

**NATIVE VEGETATION
MANAGEMENT PLAN**

for the

COLVIN PROPERTY

Prepared by

Bunbury Fibre Plantations Pty Ltd

Table of Contents

1.	INTRODUCTION	2
2.	LAND AREA OVERVIEW	3
2.1	Location Description and Area	3
2.2	Habitat Extent	3
2.3	Land Use History.....	4
2.4	Conservation values.....	5
3.	MANAGEMENT OBJECTIVE	9
4.	PLAN FOR MANAGEMENT	10
4.1	Landforms and Soil	10
4.2	Flora Diversity and Range	10
4.3	Flora Protection Measures Using the Precautionary Approach	11
4.4	Fauna.....	11
4.5	Fauna Protection Measures Using the Precautionary Approach	12
4.6	Responses to Potentially Damaging Agents.....	12
4.6.1	Fire	12
4.6.2	Chemical spills	13
4.6.3	Weed outbreaks	13
4.6.4	Drainage line damage.....	13
4.6.5	Livestock intrusion.....	13
4.7	Management requirements beyond BFP’s resources.	14
4.8	Rehabilitation	14
5.	MONITORING	15
6.	IMPLEMENTATION	16
7.	APENDICES	17
7.1	Colvin Operations Plan	17
7.2	Lease Plan	18
7.3	Evaluation of Flora, Vegetation and Vertebrate fauna in the Colvin’s Lease	19
7.4	Native Vegetation Monitoring Plots and Native Vegetation Transect Line.....	20
7.5	Colvin Native Vegetation Base Line Photographs (2007)	21
7.6	Native Vegetation Inspection Report Form.....	23

1. INTRODUCTION

Bunbury Fibre Plantations Pty Ltd (BFP) manages plantation estate and native vegetation on privately owned land under Deed of Grant of Profit a Prendre and lease agreements, in accordance with Forest Stewardship Council (FSC) principles.

BFP FSC certification is to the Woodmark Generic Standard. The Woodmark Standard, developed by Soil Association, is designed to follow the principles and criteria of Forestry Stewardship. Principle nine (9) of the Woodmark standard relates to the management of High Conservation Value Forests (HCVF) within Forest Management Units (FMU).

This Management Plan is prepared using the predetermined HCVF categories of

HCV Category 1:

Globally, regionally or nationally significant concentrations of biodiversity values (this includes protected areas, rare or threatened species, endemic species and seasonal concentrations of species).

And

HCV Category 3:

Forest areas that are in or contain rare, threatened or endangered ecosystems.

2. LAND AREA OVERVIEW

2.1 Location Description and Area

The property, Wellington Location 2484, is privately owned by Mr Brian Colvin and Mrs Elizabeth Colvin, both of Bunbury, since 1993. Certain rights and interests in respect to the plantation area have been secured on the Certificate of Title (Volume 1571 and Folio 357) in favour of Bunbury Fibre Plantations Pty Ltd. BFP has separately and congruently secured leasing rights to certain areas of native vegetation (273.2 hectares) across the property.

The property is located 47.5 kilometres South East of the Collie townsite, inland from the Darling Scarp by approximately 32 kilometres. The property is within the Shire of West Arthur and is accessed via W Tree Gully Road in the North and Moore Rogers Road in the West. (See Appendix 1 Colvin Operations Plan)

The property covers an area of 894.76 hectares of which 473.4 hectares is classified as remnant native vegetation, 271.9 hectares of *Eucalyptus globulus* plantation and the remaining 149.46 hectares being open grazing land.

2.2 Habitat Extent

The previous phytogeographic mapping produced by John Beard (summarised in Beard 1990) places the area in the Southwest Botanical province in the Southwest Forest Region/Darling Botanical District and the Southern Jarrah Forest Subregion/ Menzies Botanical Subdistrict.

Five vegetation complexes (RFA level mapping) and nine site-vegetation types (Havel 1976a, 1976b) were identified through the desktop survey and field assessment. Three vegetation complexes have less than 10% conserved in estates, therefore the remnant vegetation areas provide some protection for these complexes.

Overall, the value of the remnant vegetation area can be presumed to be high as it conserves rare vegetation complexes and is a refuge or potential refuge for ten species listed under legislation. However, the value of these remnant areas of native vegetation can be improved by controlling and reducing the number of herbaceous weeds in the south western precinct and continuing to limit access to the main area of remnant vegetation.

The HCVF category attributes are defined as

1. One plant potentially having conservation significance due to current taxonomic ambiguity. The taxon *Cautis pentandra* sens. lat. refers to the specimen collected as *Cautis pentandra* "in a broad sense". This particular taxon is not considered to have uncommon conservation value, however, a taxon that appears to be the same but is currently considered to be different is *Caustis* sp. *Boyanup*. If this collection is considered in the future to be this taxon, then this collection will represent a range extension of a Priority 1 species.

2. Overall the value of the remnant native vegetation areas can be presumed to be high as it conserves some of the under-represented vegetation complexes and is a refuge or potential refuge for ten species listed under legislation

2.3 Land Use History

The property has been privately owned since the early 1930's and has been progressively cleared, primarily for the purpose of livestock grazing and cereal cropping. Clearing activities concluded in 1994 when restrictions regulating the clearing on native vegetation were enacted. Generally, clearing activities have been confined to what was regarded as the more fertile shallow valley soils in the western portion of the property.

Prior to Colvin's purchasing the property in 1993, the property was owned by the Wheeler family who used it as a "run-off" block for cattle from their home block nearby. The property was never considered to have sufficient arable land to be viable to run as a single farming property.

By the end of 1994 approximately half the property area was cleared (421 hectares). Grazing animals were given the run of the western fenced precinct of the property in areas of pasture and native vegetation. This type of grazing practice has been at the expense of the unfenced native vegetation in that part of the property.

In late 1995 the Colvin's offered portions of the pastured areas on the property to Bunbury Fibre Plantations Pty Ltd for the establishment of a *Eucalypt globulus* plantation.

Areas of native vegetation in the eastern precinct of the property were fenced and some grazing did occur up until approximately 1960 when fences fell into disrepair and this portion of the farm became isolated from grazing animals. These areas form the 273.2 hectare Native Vegetation Lease Agreement Area and HCVF area on the property. (See appendix 2 - Lease Plan)

The native vegetation lease area was selectively harvested in the mid 20th century for jarrah sawlog. There is limited visible evidence of this operation occurring given the regeneration of upper storey vegetation over time.

The role fire plays within the dry sclerophyll woodland forests of Western Australia is well documented. Australian native plants are mostly reliant on fire for regeneration and ecology. As with long unburnt native vegetation, the structure and diversity of scrub species declines post 5 years of age which is deemed to be the average maturity age of plants when seed set is at its peak.

The native vegetation lease area has not been burnt for over 15 years. The visible decline in the health of the native vegetation is anecdotally evident. Other indicators are;

1. The lack of visible butt charring of native trees.
2. Extended skirts on *Xanthorrhoea preissii* (grass tree)

3. Heavier than average forest fuel loadings (>8 tonnes / hectare).

2.4 Conservation values

The HCVF areas covered in the lease agreement have been assessed for their conservation value and this report forms part of this Management Plan (See Appendix 3 – Evaluation of Flora, vegetation and Vertebrate Fauna in the Colvin’s Lease Area).

In addition, BFP has sourced Vegetation Trend information (1990 – 2007) from Landsat information in an attempt to show vegetation change over time. As a comparison, the imagery compares the Colvin native vegetation lease area to a nearby Department of Parks and Wildlife (DPaW) Nature Reserves (Trigwell Nature Reserve and Haddleton Nature Reserve). The following observations were made.

Satellite imagery capture was deemed the most advanced method of determining vegetation cover modification over time. Three time frames were captured;

1. 1990
2. 1997 and
3. 2007

A fourth vegetation image summarises the three images above.



Plate 1 – Satellite imagery 1990

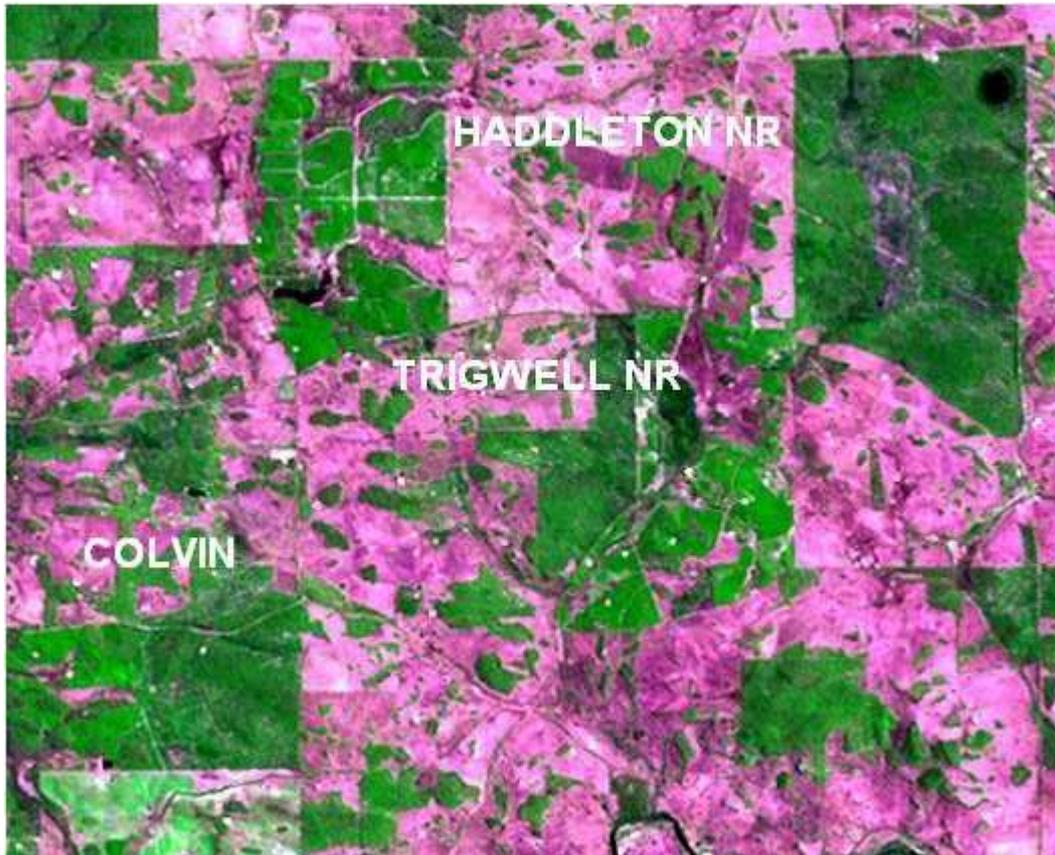


Plate 2 – Satellite imagery 1997

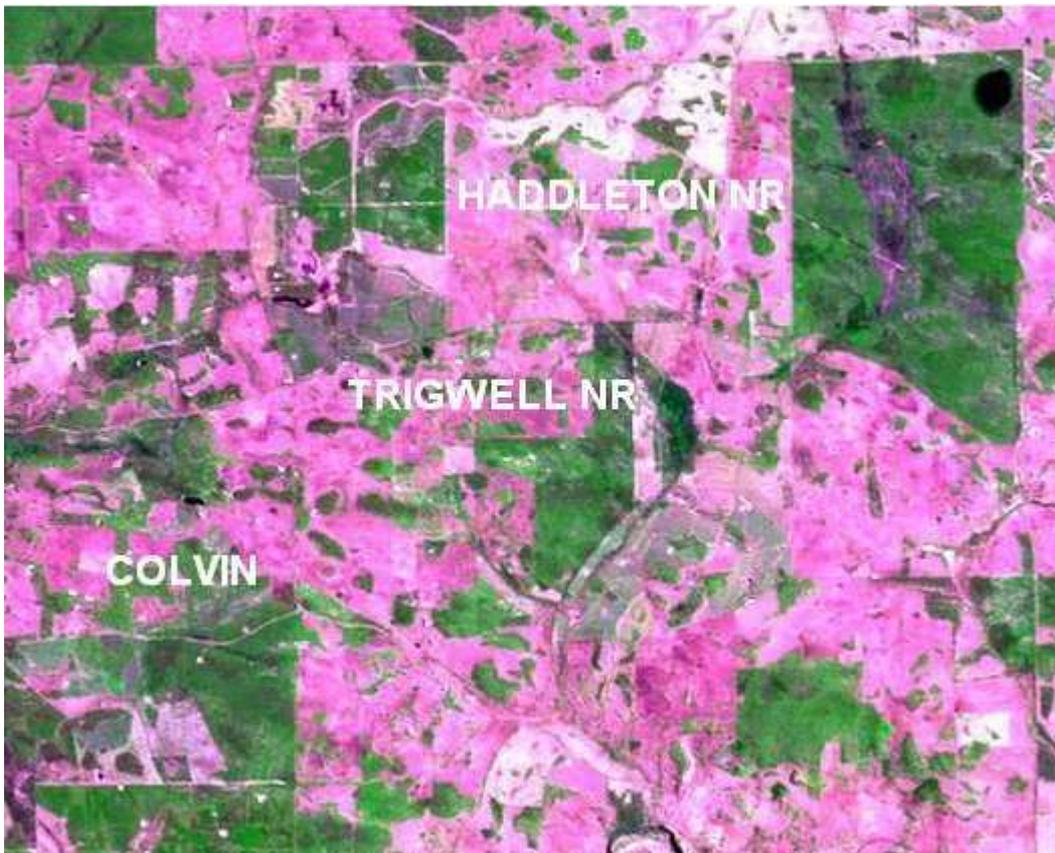
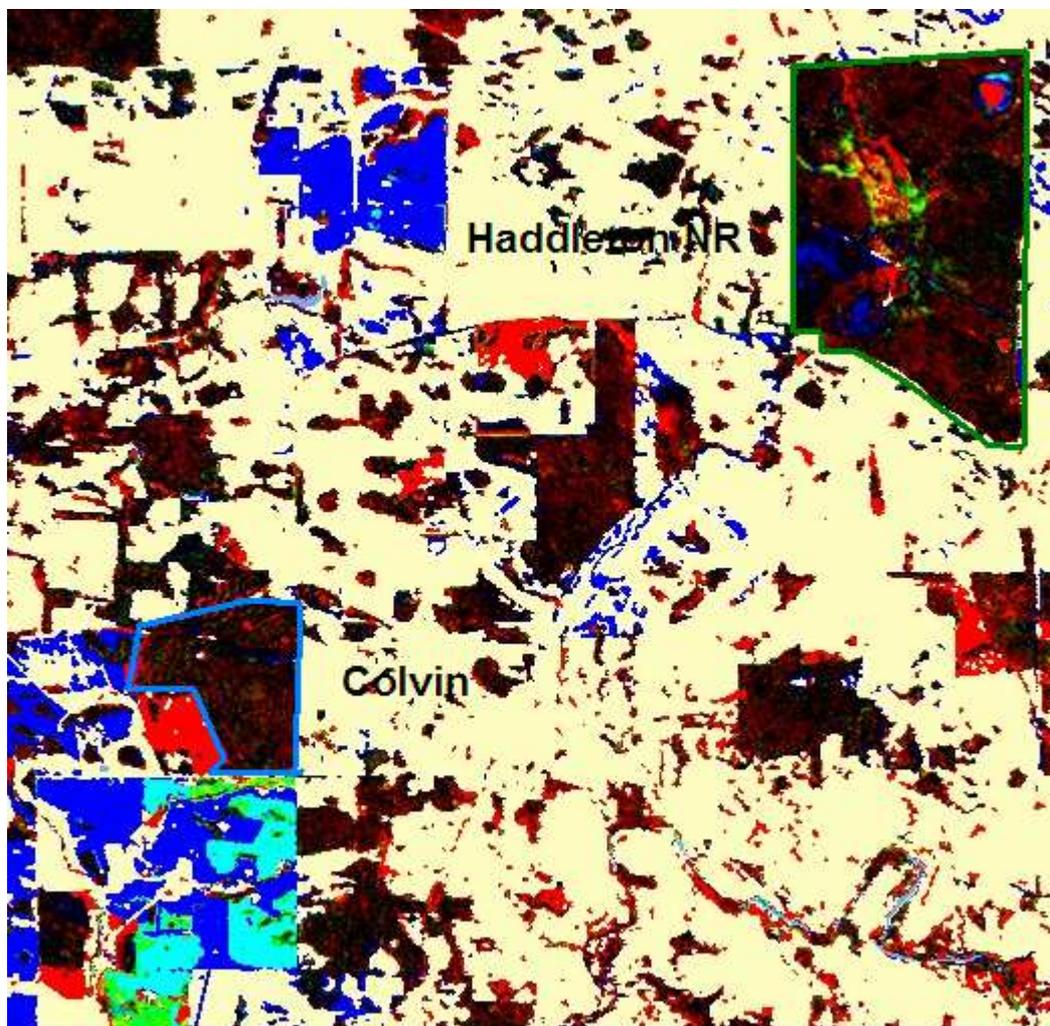


Plate 3 – Satellite imagery 2007

There is a subtle improvement to the native vegetation over time and it is thought that vegetation recovery can be attributed to the cessation of grazing in the 1960. In comparison with surrounding conservation reserves, there is evidence of greater improvement over time. This may be due to some salt encroachment as a result of surrounding land clearing at Trigwell and Haddleton Nature Reserves given that the Haddleton Gully river system affects both sites.

When comparing landform, the Colvin property native vegetation areas sit at the top of the Kitchanning Brook catchment area and therefore are not affected to the same extent as the compared conservation reserves.

Department of Environment and Conservation have also offered the use of native vegetation cover model using latest infra red satellite imagery. This image summarises the vegetation cover over all dates of the satellite image sequence. It allows the user to determine the under storey vegetation density change over time.



Colvin property is hi-lighted in the blue polygon. Haddleton nature reserve is hi-lighted in green polygon.

Legend

Below is the list of colours and what they represent in terms of cover and trend over time.

Red: Vegetation cover is initially (for the series of years analysed ie 1990 to 2007) lower than the average and there has been a reduction in cover over time.

Blue: Vegetation cover is initially lower than the average and there has been an increase in cover over time.

Black: Vegetation cover has remained at this level (neither decreasing or increasing) over time.

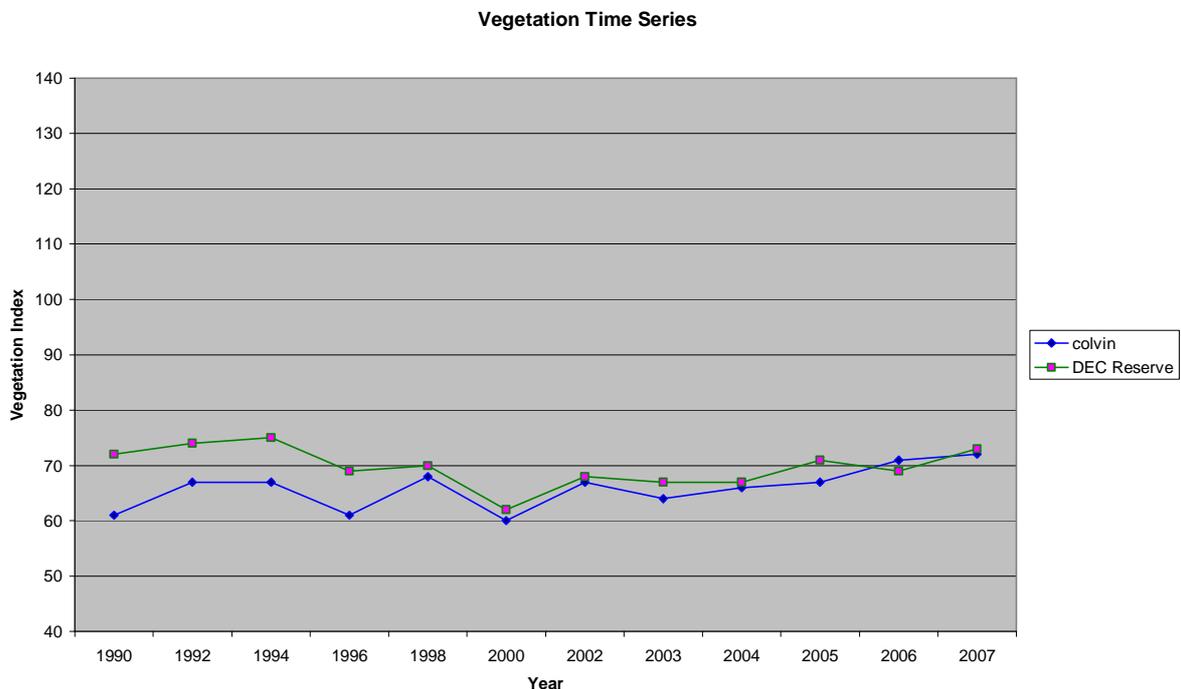
Yellow: Vegetation cover is initially high but there has been a reduction in cover over time averaged over the years.

Light Blue: Vegetation cover is initially higher and there has been an increase in cover over time.

Green: Vegetation cover is initially higher and has remained at this level (neither decreasing or increasing) over time.

Comparing Vegetation Cover polygons for Colvin's and Haddleton Nature Reserve, the data suggests that Colvin (blue) had a denser cover in 1990 than the compared Reserve (red) and by 1998 they both had similar cover. Interesting to note that since 2000 they have been both tracking and losing cover. This could be attributed to the lack of burning within both areas.

The data is presented in the following table



3. MANAGEMENT OBJECTIVE

The primary focus for the management of the native vegetation at Colvin's is to maintain or improve the composition and presence of the flora and fauna species within the lease area by initially quantifying species numbers and their range, then adopting sound management principles for their protection and enhancement. These principles are detailed in the Plan for Management.

4. PLAN FOR MANAGEMENT

Baseline management information for the Colvin property has been collected for the following sub heading and is presented in the Mattiske Consulting Report (See Appendix 7.3 – Evaluation of Flora Vegetation and Vertebrate Fauna in the Colvin’s Lease Area). Using available remote sensing and field plots, BFP will be able to measure its performance against the objectives, over time.

4.1 Landforms and Soil

It is not envisaged that landform or soil types will change markedly given the areas isolation, vegetation cover and access limitations. The native vegetation lease area is isolated away from the general populous and has limited internal vehicle access. There are no plans for any borrow pits or road construction that may impact on landform or soils. The risk of an unauthorised/illegal operation occurring undetected is low.

The area is surrounded on three sides by agricultural fencing thus excluding neighbours from the site. Apart form a discreet area on the eastern boundary of the lease area of approximately 5.5 hectares, terrain generally slopes to the south west.

As previously mentioned, the lease area is located at the top of a micro catchment that delivers water to the Kitchanning Brook, a tributary of the Blackwood River. The waterway is a shallow broad depression that emanates from a neighbouring property in the east, traversing the north east corner of the property. The waterway briefly exits the property, crossing the W Tree Gully Road into neighbouring vegetated private property for 700 metres. The waterway re-enters the native vegetation lease area, crossing W Tree Gully Road further to the west from the initial crossing and runs southwards paralleling BFP’s plantation areas before exiting midway along the western boundary. There is a low risk of saline encroachment within forested areas and waterways of the lease area therefore, minimal risk to vegetation loss and soil erosion.

Landform Protection Measures Using the Precautionary Approach

BFP, as part of its ongoing plantation management, will monitor the site on a monthly basis for unauthorised activity that will impact on Landform and Soils.

Evidence of monitoring for the management of the native vegetation lease area will be captured on a prepared checklist. Where practical and without impeding on established access ways and firebreaks, any unauthorised entry points will be blocked using fallen timber.

4.2 Flora Diversity and Range

A summary of surveyed flora, a desktop survey of vegetation complexes and threatened or endangered flora summary is detailed in the Mattiske report (See Appendix 7.3 – Evaluation of Flora, Vegetation and Vertebrate Fauna). Mattiske’s report identified two key attributes that, in effect, determine the HCVF category for the native vegetation remnants. There is some ambiguity over the identification of the taxon, *Caustis pentandra* sens. Lat collected on the property. If this taxon is determined to be the similar *Caustis* sp. *Boyanup*, it will represent a range extension of a Priority 1 species.

At the time of preparing this Management Plan, (2011) there was still no documented evidence confirming the taxon's identification.

Mattiske's report also hi-lighted the value of conserving the remnant native vegetation areas as it conserves some of the under-represented vegetation complexes and is a refuge or potential refuge for ten species listed under legislation.

4.3 Flora Protection Measures Using the Precautionary Approach

Isolation and exclusion form the basis for the protection measure from human intervention. The site is protected by distance from human occupation and activity.

Contractors undertaking plantation maintenance work on behalf of BFP will be instructed via written orders not to enter the site and protect the site from plantation activities (ie harvesting and spraying).

Prescribed fire is a useful tool in reducing accumulated forest fuels and potential fire risk. More importantly, fire is considered essential for native forest ecology to preserve forest species. The two HCVF attributes identified are dependent on fire to propagate to maintain existence. Prescribed or "controlled fire" regimes will be implemented when seasonal conditions allow at predetermined intervals.

(See Appendix 7.4 – Native Vegetation Monitoring Plots) and (See Appendix 7.5 – Colvin Native Vegetation Base Line Information).

4.4 Fauna

Generally, the native vegetation lease area forms a corridor for the movement of native fauna from native vegetation and terrestrial areas to the north and south of the Colvin property. It also acts as a haven for animals using the plantation areas as an area for foraging.

It is worth mentioning that *Calyptorhynchus baudinii* Baudin's Black Cockatoo and the threatened species *Calyptorhynchus banksii* Red tailed Cockatoo frequent the HCVF area. Additionally, a nesting female Peregrine Falcon *Falco Peregrinus* ghas also been observed. Peregrine Falcons are a threatened species given the past disturbance to their range area and decline with the introduction of pesticides to agriculture.

A full report on the Fauna status is contained within the Mattiske report as attached. See appendix 7.3 - Evaluation of Flora, Vegetation and Vertebrate Fauna).

Fauna surveys will be conducted in the following manner.

1. An annual daylight hours survey for vertebrate fauna and
2. An annual night survey of vertebrate fauna will be undertaken as part of the monitoring program for the native vegetation lease area.

Seasonal variance will be taken into account and the surveys scheduled to encompass breeding seasons and migration.

Daylight Hours Survey

This will comprise of a ground survey assessing fauna that are visibly seen or heard from a single transect line.

Night Survey

A night survey will comprise of spotlighting from a moving vehicle from peripheral roads and internal tracks. The survey will summarize visibly seen or heard vertebrate fauna within the native vegetation precinct.

A predetermined 1.94 kilometre transect line crossing the native vegetation lease area from west – east, bisecting the two native vegetation monitoring plots will be permanently marked in the field. Global Positioning Satellite (GPS) will be used to distinguish the route of travel from the permanent markers. (Refer Appendix 7.4B – Native Vegetation Monitoring Plots for transect line points)

4.5 Fauna Protection Measures Using the Precautionary Approach

Given hooved livestock have been eliminated from grazing the area, there is little risk of domesticated animals affecting fauna habitats. There is however a risk that vermin, such as the European Fox (*Vulpes vulpes*) or the European rabbit (*Oryctolagus cuniculus*), could impact on the habitat of the native animals. Preliminary inspections of the site revealed no evidence of such animals however, this does not eliminate their potential cohabitation.

Given the FSC ban on the use of the Western Australian naturally occurring 1080 and the indiscriminate kill to native fauna using Pindone meat baits, no fox baiting is planned for the area.

BFP, as part of its ongoing plantation management, will periodically bait for the European Rabbit when numbers warrant it.

4.6 Responses to Potentially Damaging Agents

BFP have identified the following potentially damaging agents to the native vegetation lease area.

1. Fire.
2. Chemical spills.
3. Weed outbreak (noxious/pasture).
4. Drainage line damage.
5. Livestock intrusion.

4.6.1 Fire

Fire is unique in that it is often naturally occurring and hence is viewed as a positive rather than a negative damaging agent. Whether the causal agent is natural or by

human intervention, it is the season in which a fire occurs and frequency that will affect habitat.

The management of fire within the landscape is therefore critical to the landowners and their immediate neighbours, plantation growers, local authorities and the general community alike. Uncontrolled wildfire threatens life and property and potentially, the HCVF and therefore is deemed a damaging agent with negative outcomes. Uncontrolled wildfires will be managed to protect assets and HCVF attributes by implementing fire suppression activities with the assistance of local Bush Fire Brigades and water bombing aircraft.

4.6.2 Chemical spills

Herbicides are used in the establishment and maintenance phase in the management of plantations. Contractors undertaking plantation establishment and maintenance work on behalf of BFP will be instructed via written orders not to enter the site and protect the site from plantation activities.

4.6.3 Weed outbreaks

Some annual grass intrusion has already been identified in the Matiske report. The grass species weed is located against access ways or where there has been ground disturbance from previous land use operations. It is important to recognise that forest floor debris material act as weed mats and prevent further intrusion of grass species into the HCVF areas. BFP has recognised this and has purposely extended the period of no planned burning to accommodate additional forest fuels to control annual weed seed spread. With the inherent benefits of no planned burning for weed control purposes will, if not managed, begin to impact on the vegetation complexes. BFP is aware of this and will continue to monitor vegetation health and structure via its annual survey.

4.6.4 Drainage line damage

Given comments made above at 4.3 in respect to human intervention and 4.5 in respect to the grazing of domesticated livestock, the likelihood of drainage line damage is deemed low.

4.6.5 Livestock intrusion

Internal fences protecting the native vegetation HCVF areas are in good order and there is no reason to expect stock intrusion from within the property. External cadastral fences are similarly in good order and deemed a barrier to neighbouring domesticated livestock animals entering the HCVF areas. Livestock entering the HCVF areas via local government road networks is a possibility but would be easily detected via the inspection process.

4.7 Management requirements beyond BFP's resources.

Given the work that has been undertaken to date with respect to the flora and fauna surveys, BFP are of the opinion that with minimal effort, the HCVF areas can be maintained using the adopted Precautionary Principles as described in this Management Plan. It is likely however that additional resources will be required when a plan burn is programmed.

Should the HCVF be threatened by wildfire, BFP must act in accordance with instructions given by the local government Bush Fire Brigade representative. Standing Orders will see the implementation of suppression activities based on the magnitude of the wildfire. In this scenario, the control of resources and their deployment is with the lead combat authority.

4.8 Rehabilitation

With management undertaken under precautionary principles, BFP has determined that its annual weed control method as detailed at 4.6.3 as being most the appropriate management for outbreaks. No other areas are deemed worthy of rehabilitation under a precautionary approach without threatening further HCVF areas.

5. MONITORING

Consistent with the precautionary approach, annual inspections of the area will be undertaken to monitor defined attributes against the HCVF category. In this case, categories 1 and 3. Monitoring will be undertaken in the following manner.

1. Annual Photographic evidence of the two (2) Permanent Sample Points as highlighted on the Plot Sample Points plan at appendix 7.4A. The photos will be taken during the month of October. Evidence will be stored and compared against the base line evidence shown at appendix 7.5.
2. An annual general survey of native vegetation health and disturbance levels, unauthorised activities, introduced plants, fire and general maintenance requirements.
3. Periodically and when available, (approximately 10 year intervals - 2017) a request will be placed with DPaW for updated satellite imagery to compare the Colvin property against other State managed HCVF in the 3 Haddleton and Trigwell DPaW Nature Reserves. (See Appendix 7.6 Native Vegetation Inspection Report form)
4. Annual checks with DPaW to determine whether the taxon *Caustis* sp is a priority one species or the more common *pentandra* sens species. Once confirmed, attributes will be reassessed to determine whether there should be a change in the management practices for the HCVF area.
5. An annual general survey for vertebrate fauna will be undertaken as part of the monitoring program for the native vegetation lease area.
6. Monthly monitoring, as part of ongoing plantation management, for unauthorised activity that will impact on Landform and Soils.

6. IMPLEMENTATION

BFP have considered the HCVF attributes and implemented the Colvin Native Vegetation Management Plan. While the flora taxa ambiguity issue may be realised as being the common *Cautis pentandra* sens. Lat taxa, the area will continue to be managed under the HCVF categories 1 and 3 given that the vegetation complex is under represented and the area is frequented by fauna that is currently rare threatened and endangered.

The only threat to continued management and implementation is the main stakeholder (the landowner) not renewing the lease agreement that BFP has over the land. This is understandably a major consideration in how BFP effects the management plan over the HCVF areas on the property. The limitations to how BFP implements the Management Plan is governed by the lease agreement BFP has with the landowner.

7. APENDICES

7.1 Colvin Operations Plan

7.2 Lease Plan

7.3 Evaluation of Flora, Vegetation and Vertebrate fauna in the Colvin's Lease

7.4 Native Vegetation Monitoring Plots and Native Vegetation Transect Line

7.5 Colvin Native Vegetation Base Line Photographs (2007)



Plate 1
Plot 1 North 2007



Plate 2
Plot 1 East 2007



Plate 3
Plot 1 South 2007



Plate 4
Plot 1 West 2007



Plate 1
Plot 2 North 2007



Plate 2
Plot 2 East 2007



Plate 3
Plot 2 South 2007



Plate 4
Plot 2 West 2007

7.6 Native Vegetation Inspection Report Form