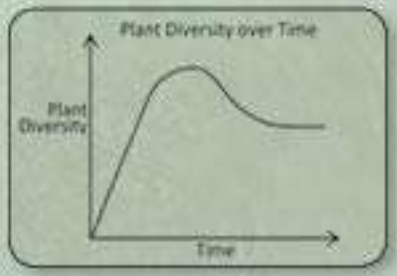
Controlling weeds and woody regrowth is a major focus of planned burns in this landscape, and is particularly important to maintain natural grasslands. Small scale patchy burns as the country dries out gives a good variation in fire intensity and time since last burn. Avoid burning for three years after a major flood as flooding produces a similar disturbance to burning by providing a seed bed and reducing fuel loads. Identifying and retaining habitat trees, such as mature blue gums, will help conserve significant species like gliders and provide seed trees for future regeneration.

Endangered northern quolls are likely to utilise this area so aim to achieve small patch burns of about 17ha or less and do not burn in September or October when the young are left in the den. Burn only when there is good soil moisture, and aim to vary the time of burning from early dry to storm season as conditions allow. Indicators of successful fire management include: a diverse grass layer; standing hollow-bearing trees; and an open woodland vegetation structure.

Beefwood, Bull-oak, Sandalwood Woodlands and Cypress on Alluvial Flats

Beefwood, bull-oak, sandalwood woodlands and cypress on alluvial flats.

Beefwood, Bull-oak, Sandalwood Woodlands and Cypress on Alluvial Flats



Hazard Reduction

This vegetation type generally has a very sparse ground layer except where exotic grasses have established. The canopy trees do not shed much leaf litter so there is little build up of fuel. Exotic grass establishment within this landscape increases the fuel load exponentially and results in an increase in fire intensity that can damage mature trees. Areas of exotic grasses should be burnt as soon after the wet season as a fire will carry. The aim of hazard reduction in this landscape is to have a variation in the time since last fire to protect the landscape type and adjacent fire sensitive vegetation communities from wildfire. However, fire should not be used more frequently than twice in a ten year period. Specific weed infestations like rubber vine may require fire on a more frequent interval. Fire adapted eucalypt communities adjacent to this landscape type should be included in broad scale protection burns.

Fire has little effect on tree survival once the tree height is above flame height. Thickening shades out perennial grasses thereby reducing the fuel and the fire intensity. Thus a moderate to high intensity backing fire during the storm season is required, every three to five years will keep the vegetation open and retain the variety of plants and animals.

Production

This landscape has been extensively cleared for agriculture and grazing. Fire is generally used for removing old grass and therefore is best used when soil moisture is high so grasses can recover quickly. A storm burn or early dry season fire after the wet are suitable opportunities.

Good spring storms would also offer soil moisture however the risk of potentially hotter, drier weather leading into the late dry makes this risky. Much of this landscape has significant areas of introduced grasses, particularly buffel grass, so the choice of burning season should reflect the pasture characteristics. A low to moderate intensity fire with good soil moisture should provide a rapid response from pasture grasses, reducing the opportunity for woody weed invasion.

Conservation

Where practical, established exotic grasses should be removed from the vegetation prior to burning as these fuels can generate enough heat to kill mature trees. Patchy mosaic burns of low intensity, early in the dry can provide protection from later wildfires. 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. Care must be taken not to scorch surrounding mature trees. This initial control is made more effective by follow up programs of chemical control. High fire intensities will kill parent trees, but can also lead to mass regeneration in bull-oak stands. A low intensity fire several years later maybe required to reduce the stem density.

Bull-oak is an important food source for Glossy black-cockatoos who favour returning to certain trees and stands rather than feeding across available resources. Planned burning should consider local use of the bull-oak for this species.

Regional Ecosystems

11.3.13 11.3.32 11.3.33
11.3.18

Vine Thicket Dominated Landscapes

Burning is generally not recommended in this landscape

Vine thicket, blackwood, gidgee, brigalow and belah scrubby woodlands to open forest on day plains. Vine thickets on basalt. Vine thickets, brigalow, belah, cyprus pine and bull-oak on sandy plains. Vine thickets, brigalow, acacia scrubs, very shrubby eucalypt woodlands on stony soils usually in range country and hills. Vine thicket, hoop pine and brigalow or other acacia.

Vine Thicket Dominated Landscapes

Hazard Reduction

Vine thickets in the northern Brigalow Belt rarely pose any wildfire threat and indeed are often useful as 'green breaks' that disrupt the passage of fire. Many of the species are fire intolerant, and a naturally sparse ground layer results in little fuel development that would support fire.

Introduced species including grasses can, however, cause an unnaturally high fuel load particularly on vine thicket boundaries. Lantana will also develop along boundary areas where light levels are higher. The use of fire to reduce grass fuels and lantana will generally kill vine thicket species, resulting in a more open canopy and subsequently expansion of introduced grasses and lantana.

It is recommended that if vine thickets are going to be used as 'green breaks', protect them by lighting against the vine thicket rather than push a fire into the vine thicket.

Production

This landscape generally provides a very sparse pasture and is of little to no use in production.

Lack of fire in this landscape can allow native species to spread into adjoining landscapes such as eucalypt woodland and grassland. Burn surrounding vegetation to reduce the spread of vine thickets.

Conservation

Vine thickets and many of the species associated with them are extremely fire sensitive. Larger species such as gidgee, brigalow, blackwood, and belah, can all be killed by even a low intensity fire. Often they also are long lived and soft seeded and high rainfall years are the drivers of their germination.

Seeds of very few species such as lancewood can tolerate a low intensity fire, however these trees can take up to 20 years to fully mature. If a fire does go through a lancewood area, ensure the landscape remains fire free for at least 20 years. Exotic grass species are known to have invaded vine thickets. Grazing is the best option when attempting to reduce these. Graze in both vine thickets and adjacent landscapes to control species such as buffel grass. Once grazed, maintain the edges with herbicide and promote natural regeneration for vine thickets where desired.

The endangered northern hairy-nosed wombat utilises this landscape for its native grasses, scattered eucalypts and acacias, and patches of scrubs, while burrowing in the softer soils. They rely on patches of scrub and scattered acacias to feed. If buffel grass is present, burn adjacent to the burrows to reduce biomass and improve grass diversity.

Regional Ecosystems

11.4.1	11.4.5	11.4.6
11.4.7	11.4.8	11.4.9
11.4.3	11.8.3	11.8.13
11.8.6	11.8.7	11.5.15
11.5.16	11.5.1	11.11.1
11.11.2	11.11.5	11.11.13
11.11.16	11.11.18	11.11.18
11.11.21	11.11.14	11.12.4
11.12.7	11.12.12	

Eucalypt Woodland on Clay Plains

Including grassland on clay plains

Grassy woodlands of coolibah, blue gum with isolated clumps of brigalow. Native grasses are mainly blue grass or Mitchell grass.

Eucalypt Woodland on Clay Plains

Including grassland on clay plains

Regional Ecosystems

11.4.2 11.4.13 11.4.4
11.4.11

Hazard Reduction

The main aim for hazard reduction is to provide a patchy mosaic of varying fuel loads which will offer some protection against spread of late season wildfire. In addition aim to retain areas of grass cover for dry season grazing and conservation purposes. Eucalypt woodland and grasslands on clay plains tend to retain soil moisture later into the dry season than the surrounding vegetation on sand or alluvium. This means that these areas are able to contain planned burns later into the dry season than surrounding land types. However, curing of grasses can occur rapidly (particularly if grasses are frosted) and thus fire intensity and risk will develop quickly as the dry season progresses. Hazard reduction burns within this landscape should begin as soon as fire will carry and wherever possible with some soil moisture to allow native grasses and herbs to re-colonise burnt areas quickly. This is particularly important in areas where herbaceous weeds such as parthenium are present, as without competition from native grasses, these will rapidly increase in cover.

Production

Heavy clay soils retain moisture longer than many other soil types and therefore pastures on these soils, offer good quality grazing later in the dry season. The soils are often self-mulching; as the clay dries it shrinks, forming cracks in the soil surface, allowing organic matter to fall in. On re-wetting, the clay expands, and cracks close, and over time the trapped organic matter enriches the soil. Too frequent fires reduce this soil enrichment process and can result in reduced soil fertility.

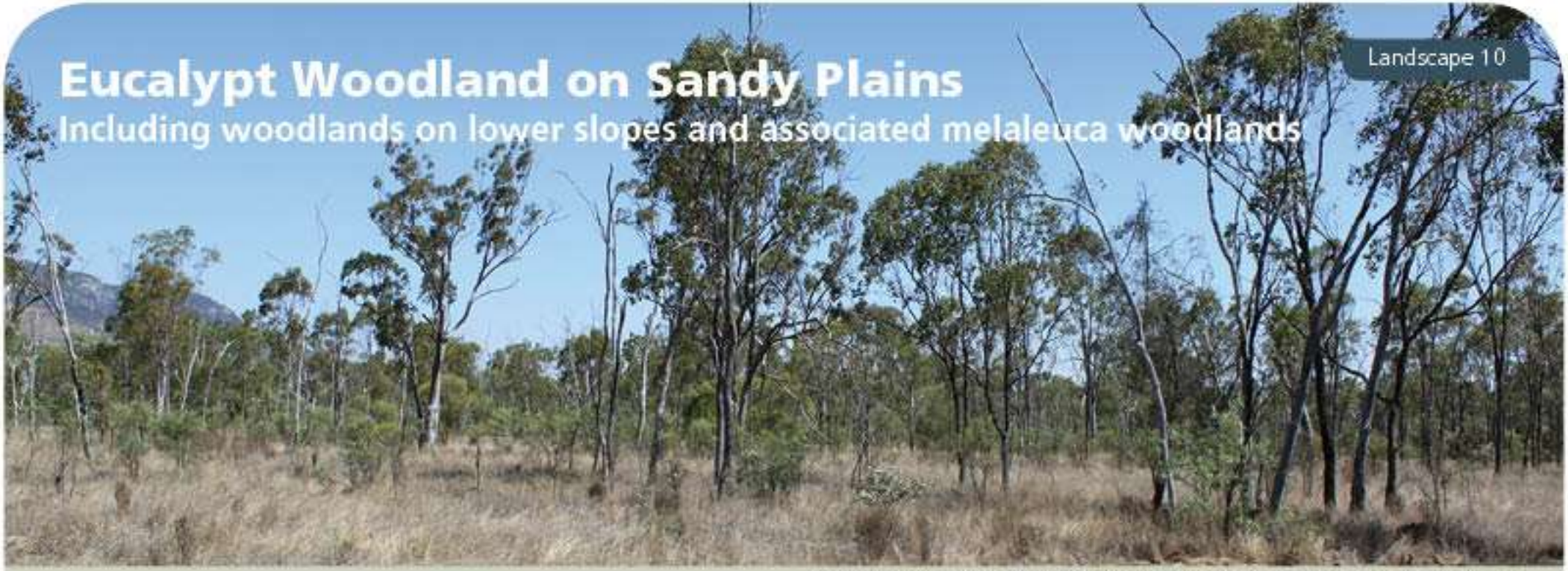
A fire every three to seven years within woodland areas is suitable for production areas, with the aim of burning no more than 30% of a given paddock at each time. A shorter fire frequency of three to five years in the grasslands is acceptable. Fires should be planned for the earlier part of the dry. An occasional storm burn may be a useful tool in controlling thickening by cypress and belah where it occurs. Fires should be started against fire sensitive vegetation to reduce scorching.

Conservation

Burning when there is good soil moisture will help retain important habitat features such as fallen timber and hollow trees within woodlands. Fire is an important tool in preventing cypress, brigalow or belah communities from encroaching into eucalypt woodlands and grasslands. Storm burns with a moderate intensity will assist in removing this encroachment. Patchy mosaic burns early in the dry season that break up fuel loads offer some protection against spread of wildfire. Therefore aim to burn no more than 30% of the area in any one year but retain some portions unburnt (up to about 7 years). These long unburnt areas are important for a range of vulnerable species such as the ornamental snake as these snakes shelter in logs and within dense ground litter that takes time to accumulate following a fire. The ornamental snake feeds exclusively on burrowing frogs which utilise the cracks in the clay during the dry season. Widespread fire (and overgrazing) or high intensity fires that clear the ground layer reduces the potential of this species to be retained in the landscape.

Eucalypt Woodland on Sandy Plains

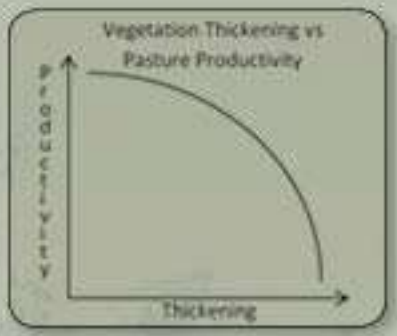
Including woodlands on lower slopes and associated melaleuca woodlands



Open woodlands with a shrubby or grassy understory containing ironbark, bloodwood, broad leaved tea tree, poplar box, often bull oak and/or cypress in the understory.

Eucalypt Woodland on Sandy Plains

Including woodlands on lower slopes and associated melaleuca woodlands



Regional Ecosystems

11.5.3	11.5.9	11.5.10
11.5.12	11.5.17	11.5.2
11.5.5	11.5.8	11.5.20

Hazard Reduction

This landscape is often braided by numerous creek lines and gullies that often retain some standing water or at least high soil moisture during the early part of the dry season. These can be helpful in implementing early dry season burns that produce a patchy mosaic of burnt and unburnt fuels.

Burns that result in about 30–40% of the total area burnt will provide a break up of continuous fuel levels which will reduce the spread of late season wildfire. Avoid burning too frequently or in the same place such as along a track or road edge, as this can favour weeds such as parthenium.

Production

These woodlands usually have a grassy understory but may develop a shrub layer. The landscape is used extensively for grazing and pasture vigor and therefore productivity is closely linked to periodic fire management. In more lightly grazed areas, fire can be used to remove old grass and freshen the pasture every 4–6 years.

In heavily grazed areas or where fire has not been used for extended periods, there may be encroachment of soft wood scrubs species. In these instances a reduction in grazing to build a suitable fuel load of around 2000kg/ha will be required to carry a fire of sufficient intensity to remove the trees and shrubs causing thickening. Fire should be used when soil moisture levels are relatively high, such as the early dry season or directly after the first rains of the storm season to ensure pasture grasses recover quickly and have the ability to compete against weeds such as parthenium which will otherwise increase in density.

Conservation

Management of these woodlands for conservation purposes may require establishing cover of both grassy and shrubby habitats. Areas containing a shrubby understory will require a longer time between fires than grassy areas to allow the shrub layer to mature and produce seed (some require 5–6 years to seed). Fire frequency in the shrubby woodlands should be between 7–10 years compared to the shorter interval of 4–6 years for more grassy areas.

This landscape is important habitat for squatter pigeons which prefer a longer undisturbed ground layer for nesting. The pigeon feeds on a range of grass seeds, legumes, herbs, insects, and occasionally fallen acacia seeds.

Within this landscape, a range of fires of varying intensities and sizes resulting in a variety of vegetation ages or time since fire will best benefit the squatter pigeon. In addition maintaining a mix of areas that range from more open and grassy through to densely shrubbed will best benefit the squatter pigeon. The squatter pigeon can be an indicator of good fire management that retains robust pastures over the long term. Their continued persistence in the landscape is a direct result of good pasture and fire management.

Some soil moisture is crucial for planned burning to allow quick recovery of grasses and to avoid excessive loss of habitat features such as hollow trees and fallen timber.

Acacia and Heath on Sandy Plains

Acacia and heath on sandy plains.

Acacia and Heath on Sandy Plains

Hazard Reduction

This landscape is represented within the region in relatively very small patches naturally occurring in the areas around Dysart, Middlemount, Mt Coolon and Comet. It is unlikely to be considered a fire hazard due to the slow accumulation of fuel. However, it may be burnt in conjunction with neighbouring land types if hazard reduction is required.

Production

This landscape has limited use for grazing or horticulture because of poor soil fertility and a high gravel content. In pastoral areas, slender wattle can sucker significantly after mechanical clearing or fire and thicken to a density that reduces grasses to the point where stocking rates must be reduced.

Conservation

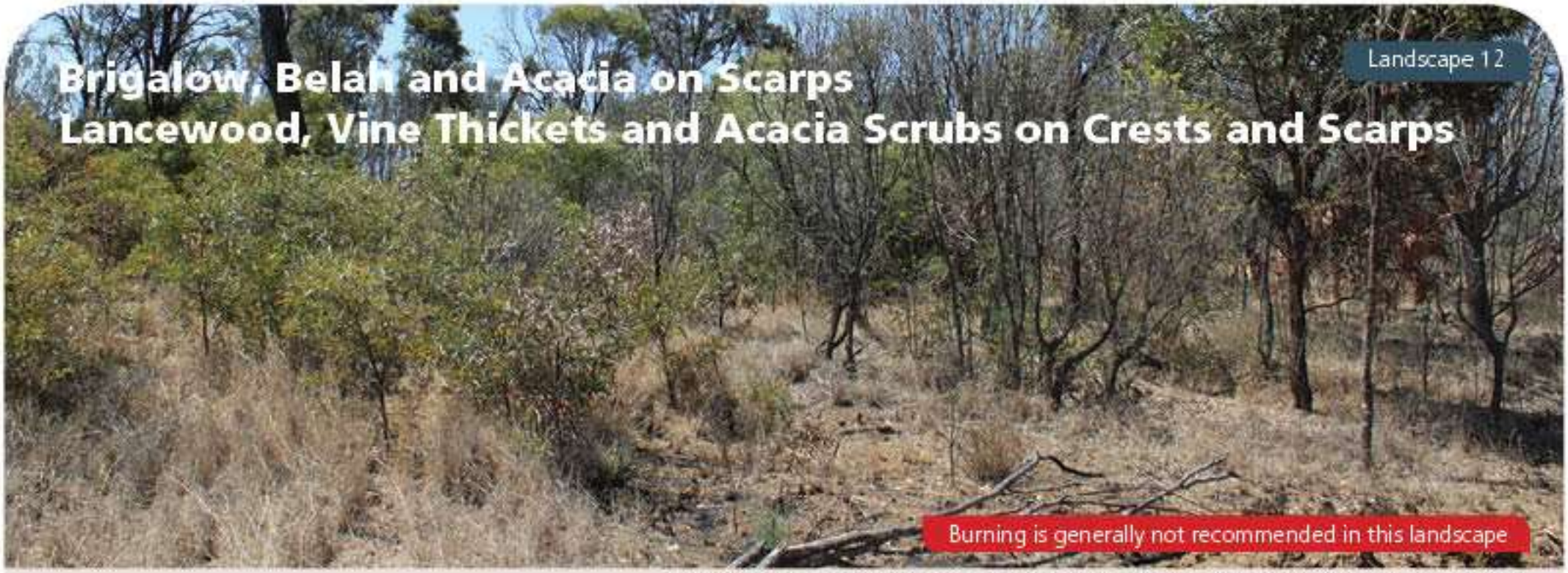
This landscape may occur as patches of sparse vegetation with a grassy understory through to a dense thicket. Fire is required for regeneration however plants that form this vegetation take at least 5–6 years to mature. Adult plants begin to senesce at around 10–15 years. Fuel build up is generally low and therefore a fire frequency that is less than the rate of tree maturity is rare. The floristic diversity of heath decreases over time, so plant diversity can be used as indicators of fire requirements.

This landscape would generally burn in association with surrounding vegetation types. Most occurrences of this vegetation are naturally small and would be difficult to break up into a mosaic although an aim of 50% will provide some variation in the age of the stand.

Regional Ecosystems

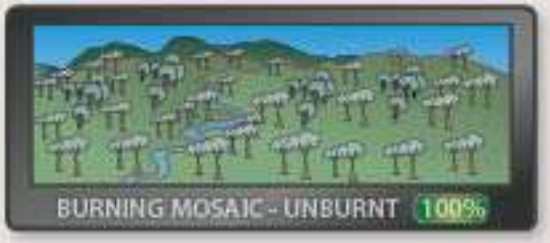
11.5.18

Brigalow, Belah and Acacia on Scarps
Lancewood, Vine Thickets and Acacia Scrubs on Crests and Scarps



Burning is generally not recommended in this landscape

Brigalow, belah and acacia on scarps. Lancewood, vine thickets and acacia scrubs on crests and scarps.



Brigalow, Belah and Acacia on Scarps
Lancewood, Vine Thickets and Acacia Scrubs on Crests and Scarps

Hazard Reduction

This landscape generally fails to accumulate any significant amounts of fuel and thus will rarely support a fire. In many cases this landscape can be useful as a naturally fuel reduced area that will restrict the spread of fire.

This landscape is fire sensitive and as such fuel reduction burning in adjacent areas, should avoid scorching along margins.

Production

This landscape generally has shallow soils which do not develop a grassy understory. As with other brigalow dominated ecosystems, this landscape is of limited production value and there is no need to manage them with fire.

Conservation

This landscape is fire sensitive, should be exduded from planned burning, and its margins protected from fire wherever practical. When lancewood is present, ensure the landscape is protected from fire for at least 20 year intervals. More frequent fire events will cause dieback of lancewood and subsequent contraction of this vegetation type.

Glossy black-cockatoos feed extensively on belah seed. Belah does not regenerate after fire, and will typically be killed by even very low fire intensity events.

Shrub lands of acacias developing on natural scalds (that may also include hakea species) can tolerate fires with a 6–10 year interval. However it is not necessary to actively burn as they will generally burn in association with the surrounding landscapes.

Regional Ecosystems

11.7.1	11.7.2	11.7.5
11.10.3	11.10.4	11.10.8

Box and other Eucalypt Woodland on Scarps

Including grass and spinifex ground layers

Open woodland with a mix of box, ironbark and bloodwood. Spinifex replaces grasses in the more arid areas.

Box and other Eucalypt Woodland on Scarps

Including grass and spinifex ground layers

Hazard Reduction

Hazard reduction in this landscape will necessarily need to take into account steep slopes and planned burning should focus on lighting in more elevated areas, allowing fire to burn downhill.

Burning would ideally be conducted after the first rains with good soil moisture or early in the dry season when the soil still retains some moisture. A series of individual fires is preferred, rather than a single prescription. However, the imperative to manage and protect production and conservation assets should be considered important.

Storm burning should be used to target woody weeds particularly rubber vine, parkinsonia and prickly acacia.

Production

The shallow, poorer soils of this land zone do not provide an opportunity for significant pasture improvement. Thus grazing is based on native grasses that offer bulk but are not high in nutrition. In the more arid areas spinifex is a good soil stabiliser and soil stability must be considered in both stocking rates and fire management.

Burning of spinifex can provide an opportunity for better pasture grasses to establish, with the best strategy employing a range of small burns in the early dry season as vegetation dries out, rather than a single broad scale burn.

A series of patch burns in the first few weeks after the onset of the wet will provide a variety of grasses and herbs whilst maintaining soil stability.

Conservation

Fire is required for recruitment of future canopy species and can assist in promoting a variety of grasses. A series of small fires commencing at the end of the wet season should be used to secure property and fire sensitive vegetation boundaries. Later, fires can be burnt back onto these earlier fires so that a mosaic of burnt and unburnt vegetation occurs across the landscape. This provides protection against the spread of late dry season wildfires and a good variation in grass seed availability and other habitat features. An occasional storm burn will assist in the promotion of other grasses and legumes.

The aim of conservation in this landscape is to maintain diversity in the ground layer, whilst maintaining hollow bearing trees in the canopy and a complete vegetation structure.

Regional Ecosystems

11.7.3 11.7.4

Eucalypt Woodland on Basalt

Including associated grasslands

Grassy open woodlands of mountain coolibah, ironbark and poplar box. Grasslands contain a mix of Queensland blue grass, kangaroo grass and black spear grass.

Eucalypt Woodland on Basalt

Including associated grasslands

Regional Ecosystems

11.8.4	11.8.5	11.8.15
11.8.14	11.8.12	11.8.11

Hazard Reduction

Hazard reduction is important in this landscape, particularly in the wetter years as the grasses can create heavy fuel loads even with grazing. Soil moisture is important for recovery of the grasses after fire so burn in the early dry or after the first rains of the wet. An observation of grasses having set seed would be a suitable indicator of appropriate fire timing in the early dry.

Production

Basalt based soils have moderate to high fertility although the soils may be shallow on hilly country. Across the region, silver-leaved ironbark or mountain coolibah country produce some of the better native pastures for grazing.

Queensland blue grass, kangaroo grass and black spear grass are the primary native pastures. The timing of fire management and the level of grazing pressure placed on this landscape after fire is crucial for retaining these native pastures. The grasses are most susceptible when using the plants reserves to sprout after a fire, drought or winter dormancy. As such, they should not be grazed until they have re-established vigorous growth.

A low to moderate fire every 3–5 years will keep the country open from re-growth and remove older rank grasses. Wetter years provide an opportunity to develop a fuel load of 2000–3000kg/ha required for woody regrowth control if thickening has already occurred. In drier years stocking rates should be reduced to allow fire management if required in that year.

Conservation

The main conservation objective in this landscape is to maintain the presence of grasslands on basalt, principally Queensland blue grass (Dichanthium sericeum) communities that have become rare. Grazing pressure, particularly in the drier years and inappropriate fire regimes that favour black spear grass or Indian couch threaten these areas. In addition the spread of improved pasture grasses and other weeds (e.g. buffel grass and parthenium) into the heavy black clay soils has significantly reduced the extent and quality of Queensland blue grass, grasslands. Mountain coolibah woodlands now provide refuge for many of the grassland species that previously would have preferred the grasslands.

Wattle thickening can occur in these areas as a response to fire in drier periods. The woodlands require a low to moderate fire every 5–10 years to maintain the open structure and provide a variety of grasses and forbs. Grasslands benefit from a low to moderate fire event every 3–5 years.

Queensland blue grass seed will persist in the soil for at least five years. Burn around half the area to maintain mature grasses as native animal habitat.

Eucalypt Woodland on Stoney Flats

Including shrubby areas and grassland

Variable woodlands of Ironbark, poplar box or gum-topped box often with false sandalwood as a shrubby understory. Main grass species in the woodlands and grasslands are Blue grass and Mitchell grass.

Eucalypt Woodland on Stoney Flats

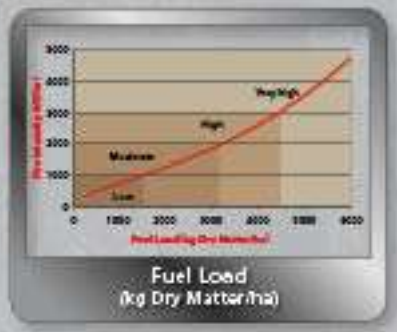
Including shrubby areas and grassland

1000 kg/ha

2000 kg/ha

3000 kg/ha

4000 kg/ha



Fuel Load
(kg Dry Matter/ha)

Regional Ecosystems

11.9.2	11.9.7	11.9.9
11.9.13	11.9.3	11.9.12

Hazard Reduction

This landscape has a relatively flat topography and this allows for construction of fire lines and a separation from other vegetation types on steeper slopes or more erodible soil types. Hazard reduction burning should begin as soon as the landscape will carry a fire. Aim for a low to moderate fire intensity with approximately 30% remaining unburnt. A varied approach to hazard reduction burns is better than burning the same boundary lines repetitively.

Production

The woodlands can have a grassy or shrubby layer with the former having better native grass grazing value. Stocking rates and longer term grazing pressures are important in this landscape as there is a risk of overgrazing the palatable grasses, leading to an overall degradation of the pasture. Fire is important to remove rank grass and stimulate new growth, however the paddock should be spelled after burning to allow grasses to shoot and regain vigour.

Fire is also an important tool in the control of woody weeds and regrowth. Use fire when the crowns of the regrowth are still within reach of the flame height, and thus likely to be killed by fire. Alternatively, the paddock may need to be spelled to build up enough fuel to kill the regrowth. In some cases high fire intensity may be required to reduce thickening. To achieve a high intensity fire a fuel load of 2000–3000kg/ha is required. Good soil moisture will assist pasture recovery after burning. Fire frequency in grazed lands should be about 5–8 average years.

Conservation

The spectacled hare-wallaby is an important species that inhabits this land type. This species requires old tussock grass and thick vegetation for use as nests which can be removed by too frequent fire. The diet of this wallaby is mostly comprised of forbs, softwood scrub and broad leaved vegetation. These foods are more common in recently burnt areas. The best habitat for this species is areas with a long unburnt area next to recently burnt country.

Grasslands benefit from a low to moderate fire every 3–5 average seasons and for grassy woodlands about 5–8 average seasons. The grassy woodland and grasslands need fire to prevent thickening. A high intensity fire after the first rains can be a useful tool.

Spectacled Hare Wallaby

Eucalypt, River Apple and Cypress Woodlands

An open woodland that can have a shrubby or grassy understory. Main species include: lemon-scented gum, bloodwood, ironbark, poplar box, river apple. Grass trees, cypress or false sandalwood may be present.

Eucalypt, River Apple and Cypress Woodlands

Hazard Reduction

The location of this land zone generally excludes infrastructure considerations for hazard reduction. Topography, terrain and slow fuel build up can naturally protect some of these areas from most wildfires. Property planning should focus hazard reduction burning on less erodible soil types that are easier to access. A low intensity fire every 4–6 years will reduce fuel loads to a manageable level for wildfire control. Plan burns when fuel loads are moderate, less than 2000kg/ha, to achieve a mosaic of 50% burnt. Plan burns to occur in conditions that would not cause the loss of hollow bearing trees. Fire management in adjacent land zones in the intervening years should provide long term protection from late-season wildfires burning uphill into this vegetation type.

Production

This landscape takes in some of the less fertile scarps, plateaus, and tablelands. The understory can be shrubby or open and grassy. It traditionally would be used as cattle breeding country. The soils tend to be phosphorous deficient and prone to erosion. Fire is primarily used to control thickening of the understory, otherwise the land zone would not be targeted for burning.

Fire planning at the property level should consider this type but in most years it would not develop a significant fuel load. A low to moderate fire event within a 4–6 year cycle would be sufficient to maintain open woodland.

The topography and terrain should be used to burn in patches to achieve 50% burnt. Burn with good soil moisture either at the end of the wet, or after the first storm. Grazing pressure should be reduced after burning to allow grass recovery.

Conservation

This landscape is prime glider habitat. The key habitat features that will help protect gliders are mature, hollow bearing trees and open woodlands not impacted by thickening. It can take up to 60 years to produce a tree hollow that may form a suitable glider nest, so it is a crucial consideration in planned burning and wildfire protection that these older trees with hollows are protected.

Fire management should occur early in the dry season, as soon as the country will carry a fire. Aim for a fine scale mosaic of patchy burns by burning in conditions that will provide a low to moderate intensity fire. The key factors in achieving a low to moderate intensity fire are: a moderate fuel load that is sufficiently cured to carry a fire, lit in the mid-afternoon.

In addition, burning soon after the end of the wet will ensure the drought index is low and heavy fuels such as trees and logs should not burn.

Areas should not be targeted for burning more than twice in a 10 year cyde. Areas with a cypress dominated canopy would have a longer fire frequency from 6–10 years to allow for trees to mature for seed bearing. Conversely if cypress is invading areas, a fire frequency of 4–6 years will reduce the invasion.

Regional Ecosystems

11.10.1 11.10.12 11.10.7
11.10.9 11.10.11 11.10.13

Eucalypt Woodlands on Stony Range Country

Woodlands on shallow soils often with a canopy dominanted by ironbark, lemon-scented gum, yellow stringybark or white mahogany. There may be grass trees and/or cycads in the understory.

Eucalypt Woodlands on Stony Range Country

Northern Quoll

Hazard Reduction

As the dry season progresses and soil moisture decreases, fire intensities and therefore the difficulty of wildfire control, invariably increase. This vegetation type generally occurs on slopes, hills, and ranges, and can be at high risk from wildfires, due to its elevated position in the landscape. Fire running uphill will be of a higher intensity and move faster than fire burning down slope. Hazard reduction burning conducted early in the dry season, will assist in breaking up the country and provide a buffer from wildfires.

Landscape scale hazard reduction planning is the best approach to managing fire in this landscape. Fire control lines to target specific areas with a history of wildfire may need to extend across several boundaries. Aim to burn 20–40% of a property or patch per year when soil moisture is good. Storm burning is also useful in this landscape type to manage vegetation thickening. A moderate intensity fire after the first storms is ideal.

Production

The stony range country has shallow, poor soils that do not produce an abundance of grass. Quality of grazing is good, with kangaroo grass and black spear grass common. Cattle also tend to congregate on the higher, drier country during the wet season. Cattle graze preferred grasses leaving less palatable grasses to seed. Over time this will change the composition of grasses in the pasture. A controlled burn removes all the old grasses evenly.

Grazing pressures and seasonal variation will dictate the requirement for fire, however generally a low to moderate intensity fire every 3–7 years is common.

An indication of good grazing management is that enough fuel remains by the storm season to carry a fire. Storm burning will favour black spear grass, whereas winter or spring rain will trigger kangaroo grass because it germinates in cooler conditions.

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 and directly threatens gliders, owls, and the mature hollow bearing eucalypts they depend on. Rocky outcrops and scarps are essential habitat for the endangered northern quoll. Do not burn between mid-September and mid-December 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 after a storm or after the wet season as the country dries out. Longer fire intervals before planned burning following a wildfire, also help the recovery of habitats for a range of species.

Regional Ecosystems

11.11.3	11.11.4	11.11.6
11.11.7	11.11.8	11.11.12
11.11.15	11.12.1	11.12.3

Eucalypt Woodlands on Infertile Stony Flats

Woodlands on stony flats with poplar box, ironbark, bloodwood and mountain coolibah. The woodland can be grassy or have a shrub layer or predominately wattle species.

Eucalypt Woodlands on Infertile Stony Flats

Hazard Reduction

The undulating topography of this land zone assists in hazard reduction planning. There are some volcanic intrusions but generally strategic fire breaks can be constructed and maintained easily.

The soils are relatively infertile, however in a good wet season a reasonable fuel load can still accumulate. In drier years the fuel load will be sparse. Hazard reduction burning should reflect the growing seasons, with a fire frequency range of 3–7 years.

Use early burns as soon as possible after the wet season to provide a break to protect fire sensitive vegetation such as softwood scrubs or fringing forests along drainage lines. Later, moderate intensity fires can then be lit from the edges of earlier burnt country to achieve a broader fuel reduced area. Areas requiring regular hazard reduction burning will benefit from fires that vary in the time of year, direction of lighting, and intensity used.

Production

3–7 years between burns is suitable for production areas, providing a mix of fire intensities are applied. Avoid 'calendar' burning where fire is used at the same time every year. Varying the season, intensity and area burnt will create a mosaic of habitats; whereas too frequent fire (annual or every second year) has serious impacts on soil health and long term sustainability. Appropriate fire management will maintain the high diversity of grasses and herbs in this landscape.

Burn with good soil moisture and reduce grazing pressure post fire to allow grasses to recover. Heavy grazing or a lack of fire over time will change the composition of the pasture grasses, with the less palatable and less productive grasses becoming dominant because they are able to seed. Vary burning times from the early dry season to storm burning to maintain grass composition.

Conservation

This landscape requires fire to maintain and promote the diverse range of native grasses and herbs it contains. A series of fires over a period of weeks rather than a single fire event is the best way to maintain the grass and herb diversity. Burning should start as soon as the country will carry a fire, and continue as the country dries out.

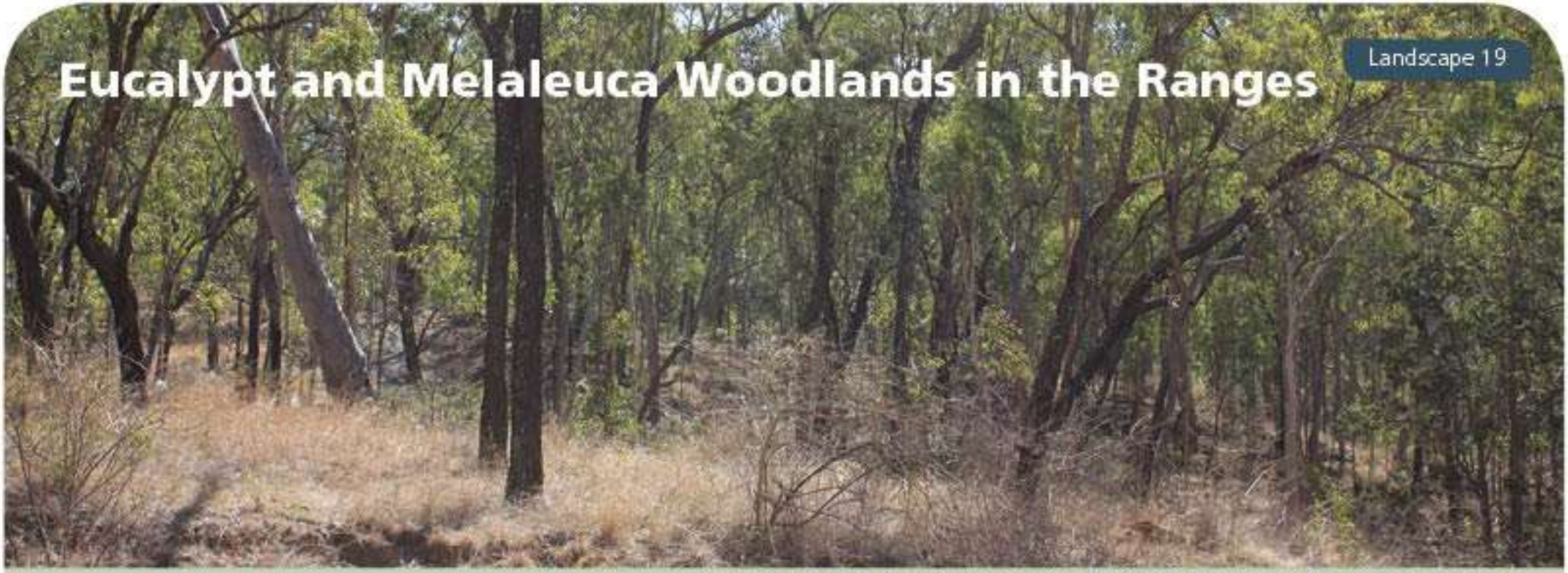
Recently burnt grass dumps will produce more seed than unburnt grass. This is important for small mammals and seed eating birds. A range of fires over the early dry will also provide a greater range of seed, as the early burnt grass will mature and seed earlier than grass burnt later on.

Soil moisture is critical for good fire management outcomes, so early dry season or storm burning are ideal. Fires should be low intensity, providing patchiness with a good overall mosaic.

Regional Ecosystems

11.11.9 11.11.10 11.11.11
11.11.20 11.12.2

Eucalypt and Melaleuca Woodlands in the Ranges



Grassy woodlands and open forests of the coastal ranges of ironbark, Moreton Bay ash, poplar gum, lemon-scented gum, bloodwood or broad leaved tea tree either as a single species canopy or with a mixture of canopy trees. There may be a shrubby understory of acacia, tea tree and she oaks.

Eucalypt and Melaleuca Woodlands in the Ranges

Hazard Reduction

Hazard reduction in this land zone should focus on burning early breaks to stop or reduce wildfires late in the dry season. This can be achieved through a series of early dry season patch burns over a number of weeks. The topography dictates that most wildfires will be uphill causing an increase in fire intensity. Strategic burning from ridgelines can provide a good breakup of the fuel load at the landscape level to reduce wildfire spread later in the season.

Areas that have been affected by late dry season wildfires can have a mass seeding of wattle or broad-leaved tea tree. This understory shrub layer can reach 3–5 meters in a 7 year period. Under adverse wildfire conditions it can create a sub-canopy fire with very high intensity. This in turn can lead to very dangerous crown fire conditions. Vary fire regimes to leave some areas unburnt for 7 years, whilst burning enough area to give protection from late dry season wild fires.

Production

The grassy understory of the woodlands and the grass lands associated with this land zone provide good native pasture grazing. There is high diversity in the composition of the trees, grasses, and herbs in this landscape type. A low to moderate intensity fire early in the dry season or following a storm can remove old grass and even out the pasture composition. A series of patchy fires is better than a single, large fire event as it provides for a staggered recovery of grasses. Fires should be lit from the tops of ridges and allowed to burn down hill to achieve a low fire intensity. Fires lit uphill will be of high intensity and the grasses will take longer to recover, and the risk of erosion will be higher.

Fire exclusion or mid to late dry season burning will create vegetation thickening, particularly of broad-leaved tea tree and lantana. A storm burn of moderate to high intensity will be required to control the thickening. Destocking may be required to allow a fuel load to develop, sufficient to achieve the high intensity fire required. A backing or downhill fire will kill the regrowth more effectively than an uphill fire.

Conservation

The woodlands and forests of this land zone have either a grassy or shrubby understory. The grassy understory requires fire to keep it open with fire intervals of 3–5 years. The shrubby understory requires a longer fire interval to allow the understory species to mature and seed so fire intervals can extend to 7 years for some areas. Be aware that the boundaries of shrub lands and grasslands will naturally fluctuate to some degree. The important thing to remember is that they are both important for conservation and should be retained in the landscape. Exposed, rocky outcrops in these eucalypt forests are core habitat for the endangered northern quoll.

Quolls breed around August and September and juvenile quolls are most vulnerable to fires occurring in late spring. Small scale patch burns are recommended around rocky outcrops to reduce the threat to young quolls from hot, late dry season fires. Burn early after the wet season, or after a storm event when good soil moisture is present.

Regional Ecosystems

11.12.8 11.12.9 11.12.10
11.12.13 11.12.19 11.12.6
11.12.17

Brushbox, Forest Oak and Acacia Shrubland, Woodland and Forests

Brushbox, forest oak and acacia shrubland, woodland and forests.

Brushbox, Forest Oak and Acacia Shrubland, Woodland and Forests

Hazard Reduction

The topographic location of this landscape type usually excludes it from hazard reduction planning for infrastructure. Topography and seasonal variation will determine whether it burns in association with surrounding country or not. Generally, in the wetter years fuel loads can become high, and accordingly in dry years there is a scarcity of fuel accumulation.

A few years after fire this vegetation mix can cause a high intensity fire late in the dry season. The eucalypt, acacia, and forest oak fuels become a thick mat on the ground and grass trees burn as a ladder fuel due to their hanging brown skirts. This landscape should be considered for hazard reduction burning assets in the wetter years, on a 7–10 year rotation. The dominant canopy species will dictate fire intensity and season in which it burns, with acacia species requiring high fire intensity.

Production

This vegetation type is a mix of low woodland to shrub land that occurs on coastal ranges, headlands, islands, and rocky outcrops. The low canopy can contain a mix of eucalypts, acacia and forest oak tree with grass trees and a range of grasses in the understory.

The grasses may include giant black spear, bladey, scented top and cockatoo grass. Grazing does occur on this landscape type; however it is neither widespread nor recognised for grazing values.

Conservation

These vegetation types require fire for their persistence, with the dominant species indicative of their fire requirements. The acacias live for 10–15 years and the grasses start to disappear after a 5 year interval, thus a fire frequency of 7–10 years should be suitable.

The acacias are hard seeded and require a moderate to high fire intensity for germination. Mature forest oak is killed by hot fire and will have to regenerate from seed. Seedlings will take at least 7 years to mature and set seed and should be allowed to do so at least twice before being burnt again. A low intensity fire within forest oak communities will promote a grassy ground layer. The eucalypt and brush box trees can tolerate a range of fire intensities and require fire to regenerate.

The allocasuarinas are an important source of food for the glossy and red-tailed black-cockatoos. A planned mosaic burning pattern, burning no more than 30% of this type at one time is important to provide food for the cockatoos.

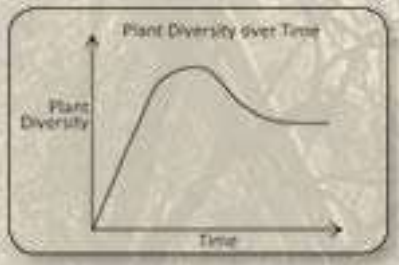
Regional Ecosystems

11.12.14 11.12.15 11.12.16

Montane Shrubland to Heath

Shrubland to heathland of mixed tea tree, acacia, Queensland peppermint and other shrubs on mountain tops.

Montane Shrubland to Heath



Hazard Reduction

Heath is a diverse vegetation type that will usually burn completely or not at all, at any given point in time. The remoteness of this landscape type would limit hazard reduction concerns to radio and/or television towers placed on the high locations. Burning heath for hazard reduction should commence in the mid-dry season as these areas often retain moisture for longer and may not be capable of carrying fire until this time.

Planned burns should target small sections where possible, using natural features such as rocky outcrops, depressions, drainage lines or less flammable vegetation to break the country up into small burnt areas.

Production

Heath and shrub lands do not offer any opportunity for production in horticulture or grazing. They generally grow on rocky scarps in the mountains so access is limited for grazing.

Lantana infestations can occur on outcrops, and a slow moving, moderate intensity fire will aid in the control of this invasive species. Ensure there is soil moisture and a suitable fuel load (3000kg/ha) and be prepared to undertake a second, follow up burn to manage lantana.

Low intensity fires do little to promote regeneration and are generally unachievable in heath because of its uniform fuel characteristics.

Conservation

A moderate to hot fire is required to release dormant seeds. Heath diversity reduces over time since the last fire as many species are short lived. The aim of fire management of heath is to release seeds, promoting regeneration of species without fire being frequent enough to reduce the opportunity for plant species to mature and develop seed. A range of smaller burns in a mosaic pattern with intervals of around 7–15 years should assist in maintaining heath communities.

Topographic and landscape features such as rocky outcrops, and the associated changes in soil moisture can be used to divide the area to achieve a mosaic range of fire intervals.

Regional Ecosystems

11.12.18

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