

Burrduk Aboriginal Corporation

**BANANA WELLS
Trial Timber Plantation
Vegetation Clearing Permit
Supporting Documentation**

September 2005

ecologia

ENVIRONMENT

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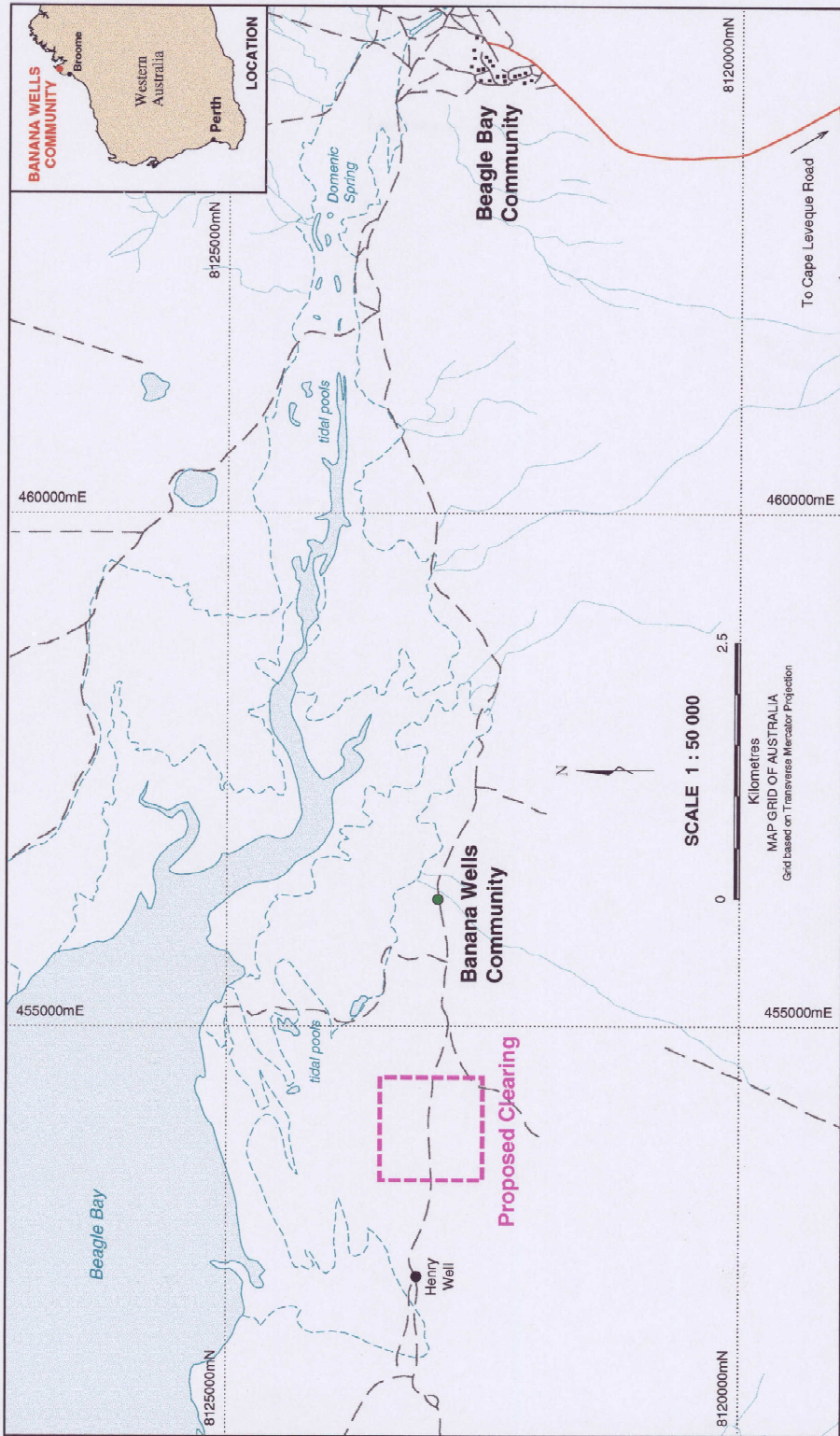
SUMMARY

The Burrjuk Aboriginal Corporation have received a Federal government grant to undertake a trial timber plantation at Banana Wells community approximately 100 km north of Broome on the Dampier Peninsula (Figure 1). The community is located in Part Reserve 1012 and covers an area of approximately 3207 hectares (Figure 2).

The Community intend to plant a 25 ha plantation of African Mahogany *Khaya senegalensis* approximately 5 km east of the community. The plantation will comprise five metre rows of trees interspersed with five metre rows of native vegetation. All large trees and known Priority flora will be avoided during the clearing of plantation rows.

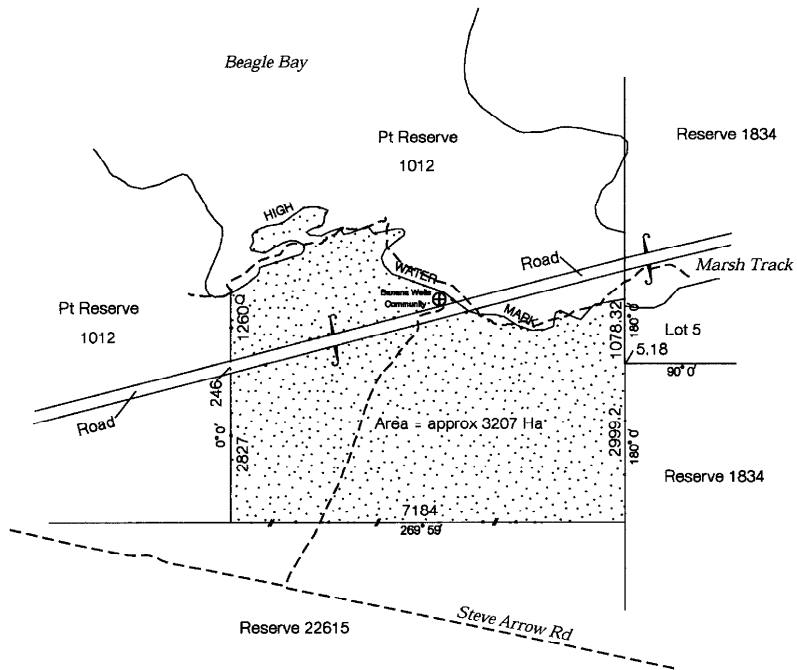
Clearing will be required for access to the plantation, which will require the widening of existing and well used access tracks.

The total amount of vegetation estimated to be cleared for the project is less than 35 ha. If the plantation proves viable, then it is anticipated that the trial plantation will proceed to a commercial plantation. The size and timing of this expansion is yet to be determined.



 ENVIRONMENTAL CONSULTANTS Author: B Barnett	Client: BURRGIK ABORIGINAL CORPORATION	BANANA WELLS CLEARING APPLICATION		Date: 11 August 2005
	Project: BANANA WELLS			Scale: 1:50 000 Figure No. 1 Plan No. BW-001

Lease to Burrjuk Aboriginal Corporation



Dimensions derived from field work and lease survey (Warren F Johnson & Co, plan B1273)

LEASE AREA DESCRIPTION

DATE	1/1/2000	TECHNICAL DESCRIPTION
SCALE	1: 100,000	Part Reserve 1012
CERTIFIED CORRECT		
		AAD file No

1. INTRODUCTION

1.1 CURRENT TENEMENTS AND LEASES

The Banana Wells Plantation is located on crown land which is leased by the Burrduk Aboriginal Corporation (Burrduk) from the Aboriginal Lands Trust (ALT). The lease held by Burrduk comprises Part Reserve 1012 and covers an area of approximately 3207 hectares.

1.2 STATUTORY REQUIREMENT

In accordance with Part V of the *Environmental Protection Act* Vegetation Clearing Regulations, Burrduk is submitting an application to clear native vegetation for the Banana Wells Trial Timber Plantation to the Department of Environment (DoE).

This document outlines the proposal for clearing of less than 35 ha of native vegetation, and is to be read in conjunction with the completed Department of Environment Application for a Clearing Permit (Purpose Permit).

2. PROJECT DESCRIPTION

The Burrduk Aboriginal Corporation have received a Federal government grant to undertake a trial timber plantation at Banana Wells community approximately 100 km north of Broome on the Dampier Peninsula.

The Community intend to plant a 25 ha plantation of African Mahogany *Khaya senegalensis* approximately 5 km east of the community. The plantation will comprise five metre rows of trees interspersed with five metre rows of native vegetation. All large trees and known Priority flora will be avoided during the clearing of plantation rows.

Clearing will be required for access to the plantation, which will require the widening of existing and well used access tracks.

The total amount of vegetation estimated to be cleared for the project is less than 35 ha. If the plantation proves viable, then it is anticipated that the trial plantation will proceed to a commercial plantation. The size and timing of this expansion is yet to be determined.

3. EXISTING ENVIRONMENT

3.1 CLIMATE

The Kimberley region has a tropical monsoon climate with two distinct seasons; a hot humid summer and a dry cool winter, separated by short transitional periods. The hot and humid summer constitutes the "wet season", extending from November to April. During this period, approximately 90 % of the annual rainfall is received, when low-pressure systems and unstable air patterns dominate the weather patterns. Extreme weather events are common in the Kimberleys, and the area is prone to tropical cyclones between December and April. Most cyclones cross the coast between Cape Leveque and Exmouth, however the effects of wind associated with these storms can be felt throughout the region. Furthermore, the area commonly experiences severe storms and large amounts of rainfall over short periods of time.

The Dampier Peninsula has a distinct tropical climate with a wet season from December to March during which almost all of the annual rainfall is received and humidity is high. Rainfall in the Dampier Peninsula

ranges from 576 mm/yr at Broome to 768 mm/yr at Cape Leveque. Banana Wells lies directly to the south of Beagle Bay - midway between these two sites and receives approximately 736 mm of rainfall annually.

Daytime temperatures are high throughout the year, particularly during the months prior to the wet season when maxima greater than 40 °C are common. The highest daily temperature recorded in Cape Leveque is 42.7 °C in November; the minimum temperature is 11.1 °C in July (Bureau of Meteorology, 2005).

3.2 VEGETATION AND FLORA

The trial plantation is located in savannah woodland typical of the Dampier Peninsula. Savannah woodland comprises open to moderately dense Eucalypt woodland over *Acacia* shrubs and dense grasses. The site occurs on the edge of the Pindan, on light red sandy soils, in the transition area between the Pindan and the mangrove flats.

The most common species present within the site are the trees; *Corymbia dampieri*, *C. polycarpa*, *Bauhinia cunninghamii*, *Gardemia pyriformis* subsp. *keartlandii*, the shrubs; *Acacia tumida*, *Gomphrena flaccida* and the grasses; *Aristida holathera* var. *holathera* and *A. hygrometrica* and *?Cymbopogon ambiguus*.

3.2.1 Flora of Conservation Significance

Flora surveys conducted during June – July 2005 identified dense populations of two Priority 1 flora species adjacent to the proposed plantation site. These comprised *Aphyllodium parvifolium* with a population estimated to be in excess of 400 individuals, and *Glycine pindanica* having an estimated population of over 500 individuals (Figure 2).

Two types of Threatened Ecological Communities (TECs) occur on the Dampier Peninsula; vine thickets and the Bunda Bunda springs. There are no known records of either TECs in the project area, and none were observed during site visits. The nearest records of these TECs are approximately 20 km to the south-west of the Burrjuk lease, north of Carnot Springs.

3.2.2 Introduced Species

Three weed species are known to occur within and adjacent to the project area. These include Couch **Cynodon dactylon*, Stinking Passion Flower **Passiflora foetida* and Verano Stylo **Stylosanthes hamata*. These weeds are not listed on the Department of Agriculture's Declared Plant list for Western Australia; however **Passiflora foetida* is an invasive environmental weed within the Kimberley which rapidly colonises disturbed areas.

3.3 VERTEBRATE FAUNA

Due to the small project area, a specific fauna survey has not been conducted. Previous fauna surveys in this area are limited however surveys conducted for the nearby Beagle Bay Tropical Timber Plantation (*ecologia* 2004, Swann 2003) yielded 105 vertebrate species, including 65 birds, 28 reptiles, four amphibians and eight mammals (six native and two introduced).

An estimated 193 vertebrate fauna species may potentially occur locally to the proposed project area. This comprises 17 native and six introduced mammals, 110 birds, 52 reptiles and eight frog species.

3.3.1 Rare and Specially Protected Fauna

It is not expected that any Critically Endangered, Endangered or Vulnerable species, listed under Schedule 1 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), are present in the project area. This is based on the absence of these species in recent nearby surveying for the Beagle Bay Tropical Timber Plantation project.

The CALM Priority 4 Bush Stone Curlew *Burhinus grallarius* and the Australian Bustard *Ardeotis australis* have been recorded within the vicinity of the Beagle Bay Tropical Timber Plantation and are therefore likely to utilise the proposed plantation site.

3.3.2 International Agreements

Three international agreements address components of the Australian fauna, with a focus on protecting migratory species. These three agreements are JAMBA, CAMBA and the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention). Of the species listed under these agreements, four may potentially occur in the project area and two have been recorded within the vicinity of the Beagle Bay Tropical Timber Plantation (Table 1).

Based on the proximity of the Banana Wells plantation to the Beagle Bay Plantation, it is likely that the Rainbow Bee-eater *Merops ornatus* and Fork-tailed Swift *Apus pacificus* utilise habitat within the project area.

Table 1 Species Protected by International Agreements

Common Name	Scientific Name	International Agreement
<i>Recorded</i>		
Rainbow Bee-eater	<i>Merops ornatus</i>	JAMBA
Fork-tailed Swift	<i>Apus pacificus</i>	JAMBA/CAMBA
<i>Potentially Occur</i>		
White-bellied Sea Eagle	<i>Haliaeetus leucogaster</i>	CAMBA
Yellow Wagtail	<i>Motacilla flava</i>	JAMBA/CAMBA
Oriental Cuckoo	<i>Cuculus saturatus</i>	JAMBA/CAMBA

3.4 HERITAGE

The project area is a component of the land that is leased by Burriguk Aboriginal Corporation from the Aboriginal Lands Trust (ALT).

No Aboriginal sites as listed on the DIA database have been previously recorded within the project area. The project area is within 15 km of one registered (interim register) Aboriginal Heritage site, Bobby Creek, Site ID 18999. The Bobby Creek site is of mythological significance, with open access and no restrictions.

4. PROJECT IMPACTS AND MANAGEMENT

This section provides an overview of the environmental and social issues relating to the project. Management objectives for areas of potential impact are also outlined below.

4.1 ENVIRONMENTAL MANAGEMENT

The project has been devised to minimise the amount of clearing necessary and retain existing vegetation between the plantation rows. A management plan will be devised in consultation with CALM to minimise impacts on Priority flora populations within the project area.

4.1.1 Vegetation and Topsoil Management

The project design minimises the area of vegetation to be cleared by upgrading existing access tracks and retaining native vegetation between plantation rows. All large trees in the project area will be retained with clearing limited to understorey and mid-storey vegetation.

Management Objectives

- To limit the loss of native vegetation and plant habitats;
- To maximise retention of native vegetation between plantation rows;
- To use land clearing techniques that minimise the impact on non-targeted areas; and
- To minimise topsoil erosion and degradation, particularly in the irrigated plantation rows to minimise potential impact on native vegetation alleys.

4.2.2 Surface Water

The topography of the Dampier Peninsula is gently convex, reaching a maximum elevation of 247 m above sea level approximately 60 km north east of Broome. The low gradient of the land, lack of defined drainage channels and heavy seasonal rainfall mean that sheet flooding dominates the surface water flow on the Peninsula (Kenneally *et al*, 1996). The northern end of the Peninsula is low lying and features broad sub-coastal drainage valleys with seasonal swamps, particularly inland from Beagle and Pender Bays (Kenneally *et al*, 1996).

There are no mound springs within 10 km of the project area and the area is not within close proximity to any coastal, estuarine or wetlands environments.

The plantation will require irrigation in the first two years of the proposal, and shall only be used during the dry season. The estimated requirements for the first two years are minimal and land degradation issues associated with irrigation such as increased surface runoff are not anticipated.

Management Objectives

- To minimise impacts on the quality of surface water;
- To minimise surface runoff of irrigation water; and
- To avoid unnecessary disturbance to natural surface water drainage.

4.2.3 Groundwater

The project area is within a proclaimed groundwater area for the purpose of licencing under the Rights in Water and Irrigation Act. An application for a Groundwater Well Licence (GWL) will be submitted to the Department of Environment. Estimated irrigation water requirements are approximately 10,000 kl/yr for the first two years of the proposal and shall only be used during the dry season. The water will be sourced either from an existing well (Henry well) or from a yet to be constructed bore.

Management Objectives

- To minimise impacts on the quality of groundwater; and
- To manage the abstraction of groundwater for irrigation purposes in such a way that impacts including localised groundwater drawdown are minimised.

4.2.4 Flora

A flora survey for the proposed plantation was undertaken by *ecologia* in June 2005. Two Priority 1 flora were identified during this survey; *Aphyllodium parvifolium* and *Glycine pindanica*. Following consultation from Dr Ken Atkins at the Department of Conservation and Land Management (CALM) a follow up survey was undertaken in July 2005 to map the populations of these species and assess the level of impact on the populations arising from the development.

The field survey indicates that the *Aphyllodium parvifolium* population is restricted to grey sand immediately west of the proposed plantation site. The *Glycine pindanica* population is more widespread and less densely populated than the *A. parvifolium*, and although occurring within the proposed plantation site, significant numbers occur to the west of the site (Figure 3).

A western clearing boundary was marked out using a GPS during the July survey to ensure that the clearing boundaries are clearly demarcated and documented.

There are no records of Threatened Ecological Communities in the project area, and none were observed during site visits.

Management Objectives

- Avoid impacts to Priority flora populations by restricting clearing for the plantation to the area east of the marked clearing boundary (Figure 3);
- Avoid clearing Priority flora within the clearing boundary; and
- To minimise the risk of introducing and spreading noxious weeds.

4.2.5 Fauna

While removal of under and mid-storey vegetation will reduce some habitat, the small size of the project area and its design are expected to minimise any long-term impacts on fauna from the implementation of the proposal.

Management Objectives

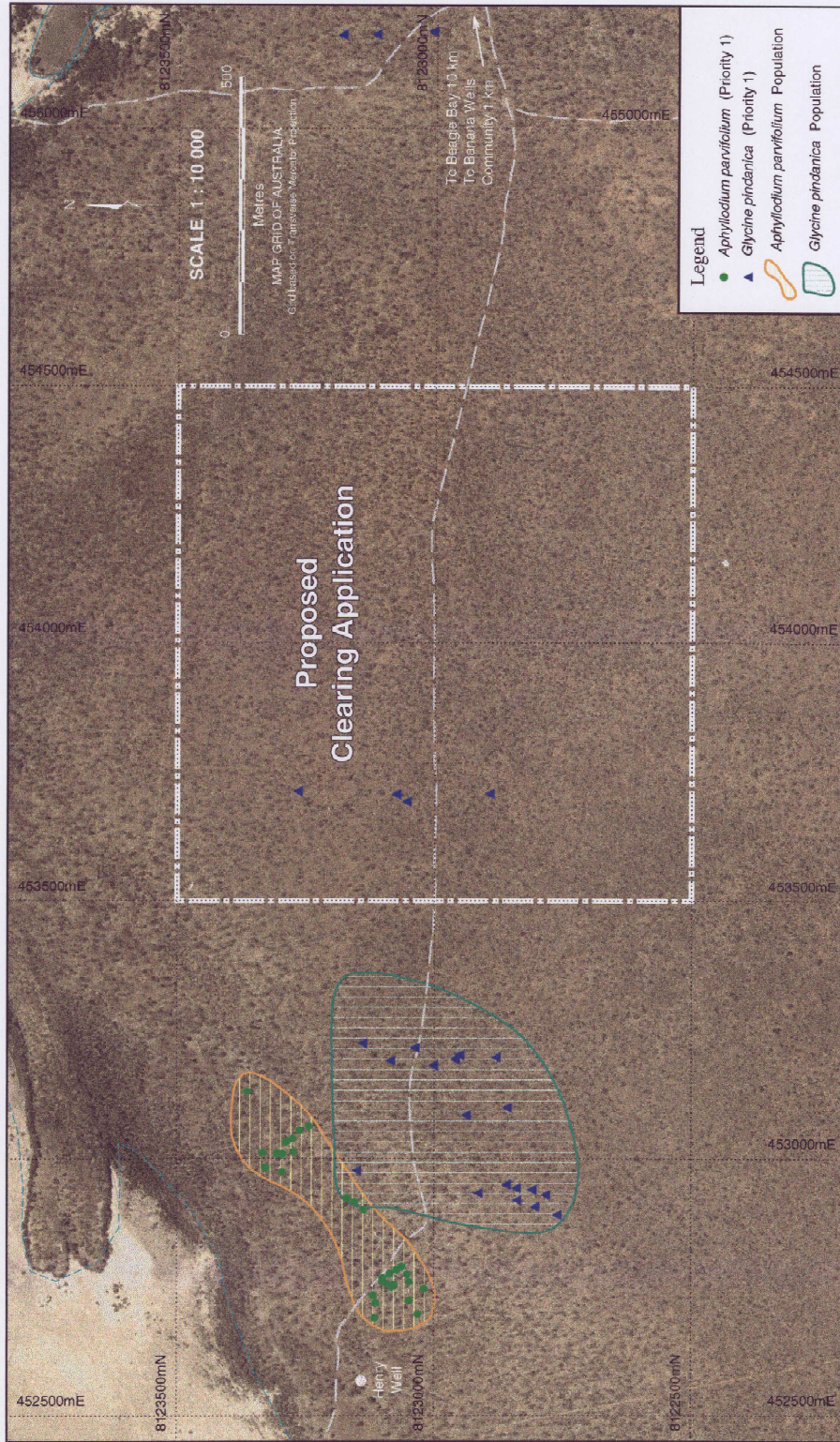
- To ensure that native fauna species are not adversely affected by the plantation.

4.2.6 Aboriginal Heritage

Potential impacts of the proposal on the Aboriginal heritage site, Bobby Creek, are considered to be negligible due to the distance of the site to the project area.

Management Objectives

- To avoid disturbance to Aboriginal Heritage sites; and
- To ensure compliance with the Aboriginal Heritage Act 1972-1980.



Legend

- *Aphyllodium parvifolium* (Priority 1)
- ▲ *Glycine pindanica* (Priority 1)
- Aphyllodium parvifolium* Population
- Glycine pindanica* Population

BANANA WELLS CLEARING APPLICATION	Client: XXXX	Date: 7 September 2005
	Project: BANANA WELLS	Scale: 1:10 000
Author: B. Barnett	Drawn: S. Coleman	Figure No. 3
		Plan No. BW-002
		A4

4.2.7 Rehabilitation

The community and the Government expect that new developments be constructed in such a manner to minimise environmental impacts. Disturbed areas that are not rehabilitated, or inadequately rehabilitated, may result in long-term changes to the landscape through soil erosion and associated sedimentation, introduction of weeds and use of tracks to gain access to restricted areas.

Plantation life is estimated to be 15 years from initial planting. If the plantation trial proves viable, then it is anticipated that the project will expand to a commercial sized plantation. If the trial does not prove to be viable, the introduced African Mahogany *Khaya senegalensis* will be removed and the plantation rows rehabilitated.

Management Objectives

- To ensure disturbed areas meet acceptable environmental standards; and
- To ensure habitat composition and structure is restored if the plantation trial is abandoned.

5. EXTENT OF PROJECT IMPACT

It is not anticipated that the project will create any significant environmental or social impacts.

6. REFERENCES

Bureau of Meteorology (2005) www.bom.gov.au (Accessed July 2005)

ecologia (2004) Beagle Bay *Big Tree Country* Tropical Timber Plantation – Vertebrate Fauna Assessment. Unpublished Report for Tropical Timber Plantations.

Kenneally, K.F., Edinger, D.C. and Willing, T. (1996) *Broome and Beyond. Plants and People of the Dampier Peninsula*. Department of Conservation and Land Management, Perth.

Swann, G. (2003) Ornithological Report for Proposed Tropical Timber Plantation. Unpublished Report for John Brennan and Associates.

