

BEST PRACTICE MANUAL



Guide to Monitoring *Phytophthora*-related Dieback in the Wet Tropics of North Queensland

Stuart J. Worboys



Rainforest CRC

Cooperative Research Centre for Tropical Rainforest Ecology and Management

GUIDE TO MONITORING *PHYTOPHTHORA*-RELATED DIEBACK IN THE WET TROPICS OF NORTH QUEENSLAND

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Cover Images ©

(*Top*) Dieback near the northwest peak of Mount Bartle Frere, December 2002.

(*Centre*) Undertaking rainforest dieback monitoring near Koombaloo Dam.

(*Bottom*) Rainforest canopy.

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TERMS USED IN THIS GUIDE

Cth	Commonwealth
dbh	Diameter at breast height
Qld	Queensland
QPWS	Queensland Parks and Wildlife Service
sp.	Species
subsp.	Subspecies
WTMA	Wet Tropics Management Authority
WTWHA ...	Wet Tropics World Heritage Area

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INTRODUCTION

BACKGROUND

Dieback caused by *Phytophthora cinnamomi* has had a devastating effect on forests, heathlands and woodlands across the wetter areas of Australia (Environment Australia 2001). The pathogenic fungus-like organism is believed to have been introduced during European settlement and now affects hundreds of thousands of hectares of native vegetation, impacting significantly on biodiversity values and threatening the survival of some species. In response to the threat it poses to biodiversity, *P. cinnamomi* has been identified as a 'Key Threatening Process' under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999*. A national Threat Abatement Plan (Environment Australia 2001) has been developed to prioritise actions for its control.

The 'National Threat Abatement Plan for Dieback Caused by the Root-Rot Fungus *Phytophthora cinnamomi*' is designed to promote a common understanding of the national threat *P. cinnamomi* poses to biodiversity in Australia. An outcome of the Threat Abatement Plan was the funding of a major project to review current management approaches, identify benchmarks for best practice, and to develop risk assessment criteria and a system for prioritising management assets that are, or could be, threatened by *P. cinnamomi*. Project outputs are presented in a four-part document entitled *Management of Phytophthora cinnamomi for Biodiversity Conservation in Australia*, which will be available for download from the Commonwealth Department of the Environment and Heritage website in early 2006.

Until recently, much of the focus on the impacts of *P. cinnamomi* was directed at the southern states, in particular the south west of Western Australia. However, significant areas of patch death (as shown in Figure 1 and Figure 2) have been identified in the upland rainforests of northern Queensland (Gadek 1999). A strong association between *P. cinnamomi* and this patch death has been established.

In response to increasing concerns regarding the impacts of *P. cinnamomi* on upland and highland rainforests in the Wet Tropics, and the potential for its spread by tourism and management activities, investigations into its impacts were initiated in 1997.

RESEARCH GOALS

The national Threat Abatement Plan (Environment Australia 2001) has two broad goals:

- a) To protect endangered or vulnerable native species and communities from *P. cinnamomi*; and
- b) To prevent further species and communities from becoming endangered by reducing the chance of exposure to the pathogen.

Implementing actions that address the goals of the Threat Abatement Plan poses problems in the Wet Tropics. The level of threat posed to native species and communities by *P. cinnamomi* is difficult to assess because significant gaps exist in the knowledge of dieback in the Wet Tropics. To address these gaps, a monitoring program was established specifically to:

- Develop a framework for a Dieback Monitoring System for the Wet Tropics that can monitor recovery or further progression of vegetation post-dieback. The monitoring program needs to be scientifically robust, but also designed to be user-friendly for

Queensland Parks and Wildlife (QPWS) ranger staff so that monitoring can be maintained over a long-term basis by QPWS;

- Revisit and assess existing dieback monitoring plots at Koombooloomba / Tully Falls, Lamb Range and Mount Lewis, as described in Gadek and Worboys (2003) for suitability as sites for this program;
- Develop robust proformas and indicators to measure the impact and recovery of dieback at selected sites; and
- Involve land managers at all levels, in particular, the training of on-ground staff in developing robust and practical procedures for assessing and monitoring dieback in the field.

STRUCTURE OF THIS GUIDE

This guide establishes the procedures for collecting data from monitoring sites. It details the methods that are to be used in collecting data so that information can be compared between years. It also includes:

- Detailed site descriptions and site locations;
- A suggested layout for the data recording sheets used in monitoring;
- Clear criteria by which tree health can be assessed;
- Species lists from each site; and
- Copies of data from previous monitoring events and a blank database for use in entering data.

THE ROLE OF QUEENSLAND PARKS AND WILDLIFE SERVICE

Monitoring sites have been established and two tree health assessments have been carried out by James Cook University. It is anticipated that the QPWS will take a leading role in coordinating future monitoring events.



Figure 1: Dieback of canopy trees, Mount Bartle Frere Western Access Track, observed in May 2004.



Figure 2: Dieback on Mount Mackay at the southern end of the Carbine Tableland, June 2002.

PHYTOPHTHORA-RELATED DIEBACK

WHAT IS IT?

The term 'dieback' describes any plant disease that causes gradual death, starting at the outermost twigs and slowly working its way inwards. Dieback can be associated with insects, fungi or drought. To distinguish dieback caused by *Phytophthora cinnamomi* root rot, the term '*Phytophthora*-related dieback' is used throughout this guide.

The form of dieback to be monitored by this program is caused by *Phytophthora cinnamomi*, a fungus-like organism that is known to attack a wide variety of plant species. This soil-borne organism is readily spread in soil or by surface / sub-surface water movement.

In Australia, *P. cinnamomi* was first conclusively associated with dieback in jarrah trees in Western Australia in the mid 1960s. Since then, its association with dieback has been widely reported in native ecosystems in southern and eastern Australia (Weste 1994).

Phytophthora-related dieback varies in how it affects a plant, depending on:

- The health of the plant;
- The species of the plant and how susceptible it is to infection;
- Climate and soil conditions in the environment of the plant; and
- The virulence of the *Phytophthora* strain that has attacked the plant.

Generally, *Phytophthora*-related dieback is worst where warm (>10°C), disease-infested soils are temporarily waterlogged, for example, after heavy rain. The presence of abundant water in oxygen-rich soils (i.e. not swampy) provides ideal conditions for rapid spread of infection. The lifecycle of *P. cinnamomi* is shown in Figure 3.

Often, infection can cause the death of the plant. If many species in a community are susceptible, removal of entire suites of species can lead to fundamental changes in the ecology, threatening some species with extinction (Weste 1994). *Phytophthora cinnamomi* therefore represents a significant threat to many native ecosystems across wetter parts of the continent.

HOW DOES IT SPREAD?

The first stage of the lifecycle of *P. cinnamomi* begins with the formation of zoosporangia (Figure 3). When conditions are right (i.e. lots of water in the soil without being waterlogged and lots of food plants available), masses of these structures are formed on the outside of infected roots. They are full of swimming spores that are released into the soil water.

The swimming spores, called zoospores, are attracted to healthy roots. They attach themselves to the roots and germinate, producing a thread-like structure called a hypha (plural: hyphae). Every root cell contacted by the growing hypha immediately dies.

The hyphae branch out through the plant roots, destroying root tissues as they grow. The effect of this on the plant is the same as root pruning – the plant's ability to soak up water and nutrients is restricted so it starts to die back, and if the infection is bad enough, the plant will die. The infection may spread upwards through the root system and into the lower trunk, causing the characteristic lesions (Figure 4).

When the food supplies run out, *P. cinnamomi* forms tough, microscopic spores (chlamydozoospores and oospores) that can survive in the soil for several years. When conditions become favourable, they germinate, producing zoospores, and the cycle starts anew.

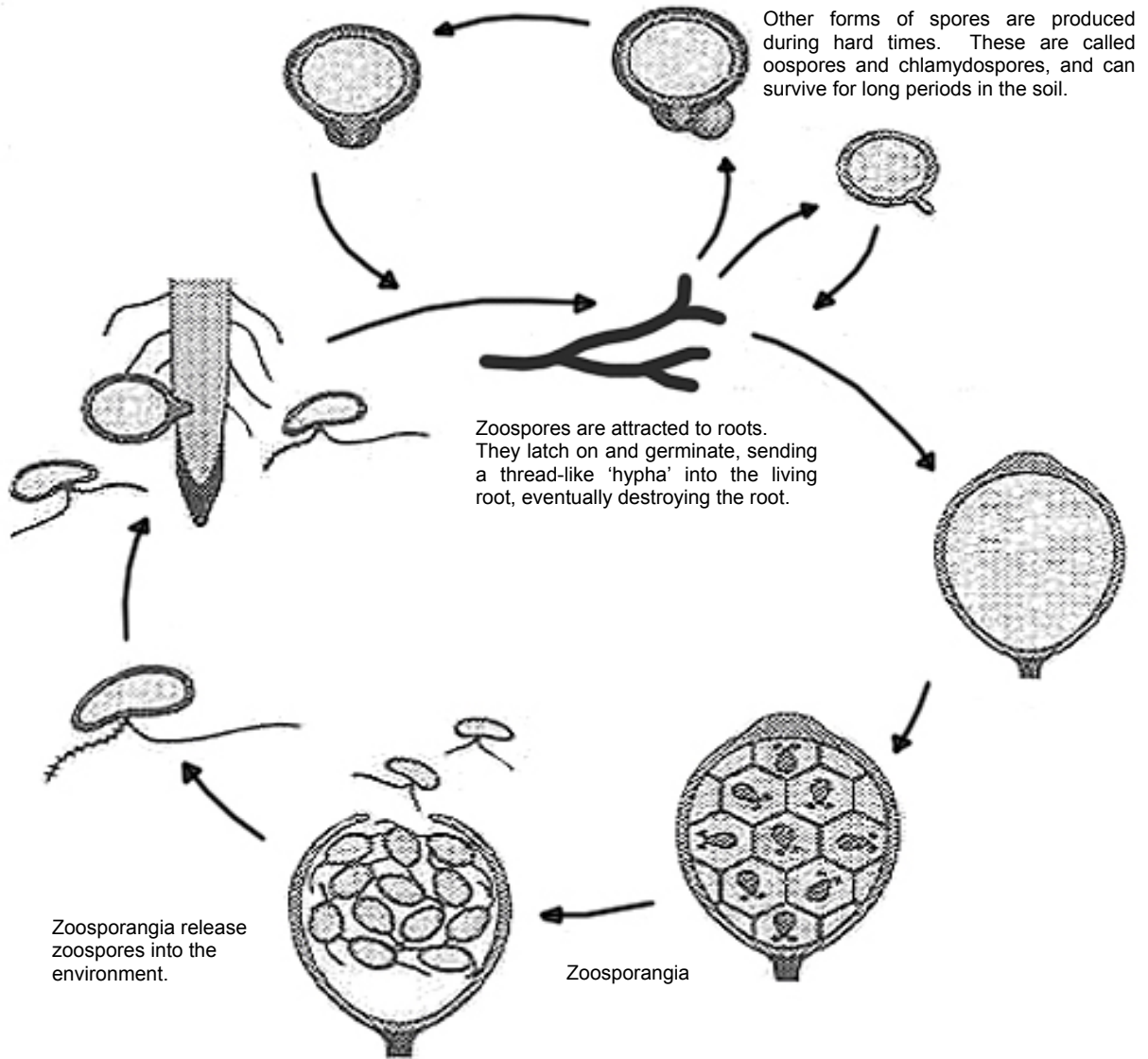


Figure 3: Life cycle of *Phytophthora cinnamomi*.



Figure 4: Dark claret-red lesion on trunk of a *Flindersia bourjotiana* affected by dieback.

HISTORY OF MANAGEMENT RESPONSES TO DIEBACK IN NORTHERN QUEENSLAND

Patch death of rainforests was first observed in the 1970s at Dalrymple Heights on the Eungella Tablelands, west of Mackay, and at Garrawalt, to the west of Ingham (Brown 1976). In response, Bruce Brown of the Queensland Department of Forestry undertook extensive soil surveys between 1975 and 1981. He found several species of *Phytophthora* in these soil samples, however almost eighty-six percent of all *Phytophthora* isolates from three different sites were *P. cinnamomi* (Gadek 1999). Although *P. cinnamomi* was isolated from soils carrying apparently healthy vegetation, it was more frequently isolated from dieback-affected forests, logged forests and areas disturbed by pigs.

Brown's field investigations ceased in 1981 but patch death did not. In 1997, partly in response to concerns from the ecotourism industry, the Cooperative Research Centre for Tropical Rainforest Ecology and Management (Rainforest CRC) commissioned a preliminary study and recommended a workshop of invited specialist researchers to provide expert guidance for further research. The workshop provided a foundation for the establishment of the current research program.

In 1999, whilst working on the interpretation of aerial photographs for the Wet Tropics Management Authority (WTMA), David and Peter Stanton identified and mapped similar canopy dieback patches in upland rainforests in the Koombalooomba / Tully Falls, Lamb Range, Kirrama and Mount Lewis areas (Figure 5). These areas, referred to as 'mapped dieback polygons' in Gadek and Worboys (2003), do not define areas of uniform impact or

effect. Rather, the boundaries shown in Figure 5 delineate locations in which smaller patches of dead and dying canopies can be detected.

Ground-truthing of these mapped dieback polygons in the Koombaloo / Tully Falls areas lead to the discovery of *P. cinnamomi* in soils in the region. As previously observed by Bruce Brown (1976), the pathogen was not restricted to dieback patches, nor did it occur in higher proportions within the dieback-affected sites in comparison to unaffected sites. Studies at these sites noted a strong relationship between affected sites and soil type, elevation, slope and the proximity to roads.

Further field work was undertaken by Sandra Abell and Stuart Worboys in 2002. This led to the establishment of monitoring sites in four areas of the Wet Tropics:

- a) Mount Lewis;
- b) Koombaloo;
- c) Lamb Range; and
- d) Kirrama.

A further three monitoring sites were established on Mount Bartle Frere in 2004.

Abell developed a reliable methodology confirming the identification of *Phytophthora* species. These helped confirm that, although widespread in the Wet Tropics, *P. cinnamomi* was not ubiquitous. Consequently, in order to protect uninfected sites, recommendations for management of the pathogen during works carried out in high susceptibility zones of the Wet Tropics World Heritage Area (WTWHA) have been developed (Worboys and Gadek 2004).

GEOGRAPHY

Although areas of dieback have been observed throughout the Wet Tropics (Figure 5), *Phytophthora*-related dieback appears to be more strongly associated with particular environments. The environments that appear to be highly susceptible to dieback are characterised by having:

- Rainforest communities dominated by notophyll species;
- Altitudes above 750 metres; and
- Soils derived from acid-igneous rocks such as rhyolites and granites.

High susceptibility zones are mapped at a 1:100,000 scale in Worboys and Gadek (2004). Areas of dieback with symptoms similar to *Phytophthora*-related dieback have been observed less frequently in other environments, such as mesophyll-dominated rainforest communities and communities at altitudes greater than 1,050 metres, and even communities on high-fertility soils derived from basalts.

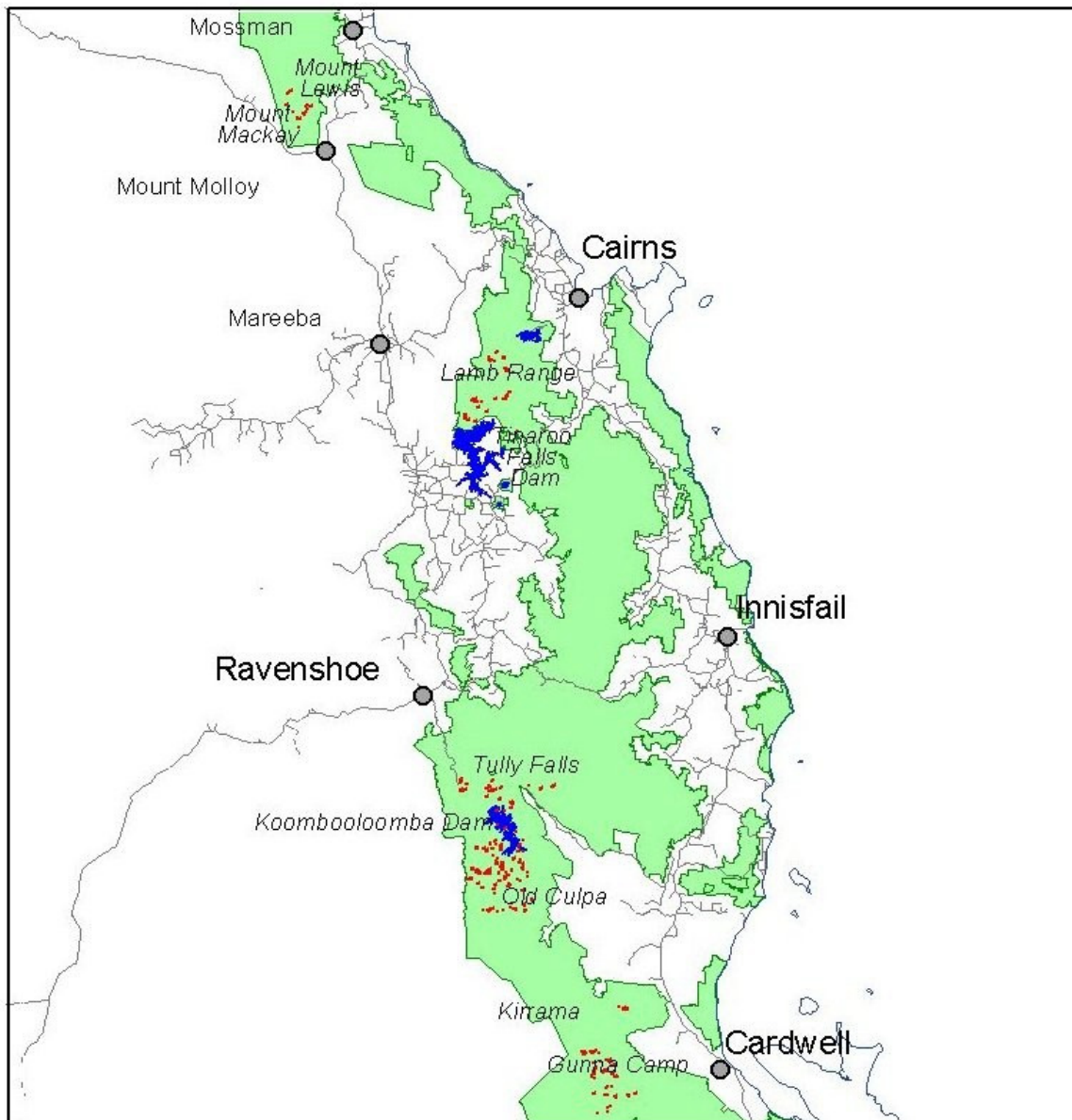


Figure 5: Distribution of mapped dieback polygons in the Wet Tropics World Heritage Area.

RECOGNISING *PHYTOPHTHORA*-RELATED DIEBACK

Symptoms of dieback are often obvious. Figures 1 and 2 show groves of dead or dying trees. This can lead to an opening-up of the canopy, creating a brightly sunlit forest floor. Even in situations where dieback is less severe, canopy thinning can still be observed in some trees. However, without detailed investigations, it is not possible to ascertain with certainty whether *P. cinnamomi* is present in the soils and is affecting the health of the trees. Observations of the symptoms and the environment in which the dieback is occurring will assist in assessing the likelihood of a dieback event being caused by *P. cinnamomi*.

Recognising an area that may be affected by *Phytophthora*-related dieback requires consideration of several questions concerning the environment, the species affected and other potential causes. A positive answer to at least three of the following questions provides a good indication that an observed dieback is *Phytophthora*-related.

Environment

Geological, topographical and vegetation maps have been compiled for the Wet Tropics bioregion. These can be used to answer questions regarding the environment of the observed dieback, specifically:

1. Does the dieback occur in a rainforest community dominated by notophyll species (i.e. has vegetation in the area been mapped as a form of notophyll vine forest, as defined by Tracey and Webb 1975 and Sattler and Williams 1999)?
2. Is the altitude of the site greater than 750 metres?
3. Are soils at the site derived from acid-igneous rocks such as rhyolites or granites?

Other Potential Causes

Is it possible to rule out other causes of the observed dieback, including:

- Fire;
- Lightning strike;
- Drought; or
- Natural succession (i.e. the observed deaths are of short-lived pioneer species such as *Acacia*, *Alphitonia* or *Commersonia* in the canopy)?

Species Affected

P. cinnamomi is known to affect many hundreds of species of plants (Erwin and Ribeiro 1996). In some parts of Australia, susceptible plant species are considered highly reliable guides to the distribution of *P. cinnamomi* in soils. In the Wet Tropics, there is no such group of 'indicator species', however some plant species appear to be more severely affected by dieback than others and the ill health of these species across a community may help identify the presence of *Phytophthora*-related dieback.

Are members of the following species, on average, less healthy than other species in the community?

- *Elaeocarpus sericopetalus*;
- *Cryptocarya mackinnoniana*;
- *Opisthiolepis heterophylla*;
- *Sloanea australis* subsp. *parviflora*;
- *Endiandra bessaphila*;
- *Flindersia bourjotiana*; and
- *Cinnamomum propinquum*.

Conversely, some species appear to be consistently healthier than other species in a dieback-affected community (i.e. they appear to show field resistance). Are members of the following species, on average, healthier than other species in the community?

- All palms, including *Calamus* subsp.;
- *Brackenridgea australiana*;
- *Endiandra dichrophylla*;
- *Cryptocarya lividula*;
- *Cryptocarya putida*; and
- *Cryptocarya densiflora*.

MANAGEMENT

The number of new *P. cinnamomi* infestations can be reduced by modifying activities that spread the pathogen or by controlling access to high susceptibility zones. Modifying activities may involve cleaning machinery, vehicles or footwear, scheduling activities to coincide with dry soil conditions or by using materials that are free of *P. cinnamomi*. Controlling access may involve track rationalisation, upgrading tracks or restricting the access of off-road vehicles (Dieback Working Group 2000).

Detailed and prescriptive procedures for management of *P. cinnamomi* in the Wet Tropics World Heritage Area, based on the work of the Dieback Working Group (2000), are given in Worboys and Gadek (2004).

METHODOLOGY

WHERE ARE THE SITES?

Phytophthora-related dieback monitoring sites were established in four regions of the Wet Tropics:

1. Along the Mount Lewis Road, on the southern end of the Carbine Tableland;
2. In the upper catchment of Kauri Creek in the Lamb Range, north of Lake Tinaroo;
3. Near Tully Falls lookout and in the Old Culpa area, west of Koombooloomba Dam, on the Culpa Road; and
4. On the western access track of Mount Bartle Frere, a short distance to the west of the North West Peak.

Details and maps for site location are provided in Appendix A.

Sites on Bartle Frere

The monitoring sites on Mount Bartle Frere were established in April 2004 using a slightly different methodology to that used in all other regions. Each site comprised a belt transect of eight 10m x 10m plots that straddle the main western access track. To mark these sites, a galvanised steel dropper was placed at the northeast (site BFU1) or northwest (sites BFA1 and BFA2) corner of Plot 4 in each transect, within eight metres of the main walking track. Plots were numbered sequentially from south to north (Appendix A).

GATHERING DATA

Timing

It is recommended that monitoring be undertaken every two years. Monitoring events are best conducted in late April or May, at the end of the wet season. It takes two people an average of six to eight hours to assess each site, including time walking into the site and set-up time. All monitoring sites listed in Appendix A should be assessed.

Author's Tip

Some trees, such as banyan fig (*Ficus virens*) and red cedar (*Toona ciliata*) are deciduous in the dry season. A tree that has shed its leaves can look as if it is dying, even though it is perfectly healthy. Avoid this problem by conducting surveys during the recommended monitoring season.

Equipment Required

Equipment suppliers are suggested in the Contacts and Equipment Sources section of this guide (page 25).

- ✓ Two (2) fifty-metre measuring tapes
- ✓ 2B lead pencils
- ✓ Indelible marker pen
- ✓ Compass
- ✓ Garden trowel
- ✓ Waterproof notebook
- ✓ 'Fat' coloured chalk, preferably blue or red
- ✓ Flagging tape
- ✓ Methylated spirits
- ✓ Clip-seal plastic bags

Author's Tip

Wherever possible, purchase brightly coloured equipment for use in the field, as drab coloured equipment can be difficult to find if misplaced in the forest.

Data Recording

To facilitate data collection and entry, the data recording sheets provided in Appendix B should be utilised.

Method

Check the arrangement of plots at the site (Appendix A). Remember, the star picket is at the centre of Plot 1, so the boundaries of the 10m x 10m plots are located five metres away from this point.

Lay out the tape measures to mark parallel boundaries of the plots as shown in Figure 6. All boundaries are aligned to magnetic north, south, east and west, except for the Mount Bartle Frere sites, which are arranged at right angles to the walking track.

Check that the tapes are actually ten metres apart for their entire length, making sure they don't run together or apart, but remain parallel. Generally, there is no need to set up extra tapes to mark the crossways boundaries, just use flagging tapes to mark ten-metre intervals on the tapes.

Author's Tip

Some plots still have old numbered orange flagging tape located within a couple of metres of their centre points. The tape can be used as a reliable check that you are heading in the right direction.

For each plot, start a new data recording sheet. Note the date, site code and plot number. For all trees greater than three metres tall and greater than two centimetres in diameter at breast height (dbh), record the following:

- Species (optional);
- Trunk diameter at breast height;
- Tree health; and
- A rough estimate of tree height.

As you finish measuring each tree, draw a line around it at eye height with the coloured chalk.

Author's Tip

During rain, mark the tree firmly as the chalk can rapidly wash away. Coloured chalk is the best, as lichens can be mistaken for white chalk and vice versa.

As you complete each plot, mark them off the layout plan that is presented for each site in Appendix A.

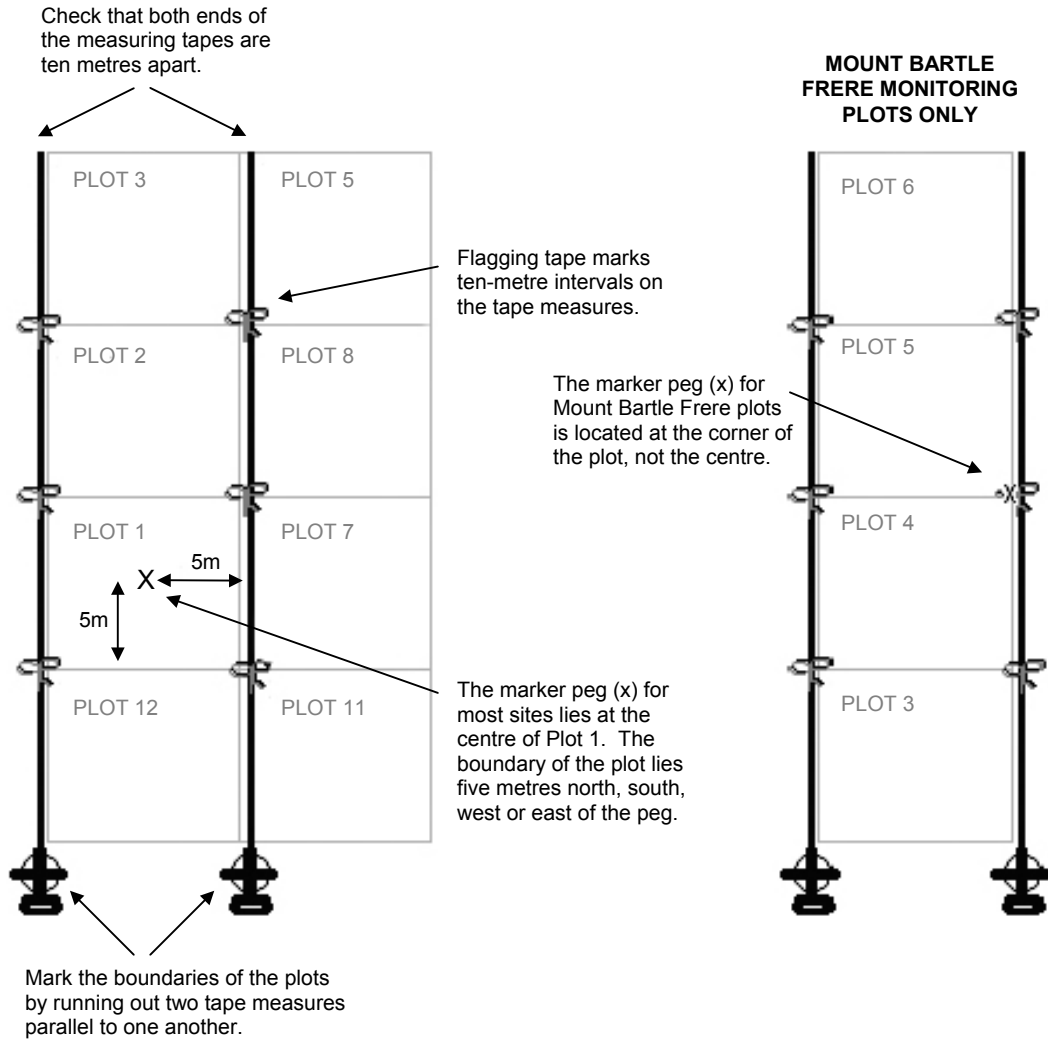


Figure 6: How to mark plot boundaries prior to commencing assessment.

HYGIENE

Phytophthora cinnamomi is easily spread in soil that becomes attached to clothing and tools. A number of simple measures should be implemented during field work to prevent transfer of soils between different areas of the Wet Tropics.

Always carry a small brush and spray bottle of methylated spirits while in the field. Before hopping into the car at the end of a work day, spray your boots and any other dirty items with methylated spirits, then scrub them thoroughly to make sure there is no soil attached. Spray again with methylated spirits to rinse.

DATA RECORDING SHEETS

The data recording sheets in Appendix B provide details of the information that must be recorded for each plot at each monitoring site. Depending on the preference of the user, they can be used as they are or copied into a waterproof notebook for use in the field.

The site identification sheet used for describing the environment at each new site is provided for use in data collection at established sites and for use in detailed description of new sites.

USING THE DATA RECORDING SHEETS

The following section describes the information to be recorded on the data sheets. Each item in the data recording sheet is numbered. The following descriptions detail the type of information that needs to be recorded next to each item.

1. Site Identification

- | | |
|---|--|
| (a) Date: | Record the date you started the surveys. |
| (b) Observers: | Record the full names of all persons undertaking the surveys. |
| (c) Easting or Latitude, Northing or Longitude: | <ul style="list-style-type: none">• It is preferable to use eastings and northings. If using latitude and longitude, record degrees, minutes and seconds. If possible, use a GPS to record these site coordinates. If a GPS is not available, you will need to record the site location on a map.• Eastings and northings are shown on the GPS as follows:
55K 358259
8129508• The top row of digits is the map zone (55K) and the easting (358259). This figure increases by one unit every metre that you move from west to east. The bottom row of digits (8129508) is the northing, which increases by one unit every metre that you move from south to north. |

Author's Tip

A GPS usually doesn't work well beneath the closed canopy of the rainforest, particularly on moist, cloudy days. On clear days however, you may be able to fix on a satellite if you leave the GPS in a clearing at the study site.

- (d) Altitude: Record the elevation of the site in metres.
If using a GPS to record altitude, always check the figure you've recorded on a topographic map.
- (e) Accuracy: A GPS will usually report the accuracy of its position estimate. Record this number.
- (f) Datum: The location of the monitoring sites is given as UTM Grid Coordinates, not latitude and longitude. If you are using a GPS to record locations, it is important to know what datum the GPS is set to. The datum used in all instances is AGD 1966, this was used as all maps utilised in surveys use this datum, rather than the more modern ones.
- (g) Locality Name: Note the locality name.

2. Site Health

Stand at the centre of the site and look around you. For the area within twenty metres of where you stand, make the following four assessments.

- (a) Severity of Dieback: **0** = insignificant with very few plants showing signs of branch death;
1 = slight, with several plants showing signs of branch death;
2 = moderate (many plants as above, or some plants apparently dead or dying);
3 = severe (many dead plants or gaps indicating loss of vegetation).
- (b) Tree Fall Damage: **1** = none;
2 = slight (affecting small area in site only);
3 = moderate;
4 = severe (affecting most of site).
- (c) Site Drainage: **1** = poorly drained;
2 = well drained;
3 = rapidly drained.
- (d) Disturbance to Soil Surface: Disturbance to soil surface is usually caused by pigs, but it can also be created by other animals, such as bandicoots, and by the roots of falling trees. Record the severity of all soil disturbances.
1 = insignificant;
2 = minor (small area of digging/disturbance);
3 = moderate (moderate or severe digging in small area);
4 = severe (most of site).

3. Tree Health Data

(a) Site Code: Every monitoring site has a code name. These start with two letters indicating the locality:

ML For sites on the southern end of the Carbine Tableland, located along the Mount Lewis Road;

LR For sites along Kauri Creek in the Lamb Range;

CO For healthy control sites in the Tully Falls / Old Culpa area;

PO For sites affected by *Phytophthora*-related dieback in the Tully Falls / Old Culpa Area;

BF For sites on the Mount Bartle Frere western access track.

Except in the Tully Falls / Old Culpa area:

U Denotes sites unaffected by dieback;

A Indicates areas that are affected by dieback.

For example, BFU1 is a monitoring site located in unaffected forest on Mount Bartle Frere.

(b) Plot Number: Each monitoring site consists of sixteen to twenty 10m x 10m plots. The central point (Plot 1) of each monitoring site was marked with a star picket, though on Mount Bartle Frere, a lightweight galvanised steel dropper was used. The star picket was placed at the centre of the plot, five metres from the external boundaries. The layout of the plots within each monitoring site was assigned semi-randomly and is shown in Appendix A.

Author's Tip

Site JP04, the Pilot Study Site, has over seventy marked plots (see Appendix A). When conducting site assessments here, you only need to assess twenty adjoining plots, but always start at Plot E5, where the star picket is located.

(c) Plot Number (for entry into database): The layout of plots within each monitoring site is mapped in Appendix A. Each individual plot has two numbers. The second, bracketed number is the total survey plot code that must be entered here and will eventually be entered into the computer database.

(d) Species: Identifying the species present at a site is not a critical aspect of this exercise though where it can be done with confidence and speed, species names should be included. A list of species identified at each site is provided in Appendix A.

(e) Species Number (for entry into database): If you know the scientific name any of the tree species, look up the species in Appendix C and record its number here. The number for *unknown tree species* is 273. Do not fill in this column whilst in the field, it takes too long.

(f) Tree Size:

Trunk diameter is normally measured at breast height or 1.3 metres above the ground. Trunk diameter is defined as:

$$\frac{\text{Trunk circumference}}{\pi \text{ (} \pi \text{ or 3.14)}}$$

To speed up the data collection and entry process, tree trunk diameters have been assigned to four size classes:

Size Class	Trunk Diameter	Trunk Circumference
1	2cm-10cm	6.3cm-31.4cm
2	10cm-30cm	31.4cm-94.2cm
3	30cm-50cm	94.2cm-157cm
4	>50cm	>157cm

Author's Tip

If you don't have a tape measure, you can use string, strapping or whittled-down lawyer cane marked at appropriate intervals.

Some points about measuring trunk diameter:

- For trees with more than one trunk, like the clumping palm *Laccospadix*, measure only the largest trunk.
- For trees on steep slopes, always measure from the uphill side.
- For trees that are leaning, measure the tree at the point where it is 1.3 metres vertically above the ground. If it's never more than 1.3 metres above the ground, do not include it.
- For trees covered in vines, where possible, measure beneath the vines.

(g) Tree Health:

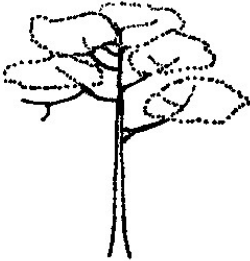



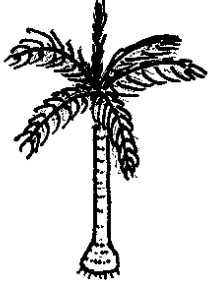
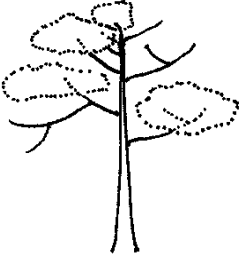

Even in the healthiest of forests, there will be some natural dieback caused by factors other than *Phytophthora*. One of the purposes of this job is to distinguish between natural and *Phytophthora*-related dieback. Tree health is divided into five classes:

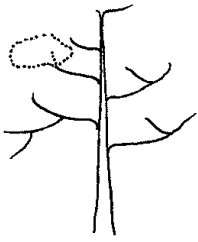
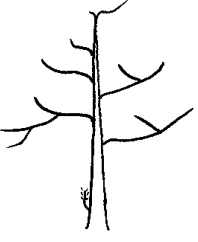

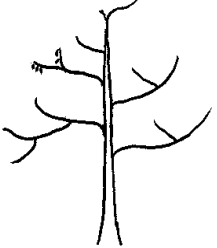
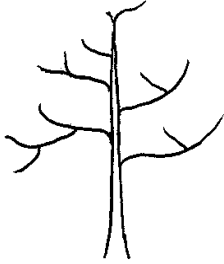
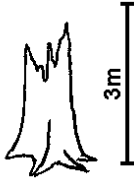

	Definition
1	Tree healthy. Less than ten percent of branches in the canopy have lost their leaves.
2	Tree with slight canopy thinning. Between ten and fifty percent of branches in the canopy have lost their leaves.
3	Tree with significant canopy thinning. Greater than fifty percent of branches in the canopy and twigs have lost their leaves. Includes trees that are entirely dead in the canopy, but have some coppice shoots coming from the base of the trunk.
4	Tree recently dead. No living coppice shoots. Some dead leaves still present on tree.
5	Tree dead, and trunk greater than three metres tall. No leaves present.

Tree health assessment can be difficult as the canopy may be obscured. Table 1 provides guidelines for assessment. Try shaking the tree or viewing it from different positions to get a better idea of the canopy health.

(h) Measuring Tree Height: Only a rough estimate of tree height is required. This information is collected to give an indication of the tree's position in the canopy, sub-canopy or understorey.

Table 1: Guidelines for the assessment of tree health.

Health Rating	Trees	Shrubs	Ferns/Palms
<p>1</p>	 <p>One small branch is affected by dieback, therefore dieback is less than ten percent. Health = 1</p>  <p>Although unhealthy, this branch is not affected by dieback. A tree with branches like this would be rated: Health = 1</p>	 <p>Shrub with less than ten percent dieback. Health = 1</p>  <p>This single-stemmed shrub, although unhealthy, is producing new leaves. Health = 1</p>	 <p>Palm Health = 1</p>
	<p>2</p>	 <p>Ten to fifty percent dieback. Health = 2</p>	 <p>Shrub has three stems, one of which is dead. Ten to fifty percent of the canopy affected by dieback. Health = 2</p>

Health Rating	Trees	Shrubs	Ferns/Palms
<p>3</p>	 <p>Fifty to one hundred percent dieback. Health = 3</p>  <p>Tree dead, except for coppice shoots at base. Health = 3</p>		 <p>Tree fern with living leaves, but top obviously dead. More the fifty percent of remaining leaves are dead. Health = 3</p>
	<p>4</p>	 <p>Tree recently dead. Dead leaves still in upper canopy. Health = 4</p>	
<p>5</p>	 <p>Tree dead. Health = 5</p>  <p>Stump of large tree, less than three metres tall. Health not noted.</p>		 <p>Palm dead, no leaves persist. Health = 5</p>

SOIL SAMPLING

To confirm the presence of *P. cinnamomi* in soils at the site, soils must be sampled. Samples are to be sent to Grow Help Australia for analysis (see Contacts and Equipment Sources, page 25). A cost is associated with this service. Grow Help Australia should be contacted before commencing field work. This is essential to resolve any cost issues, identify requirements for packaging and posting of soil samples, and to determine if staff availability allows them to undertake the soil analysis in a timely manner.

A minimum of four samples should be taken from each site, using the following procedure:

1. At each monitoring site, identify the centre point of four plots chosen for tree health assessment.
2. At each of these four points, use a sterile garden trowel to scrape away surface leaf litter.
3. Dig a small hole, collect a small amount of soil and living plant roots, place them into a new, thick zip-lock plastic bag. The hole does not need to be deeper than ten centimetres and you only need 100-250 grams of soil.
4. Label the bag with the date, site code and soil sample number, e.g. 27/6/04, LRA1, North. Place into a second bag to prevent cross contamination and as a safeguard against breakage.
5. Store soil samples in a cool, dark place and dispatch for analysis as soon as is practicable after sampling.
6. After each sample, scrub your hands and the trowel thoroughly with methylated spirits to disinfect them and prevent cross-contamination of samples.

WHITE DEATH

White death (Figure 7) is a sometimes-fatal disease that affects understorey plants, caused by the fungus *Clavulicium extendens* (Hood and Ramsden 1999). There is no apparent relationship between *Phytophthora*-related dieback and 'white death'. The *C. extendens* fungus is quite prominent in the canopy of infected trees. The affected branches appear to 'melt' as they are digested by the fungus. When assessing tree health, it may be valuable to note the presence of white death in each individual tree that is assessed.



Figure 7: 'White death' affecting a rainforest understorey tree.
Photograph by Alicia Hill, Wet Tropics Management Authority

DATA ENTRY

Preparing the Data

Data collected in the field needs to be entered into a simple Microsoft Access database for analysis.

The database comprises three tables:

1. Monitoring Plot Information;
2. Species List; and
3. Tree Health.

The first two tables are listed and described in Appendix C. Neither of these tables should be altered unless new information becomes available, for example, the correction of grid coordinates in the Plot Information Table or the addition of new species to the Species List Table.

All data collected during monitoring is to be entered into the third table, Tree Health. Before entering the data, you must convert some information to a form that can be recognised by the database. Firstly, you must identify the unique plot code for each 10m x 10m monitoring plot that you have assessed. This can be done with reference to the Monitoring Plot Information table (Appendix C). For example, the unique plot code for Site LRA1, Plot 1 is 173. Secondly, you must identify the unique species number that has been assigned to each species you have recorded and then enter this number into the database. For example, *Flindersia bourjotiana* (Queensland Silver Ash) is species number 115.

Author's Tip

It is likely the most commonly encountered tree species will be species number 273 – unknown.

Entering the Data

The Tree Health table receives all of the data collected during the monitoring events. This is the only table that should have data added to it. If you have utilised the data recording sheets provided in Appendix B, then the data on those sheets can be copied directly into the corresponding columns in the database.

ANALYSIS AND REPORTING

Data analysis and reporting is to follow the format suggested in the Dieback Monitoring Report (2004).

CONTACTS AND EQUIPMENT SOURCES

James Cook University, Cairns Campus

Professor Paul Gadek	Project Leader	James Cook University, Cairns Campus T: (07) 4042 1086 F: (07) 4042 1284 e: paul.gadek@jcu.edu.au
Stuart Worboys	Research Officer	GHD Pty Ltd, Cairns T: (07) 4044 2220 F: (07) 4051 1428 e: worboys1968@yahoo.com.au

Queensland Parks and Wildlife Service

Andrew Millerd	District Manager (Wet Tropics)	Atherton T: (07) 4091 1844
Ian Holloway	Resource Ranger Assisted with field work in the Lamb Range, 2003 and 2004.	Atherton T: (07) 4091 1844 e: ian.holloway@epa.qld.gov.au
Mark Burns	Resource Ranger Assisted with field work in the Koombooloomba / Tully Falls area, and on Mount Bartle Frere, 2003 and 2004.	Lake Eacham T: (07) 4095 3768
Andrew Hedges	Resource Ranger Visited field sites in the Mount Lewis area.	Mossman T: (07) 4098 2188

Soil Analyses

Leif Forsberg	Senior Diagnostician	Grow Help Australia PO Box 327 Cleveland QLD 4163 T: (07) 3814 9526 F: (07) 3286 9094 e: growhelp@dpi.qld.gov.au
Skarlett Walters	Customer Service Officer	As above.

Equipment

	'Fat chalk' for tree marking	Harley's Educational and Stationery Supplies 149 English Street Manunda QLD 4870 T: (07) 4053 3966
	Water resistant notebooks	Measuretek Pty Ltd 131 Scott Street Cairns QLD 4870 T: (07) 4031 5399

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- Worboys, S. and Gadek, P. A. (2004) *Rainforest Dieback: Risks Associated with Roads and Walking Tracks*. Cooperative Research Centre for Tropical Rainforest Ecology and Management, Cairns, Australia.

APPENDIX A
SITE DESCRIPTIONS

SITES IN THE KOOMBOOLOOMBA / TULLY FALLS / OLD CULPA AREA

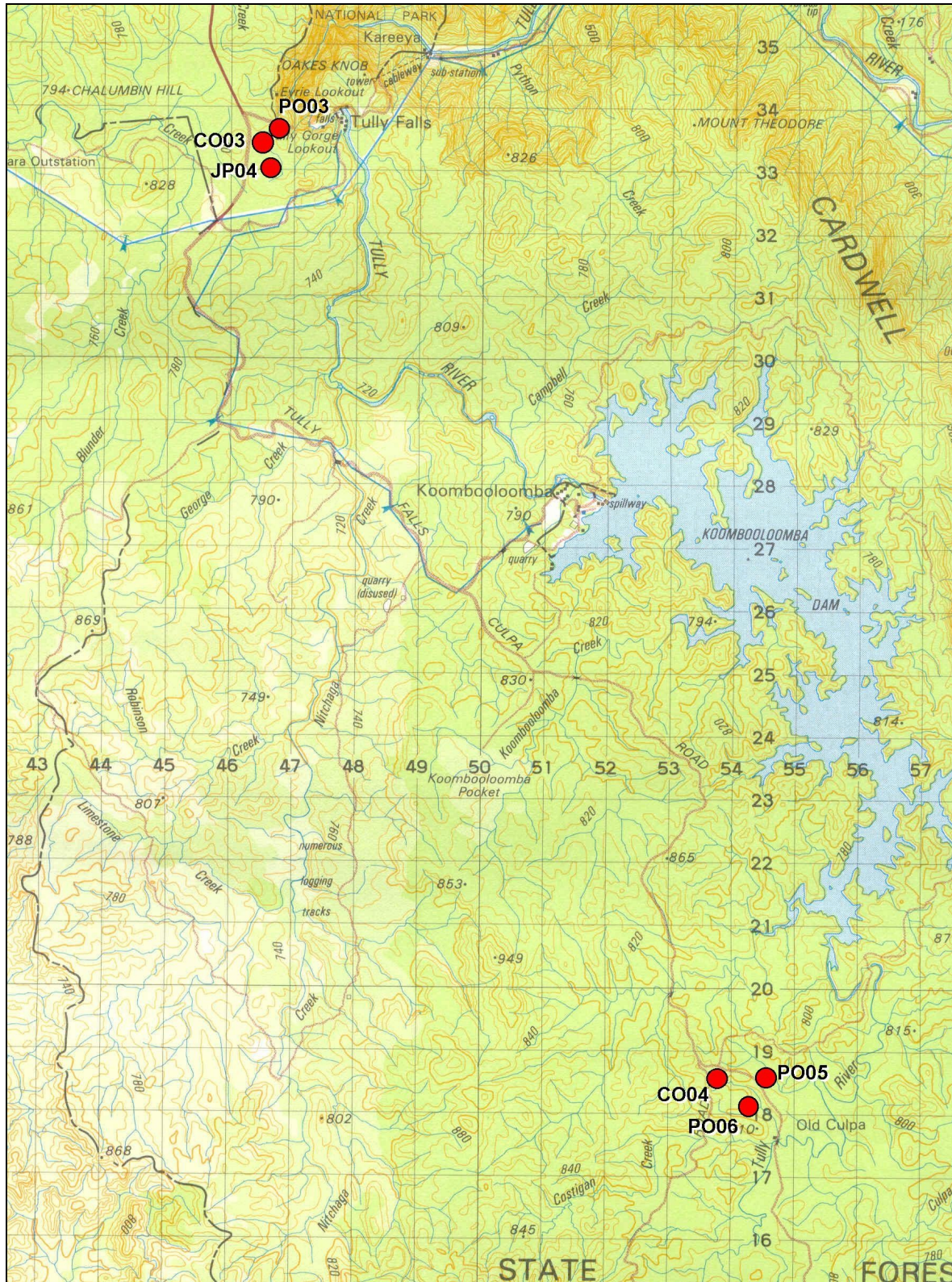


Figure 8: Location of monitoring sites (red dots) in the Koombooloomba / Tully Falls / Old Culpa area. Map source: Royal Australian Survey Corps (1989): Tully 1:100,000. Series R631, Sheet 8062, Edition 2AAS.

SITE CO03

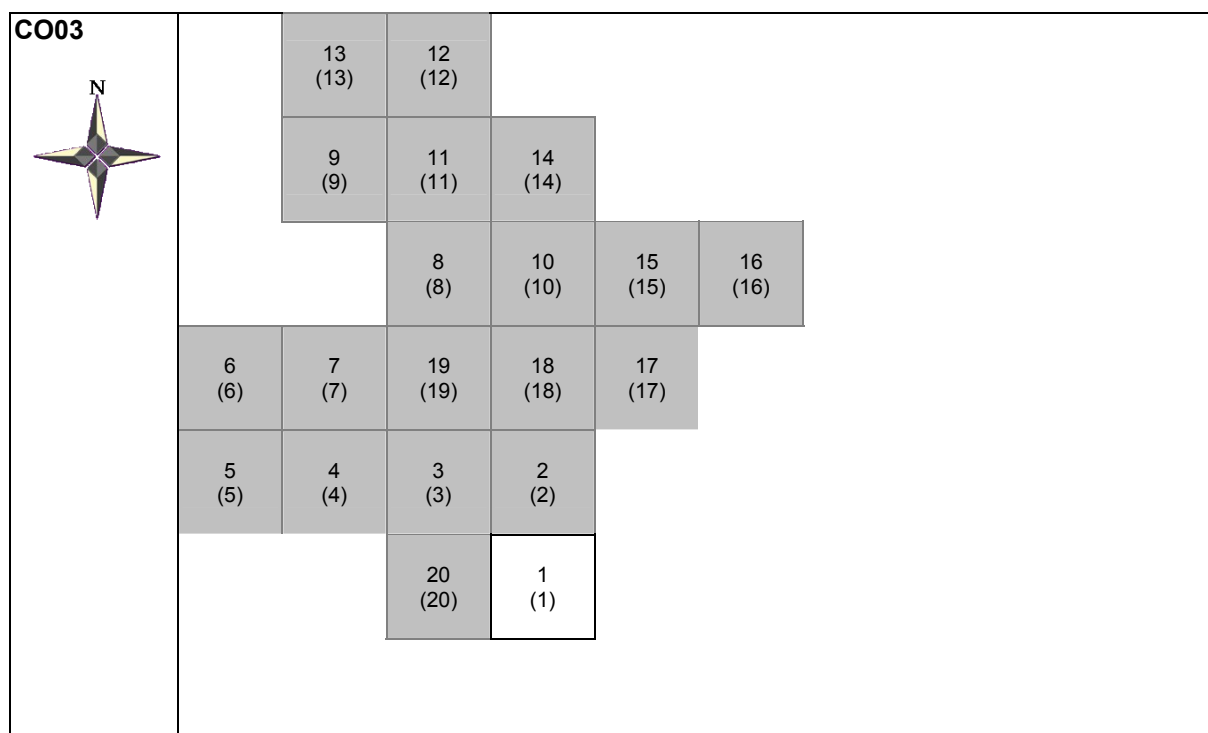
How to Get There

- The nearest landmark is Tully Falls lookout.
- UTM Grid Coordinate: 55K 346543,
8033123
- The entrance to this site is marked by a double taped tree on the east side of the Culpa Road at 346268, 8033315, 600 metres south of the Tully Falls Road intersection.
- The track to this site is flagged all the way with pink tape.
- The site is difficult to assess due to the large amount of *Calamus* present.

Site Description

- Altitude 750 metres.
- The site is on a gently inclined slope that leads into a drainage depression amongst rolling low hills.
- The site has an easterly aspect.
- Forest Type 8 – Simple Notophyll Vine Forest (Tracey and Webb 1975),
- Regional Ecosystem 7.12.16 (Sattler and Williams 1999),
- Notes: Prominent canopy species include *Acacia celsa* and *Cardwellia sublimis*.

Layout of 10m x 10m Plots for Site CO03



- The star picket marking the site lies at the centre of Plot 1.
- Site specific plot numbers are given, followed by the unique plot code (bracketed) that is to be entered into the database.

Plant Species Recorded at Site CO03

Species Number	Family	Species	Species Number	Family	Species
2	Mimosaceae	<i>Acacia celsa</i>	312	Euphorbiaceae	<i>Glochidion hylandii</i>
287	Rutaceae	<i>Acronychia acidula</i>	125	Lamiaceae	<i>Gmelina fasciculiflora</i>
291	Alangiaceae	<i>Alangium villosum</i> subsp. <i>polyosmoides</i>	138	Proteaceae	<i>Helicia nortoniana</i>
302	Euphorbiaceae	<i>Aleurites rockinghamensis</i>	305	Sapindaceae	<i>Jagera pseudorhus</i> var. <i>integerrima</i>
11	Rhamnaceae	<i>Alphitonia whitei</i>	155	Euphorbiaceae	<i>Macaranga inamoena</i>
13	Apocynaceae	<i>Alstonia muelleriana</i>	158	Euphorbiaceae	<i>Mallotus polyadenos</i>
18	Mimosaceae	<i>Archidendron vaillantii</i>	166	Sapindaceae	<i>Mischocarpus grandissimus</i>
26	Rubiaceae	<i>Atractocarpus fitzalanii</i> subsp. <i>tenuipes</i>	167	Sapindaceae	<i>Mischocarpus lachnocarpus</i>
38	Lauraceae	<i>Beilschmiedia collina</i>	168	Sapindaceae	<i>Mischocarpus macrocarpus</i>
43	Ochnaceae	<i>Brackenridgea australiana</i>	169	Sapindaceae	<i>Mischocarpus pyriformis</i> subsp. <i>pyriformis</i>
44	Rutaceae	<i>Brombya platynema</i>	173	Lauraceae	<i>Neolitsea dealbata</i>
46	Proteaceae	<i>Buckinghamia celsissima</i>	183	Myrtaceae	<i>Pilidiostigma tetramerum</i>
49	Arecaceae	<i>Calamus australis</i>	184	Myrtaceae	<i>Pilidiostigma tropicum</i>
53	Rubiaceae	<i>Canthium</i> sp. (Herberton Range S.F. Kajewski 1377)	272	Rutaceae	<i>Pitaviaster haplophyllus</i>
55	Proteaceae	<i>Cardwellia sublimis</i>	195	Grossulariaceae	<i>Polyosma rhytophloia</i>
307	Fabaceae	<i>Castanospermum australe</i>	197	Araliaceae	<i>Polyscias australiana</i>
72	Lauraceae	<i>Cryptocarya leucophylla</i>	310	Sapotaceae	<i>Pouteria castanosperma</i>
74	Lauraceae	<i>Cryptocarya mackinnoniana</i>	199	Sapotaceae	<i>Pouteria brownlessiana</i>
306	Rubiaceae	<i>Cyclophyllum multiflorum</i>	216	Myrtaceae	<i>Rhodamnia sessiliflora</i>
82	Proteaceae	<i>Darlingia darlingiana</i>	218	Myrtaceae	<i>Rhodomyrtus macrocarpa</i>
83	Davidsoniaceae	<i>Davidsonia pruriens</i>	225	Sapindaceae	<i>Sarcotoechia lanceolata</i>
84	Myrtaceae	<i>Decaspermum humile</i>	226	Sapindaceae	<i>Sarcotoechia protracta</i>
90	Ebenaceae	<i>Diospyros pentamera</i>	231	Elaeocarpaceae	<i>Sloanea langii</i>
288	Ebenaceae	<i>Diospyros cupulosa</i>	237	Proteaceae	<i>Stenocarpus reticulatus</i>
99	Elaeocarpaceae	<i>Elaeocarpus eumundi</i>	238	Proteaceae	<i>Stenocarpus sinuatus</i>
102	Elaeocarpaceae	<i>Elaeocarpus</i> sp. (Mt Bellenden Ker L.J. Brass 18336)	250	Myrtaceae	<i>Syzygium wilsonii</i> subsp. <i>cryptophlebium</i>
308	Elaeocarpaceae	<i>Elaeocarpus ruminatus</i>	252	Myrtaceae	<i>Syzygium cormiflorum</i>
309	Rhamnaceae	<i>Emmenosperma alphitonioides</i>	254	Myrtaceae	<i>Syzygium johnsonii</i>
114	Rutaceae	<i>Flindersia acuminata</i>	255	Myrtaceae	<i>Syzygium kuranda</i>
115	Rutaceae	<i>Flindersia bourjotiana</i>	266	Sapindaceae	<i>Toechima erythrocarpum</i>
116	Rutaceae	<i>Flindersia pimenteliana</i>	311	Sapindaceae	<i>Toechima monticola</i>

SITE CO04

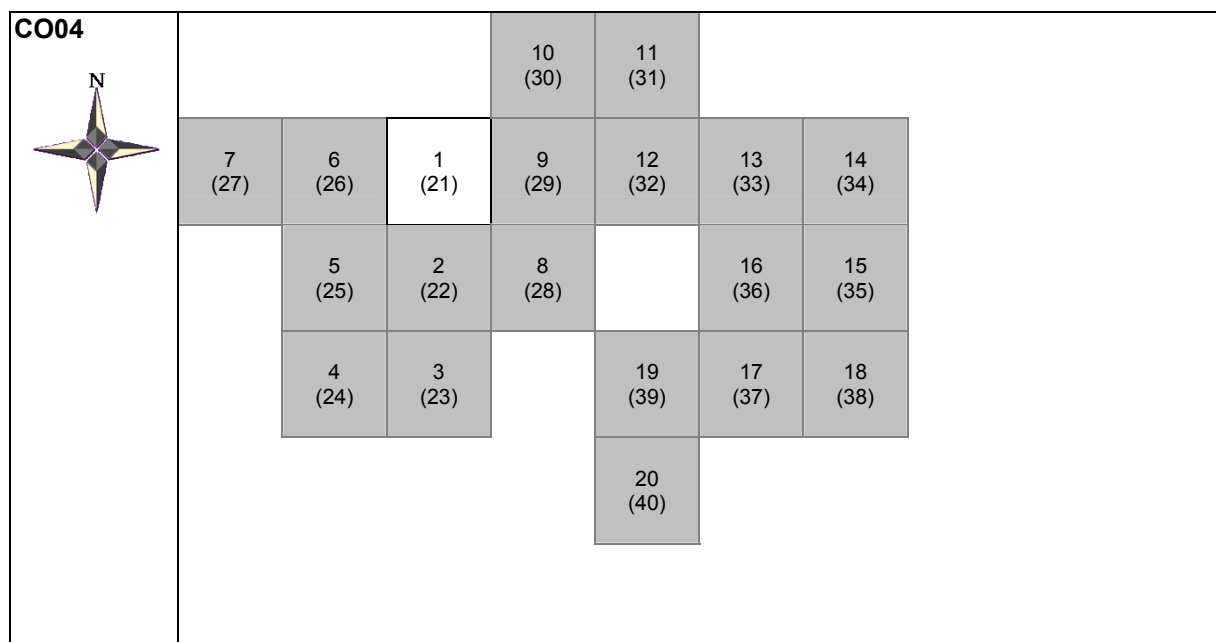
How to Get There

- Located near Old Culpa, approximately one kilometre north of the Tully River bridge on the Culpa Road.
- UTM Grid Coordinate: 55K 353720,
8018775
- An intersection is located on the Culpa Road at 353787, 8018775. From here, head west along the Culpa Road approximately twenty metres, then turn directly south up the embankment.
- The entrance to the monitoring site is marked by a double-taped *Acacia celsa* on the side of the road.

Site Description

- Altitude 820 metres.
- The site is located on a moderately inclined hillslope on rolling hills, with an easterly aspect.
- Forest Type 8 – Simple Notophyll Vine Forest (Tracey and Webb 1975),
- Regional Ecosystem 7.12.16 (Sattler and Williams 1999).
- Notes: N-S Transect. Evidence of previous logging activities.
- Forest to thirty-five metres high.
- Prominent canopy species include *Flindersia pimenteliana*, *Syzygium kuranda*, *F. bourjotiana* and *Pouteria euphlebia*.

Layout of 10m x 10m Plots for Site CO04



- The star picket marking the site lies at the centre of Plot 1.

- Site specific plot numbers are given, followed by the unique plot code (bracketed) that is to be entered into the database.

Plant Species Recorded at Site CO04

Species Number	Family	Species	Species Number	Family	Species
15	Rubiaceae	<i>Antirhea</i> sp. (Mt Lewis BG 5733)	109	Lauraceae	<i>Endiandra wolfei</i>
274	Icacinaceae	<i>Apodytes brachystylis</i>	284	Rutaceae	<i>Flindersia brayleyana</i>
26	Rubiaceae	<i>Atractocarpus fitzalanii</i> subsp. <i>tenuipes</i>	115	Rutaceae	<i>Flindersia bourjotiana</i>
186	Pittosporaceae	<i>Auranticarpa papyracea</i>	116	Rutaceae	<i>Flindersia pimenteliana</i>
282	Myrtaceae	<i>Austromyrtus</i> sp. (Gillies BG 1484)	117	Sterculiaceae	<i>Franciscodendron laurifolium</i>
36	Lauraceae	<i>Beilschmiedia bancroftii</i>	121	Clusiaceae	<i>Garcinia</i> sp. (Davies Creek J.G. Tracey 14745)
42	Rubiaceae	<i>Bobea myrtoides</i>	286	Proteaceae	<i>Gevuina bleasdalei</i>
43	Ochnaceae	<i>Brackenridgea australiana</i>	129	Rutaceae	<i>Halfordia scleroxyla</i>
44	Rutaceae	<i>Brombya platynema</i>	142	Icacinaceae	<i>Irvingbaileya australis</i>
55	Proteaceae	<i>Cardwellia sublimis</i>	315	Sapindaceae	<i>Mischarytera lauteriana</i>
313	Proteaceae	<i>Carnavonia araliifolia</i> var. <i>araliifolia</i>	272	Rutaceae	<i>Pitaviaster haplophyllus</i>
60	Oleaceae	<i>Chionanthus axillaris</i>	193	Grossulariaceae	<i>Polyosma alangiacea</i>
65	Sapindaceae	<i>Cnesmocarpon dasyantha</i>	197	Araliaceae	<i>Polyscias australiana</i>
69	Lauraceae	<i>Cryptocarya angulata</i>	199	Sapotaceae	<i>Pouteria brownlessiana</i>
70	Lauraceae	<i>Cryptocarya corrugata</i>	201	Sapotaceae	<i>Pouteria euphlebica</i>
71	Lauraceae	<i>Cryptocarya densiflora</i>	209	Cunoniaceae	<i>Pullea stutzeri</i>
73	Lauraceae	<i>Cryptocarya lividula</i>	211	Myrsinaceae	<i>Rapanea achradifolia</i>
74	Lauraceae	<i>Cryptocarya mackinnoniana</i>	215	Myrtaceae	<i>Rhodamnia blairiana</i>
76	Lauraceae	<i>Cryptocarya putida</i>	225	Sapindaceae	<i>Sarcotoechia lanceolata</i>
314	Lauraceae	<i>Cryptocarya cocosoides</i>	231	Elaeocarpaceae	<i>Sloanea langii</i>
80	Cyatheaceae	<i>Cyathea rebecca</i>	239	Moraceae	<i>Streblus glaber</i> var. <i>australianus</i>
82	Proteaceae	<i>Darlingia darlingiana</i>	281	Symplocaceae	<i>Symplocos cochinchinensis</i> var. <i>gittonsii</i>
91	Ebenaceae	<i>Diospyros</i> sp. (<i>Millaa Millaa</i> LWJ 515)	251	Myrtaceae	<i>Syzygium canicortex</i>
95	Euphorbiaceae	<i>Drypetes acuminata</i>	253	Myrtaceae	<i>Syzygium endophloium</i>
99	Elaeocarpaceae	<i>Elaeocarpus eumundi</i>	254	Myrtaceae	<i>Syzygium johnsonii</i>
100	Elaeocarpaceae	<i>Elaeocarpus foveolatus</i>	255	Myrtaceae	<i>Syzygium kuranda</i>
100	Elaeocarpaceae	<i>Elaeocarpus foveolatus</i>	257	Myrtaceae	<i>Syzygium papyraceum</i>
101	Elaeocarpaceae	<i>Elaeocarpus largiflorens</i> subsp. <i>largiflorens</i>	258	Myrtaceae	<i>Syzygium wesa</i>
278	Elaeocarpaceae	<i>Elaeocarpus sericopetalus</i>	266	Sapindaceae	<i>Toechima erythrocarpum</i>
107	Lauraceae	<i>Endiandra montana</i>	273	Unknown	Unknown Unknown
			271	Xanthophyllaceae	<i>Xanthophyllum octandrum</i>

SITE JP04 (PILOT STUDY SITE)


How to Get There

- The nearest landmark is the intersection of Culpa Road and the road to Tully Falls lookout.
- UTM Grid Coordinate: 55K 346544,
8033123
- A double taped tree on the eastern side of the Culpa Road marks the entrance to the track accessing this site at 346268, 8033315, six hundred metres south of the Tully Falls Road intersection.
- The first two flagged trees along the track are marked with pink tape. From the second tree, the access track to JP04 heads southeast and is marked with white tape.
- The track is quite long and crosses a shallow drainage line before heading up a gentle slope with a westerly aspect.
- The site is difficult to assess due to the large amount of *Calamus* present.

Site Description

- Altitude 760 metres.
- The site is located on a gently inclined hillslope on undulating low hills, with a north, northwesterly aspect.
- Forest Type 8 – Simple Notophyll Vine Forest (Tracey and Webb 1975).
- Regional Ecosystem 7.12.16 (Sattler and Williams 1999).
- Notes: A large plot that was initially set up as a pilot monitoring site. Evidence of previous logging activities, including snig tracks and marked trees.
- *Calamus* spp. is particularly abundant at this site.
- Canopy height to thirty metres.

Layout of 10m x 10m Plots for Site JP04

JP04 	A1 (99)	A2 (100)	A3 (101)	A4 (102)	A5 (103)	A6 (104)	A7 (105)	A8 (106)	A9 (107)	A10 (108)	
	B1 (109)	B2 (110)	B3 (111)	B4 (112)	B5 (113)	B6 (114)	B7 (115)	B8 (116)	B9 (117)	B10 (118)	
	C1 (119)	C2 (120)	C3 (121)	C4 (122)	C5 (123)	C6 (124)	C7 (125)	C8 (126)	C9 (127)	C10 (128)	
	D1 (129)	D2 (130)	D3 (131)	D4 (132)	D5 (133)	D6 (134)	D7 (135)	D8 (136)	D9 (137)	D10 (138)	
	E1 (139)	E2 (140)	E3 (141)	E4 (142)	E5 (143)	E6 (144)	E7 (145)	E8 (146)	E9 (147)	E10 (148)	
	F1 (149)	F2 (150)	F3 (151)	F4 (152)	F5 (153)	F6 (154)	F7 (155)	F8 (156)	F9 (157)	F10 (158)	
	G1 (159)	G2 (160)	G3 (161)	G4 (162)	G5 (163)	G6 (164)	G7 (165)	G8 (166)	G9 (167)	G10 (168)	
								H7 (169)	H8 (170)	H9 (171)	H10 (172)

- The star picket marking the site lies at the centre of Plot E5.

- Site specific plot numbers are given, followed by the unique plot code (bracketed) that is to be entered into the database.

Plant Species Recorded at Site JP04 (Pilot Study Site)

Species Number	Family	Species	Species Number	Family	Species
2	Mimosaceae	<i>Acacia celsa</i>	117	Sterculiaceae	<i>Franciscodendron laurifolium</i>
3	Elaeocarpaceae	<i>Aceratium concinnum</i>	121	Clusiaceae	<i>Garcinia</i> sp. (Davies Creek J.G. Tracey 14745)
5	Rutaceae	<i>Acronychia acronychioides</i>	123	Euphorbiaceae	<i>Glochidion harveyanum</i>
8	Rutaceae	<i>Acronychia vestita</i>	125	Lamiaceae	<i>Gmelina fasciculiflora</i>
11	Rhamnaceae	<i>Alphitonia whitei</i>	129	Rutaceae	<i>Halfordia scleroxyla</i>
13	Apocynaceae	<i>Alstonia muelleriana</i>	153	Proteaceae	<i>Lomatia fraxinifolia</i>
14	Euphorbiaceae	<i>Antidesma erostre</i>	157	Araliaceae	<i>Mackinlaya macrosciadea</i>
16	Rubiaceae	<i>Antirhea tenuiflora</i>	158	Euphorbiaceae	<i>Mallotus polyadenos</i>
17	Mimosaceae	<i>Archidendron grandiflorum</i>	167	Sapindaceae	<i>Mischocarpus lachnocarpus</i>
18	Mimosaceae	<i>Archidendron vaillantii</i>	168	Sapindaceae	<i>Mischocarpus macrocarpus</i>
26	Rubiaceae	<i>Atractocarpus fitzalanii</i> subsp. <i>tenuipes</i>	184	Myrtaceae	<i>Pilidiostigmaropicum</i>
186	Pittosporaceae	<i>Auranticarpa papyracea</i>	197	Araliaceae	<i>Polyscias australiana</i>
31	Myrtaceae	<i>Austromyrtus minutiflora</i>	199	Sapotaceae	<i>Pouteria brownlessiana</i>
36	Lauraceae	<i>Beilschmiedia bancroftii</i>	204	Rosaceae	<i>Prunus turneriana</i>
38	Lauraceae	<i>Beilschmiedia collina</i>	209	Cunoniaceae	<i>Pullea stutzeri</i>
42	Rubiaceae	<i>Bobea myrtoides</i>	211	Myrsinaceae	<i>Rapanea achradifolia</i>
43	Ochnaceae	<i>Brackenridgea australiana</i>	215	Myrtaceae	<i>Rhodamnia blairiana</i>
46	Proteaceae	<i>Buckinghamia celsissima</i>	216	Myrtaceae	<i>Rhodamnia sessiliflora</i>
52	Burseraceae	<i>Canarium muelleri</i>	219	Myrtaceae	<i>Rhodomyrtus pervagata</i>
55	Proteaceae	<i>Cardwellia sublimis</i>	224	Sapindaceae	<i>Sarcotoechia cuneata</i>
68	Euphorbiaceae	<i>Croton triacros</i>	225	Sapindaceae	<i>Sarcotoechia lanceolata</i>
74	Lauraceae	<i>Cryptocarya mackinnoniana</i>	231	Elaeocarpaceae	<i>Sloanea langii</i>
76	Lauraceae	<i>Cryptocarya putida</i>	238	Proteaceae	<i>Stenocarpus sinuatus</i>
82	Proteaceae	<i>Darlingia darlingiana</i>	203	Podocarpaceae	<i>Sundacarpus amarus</i>
83	Davidsoniaceae	<i>Davidsonia pruriens</i>	240	Symplocaceae	<i>Symplocos cochinchinensis</i> var. <i>pilosiuscula</i>
84	Myrtaceae	<i>Decaspermum humile</i>	243	Symplocaceae	<i>Symplocos cochinchinensis</i> var. <i>glaberrima</i>
96	Meliaceae	<i>Dysoxylum oppositifolium</i>	252	Myrtaceae	<i>Syzygium cormiflorum</i>
99	Elaeocarpaceae	<i>Elaeocarpus eumundi</i>	253	Myrtaceae	<i>Syzygium endophloium</i>
100	Elaeocarpaceae	<i>Elaeocarpus foveolatus</i>	254	Myrtaceae	<i>Syzygium johnsonii</i>
101	Elaeocarpaceae	<i>Elaeocarpus largiflorens</i> subsp. <i>largiflorens</i>	255	Myrtaceae	<i>Syzygium kuranda</i>
278	Elaeocarpaceae	<i>Elaeocarpus sericopetalus</i>	256	Myrtaceae	<i>Syzygium luehmannii</i>
104	Lauraceae	<i>Endiandra dielsiana</i>	257	Myrtaceae	<i>Syzygium papyraceum</i>
113	Moraceae	<i>Ficus watkinsiana</i>	273	Unknown	Unknown Unknown
115	Rutaceae	<i>Flindersia bourjotiana</i>	268	Myrtaceae	<i>Waterhousea unipunctata</i>
116	Rutaceae	<i>Flindersia pimenteliana</i>	271	Xanthophyllaceae	<i>Xanthophyllum octandrum</i>

SITE PO03

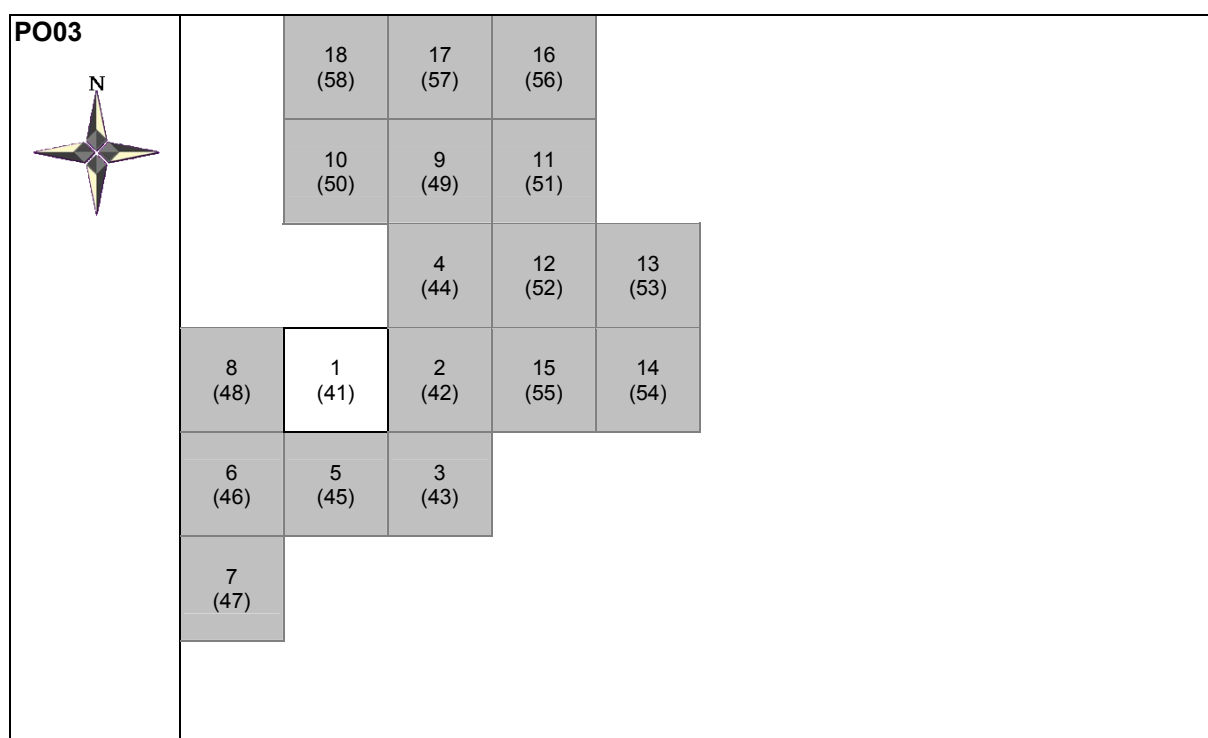
How to Get There

- The nearest landmark is Tully Falls.
- UTM Grid Coordinate: 55K 346893,
8033443
- Park at the National Park sign on the north side of the Tully Falls Road and walk west along the road for fifty metres.
- A double-taped tree on the south side of the road marks the entrance to the track accessing this site. Head downhill and cross a shallow creek, following the pink flags.
- The monitoring site is located downstream, on the south bank of the creek.
- The site is difficult to assess due to the large amount of *Calamus* and *Dendrocnide* present.

Site Description

- Altitude 760 metres.
- This site is on a moderately inclined slope on low rolling hills, with a northerly aspect.
- Forest Type 8 – Simple Notophyll Vine Forest (Tracey and Webb 1975).
- Regional Ecosystem 7.12.16 (Sattler and Williams 1999).
- Notes: Stinging trees and *Calamus* are abundant at this site.
- Prominent canopy species include *Cardwellia sublimis*, *Flindersia bourjotiana* and *Gillbeea adenopetala*.
- The very large, unhealthy tree located at the centre of the site is *Endiandra palmerstonii*.

Layout of 10m x 10m Plots for Site PO03



- The star picket marking the site lies at the centre of Plot 1.
- Site specific plot numbers are given, followed by the unique plot code (bracketed) that is to be entered into the database.

Plant Species Recorded at Site PO03

Species Number	Family	Species	Species Number	Family	Species
8	Rutaceae	<i>Acronychia vestita</i>	296	Moraceae	<i>Ficus leptoclada</i>
291	Alangiaceae	<i>Alangium villosum</i> subsp. <i>polyosmoides</i>	114	Rutaceae	<i>Flindersia acuminata</i>
11	Rhamnaceae	<i>Alphitonia whitei</i>	115	Rutaceae	<i>Flindersia bourjotiana</i>
14	Euphorbiaceae	<i>Antidesma erostre</i>	117	Sterculiaceae	<i>Franciscodendron laurifolium</i>
16	Rubiaceae	<i>Antirhea tenuiflora</i>	297	Cunoniaceae	<i>Gillbeea adenopetala</i>
292	Sterculiaceae	<i>Argyrodendron peralatum</i>	125	Lamiaceae	<i>Gmelina fasciculiflora</i>
26	Rubiaceae	<i>Atractocarpus fitzalanii</i> subsp. <i>tenuipes</i>	129	Rutaceae	<i>Halfordia scleroxyla</i>
30	Myrtaceae	<i>Austromyrtus dallachiana</i>	138	Proteaceae	<i>Helicia nortoniana</i>
40	Lauraceae	<i>Beilschmiedia tooram</i>	153	Proteaceae	<i>Lomatia fraxinifolia</i>
36	Lauraceae	<i>Beilschmiedia bancroftii</i>	155	Euphorbiaceae	<i>Macaranga inamoena</i>
44	Rutaceae	<i>Brombya platynema</i>	158	Euphorbiaceae	<i>Mallotus polyadenos</i>
303	Cunoniaceae	<i>Caldcluvia australiensis</i>	280	Rutaceae	<i>Melicope vitiflora</i>
55	Proteaceae	<i>Cardwellia sublimis</i>	300	Rutaceae	<i>Melicope xanthoxyloides</i>
57	Flacourtiaceae	<i>Casearia costulata</i>	166	Sapindaceae	<i>Mischocarpus grandissimus</i>
285	Icacinaceae	<i>Citronella smythii</i>	168	Sapindaceae	<i>Mischocarpus macrocarpus</i>
65	Sapindaceae	<i>Cnesmocarpon dasyantha</i>	301	Myristicaceae	<i>Myristica insipida</i>
67	Corynocarpaceae	<i>Corynocarpus cribbianus</i>	289	Proteaceae	<i>Opisthiolepis heterophylla</i>
69	Lauraceae	<i>Cryptocarya angulata</i>	197	Araliaceae	<i>Polyscias australiana</i>
71	Lauraceae	<i>Cryptocarya densiflora</i>	199	Sapotaceae	<i>Pouteria brownlessiana</i>
74	Lauraceae	<i>Cryptocarya mackinnoniana</i>	204	Rosaceae	<i>Prunus turneriana</i>
75	Lauraceae	<i>Cryptocarya murrayi</i>	209	Cunoniaceae	<i>Pullea stutzeri</i>
82	Proteaceae	<i>Darlingia darlingiana</i>	216	Myrtaceae	<i>Rhodamnia sessiliflora</i>
83	Davidsoniaceae	<i>Davidsonia pruriens</i>	217	Myrtaceae	<i>Rhodamnia spongiosa</i>
290	Monimiaceae	<i>Doryphora aromatica</i>	232	Elaeocarpaceae	<i>Sloanea macbrydei</i>
96	Meliaceae	<i>Dysoxylum oppositifolium</i>	230	Elaeocarpaceae	<i>Sloanea australis</i> subsp. <i>parviflora</i>
101	Elaeocarpaceae	<i>Elaeocarpus largiflorens</i> subsp. <i>largiflorens</i>	231	Elaeocarpaceae	<i>Sloanea langii</i>
102	Elaeocarpaceae	<i>Elaeocarpus</i> sp. (Mt Bellenden Ker L.J. Brass 18336)	254	Myrtaceae	<i>Syzygium johnsonii</i>
299	Lauraceae	<i>Endiandra bessaphila</i>	257	Myrtaceae	<i>Syzygium papyraceum</i>
298	Lauraceae	<i>Endiandra monothyra</i> subsp. <i>monothyra</i>	293	Monimiaceae	<i>Tetrasynandra laxiflora</i>
107	Lauraceae	<i>Endiandra montana</i>	266	Sapindaceae	<i>Toechima erythrocarpum</i>
108	Lauraceae	<i>Endiandra palmerstonii</i>	273	Unknown	Unknown Unknown
304	Lauraceae	<i>Endiandra sankeyana</i>	271	Xanthophyllaceae	<i>Xanthophyllum octandrum</i>

SITE PO05

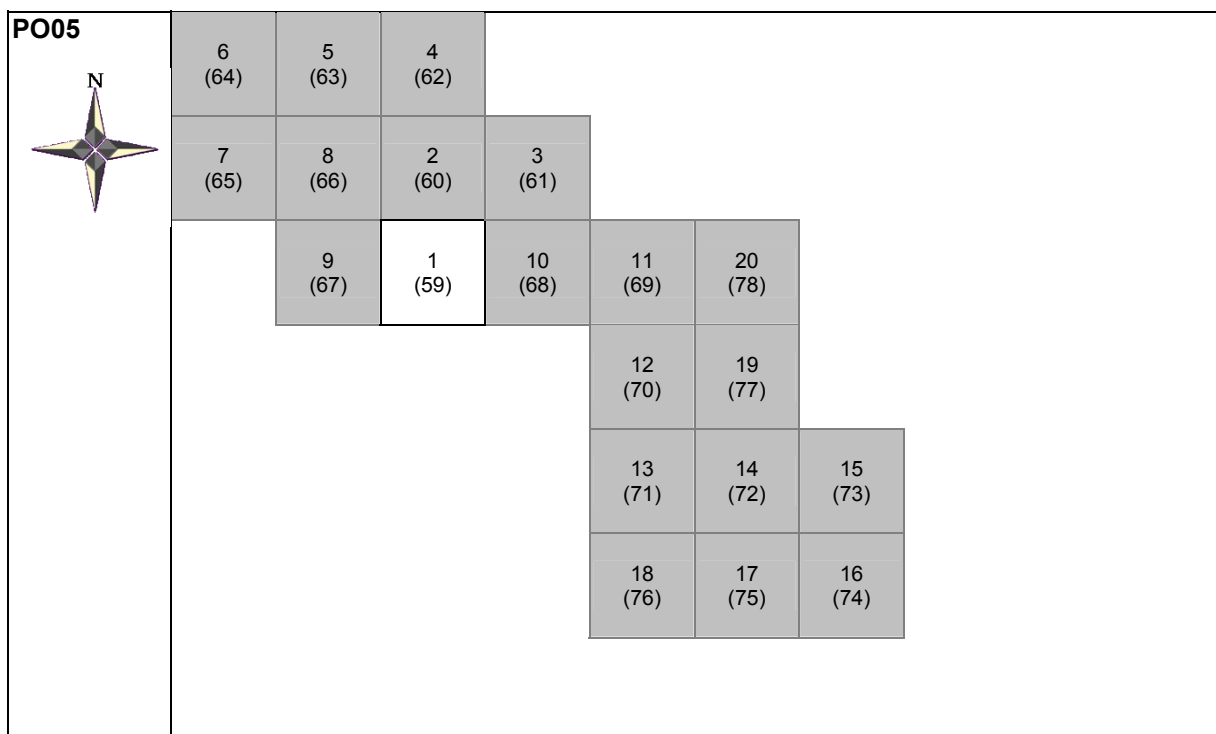
How to Get There

- The nearest landmark is the Culpa Road bridge over the Tully River.
- UTM Grid Coordinate: 55K 354499,
8018695
- The well-flagged track to this site leads off from the Culpa Road at 3544497, 8018428 (approximately one kilometre north of the Tully River bridge).
- The track heads at 353°, crossing a drainage line, and enters the monitoring plot at the top of the drainage line bank. The centre point of the monitoring plot is roughly forty metres further.
- In June 2004, a young adult cassowary frequented this site.
- The wood-rotting fungus, 'white death', is common at this site.

Site Description

- Altitude 780 metres.
- This site lies on a hillcrest on gently undulating rises, with a southeasterly aspect.
- Canopy height to thirty metres.
- Forest Type 8 – Simple Notophyll Vine Forest (Tracey and Webb 1975).
- Regional Ecosystem 7.12.16 (Sattler and Williams 1999).
- There was no evidence of anthropogenic disturbance at this site.
- *Cyathea rebecca* and ground ferns are prominent in the understorey.
- Prominent canopy species include *Elaeocarpus sericopetalus*, *Flindersia bourjotiana* and *Cardwellia sublimis*.

Layout of 10m x 10m Plots for Site PO05



- The star picket marking the site lies at the centre of Plot 1.
- Site specific plot numbers are given, followed by the unique plot code (bracketed) that is to be entered into the database.

Plant Species Recorded at Site PO05

Species Number	Family	Species	Species Number	Family	Species
4	Myrtaceae	<i>Acmena resa</i>	129	Rutaceae	<i>Halfordia scleroxyla</i>
5	Rutaceae	<i>Acronychia acronychioides</i>	142	Icacinaceae	<i>Irvingbaileya australis</i>
11	Rhamnaceae	<i>Alphitonia whitei</i>	151	Lauraceae	<i>Litsea connorsii</i>
15	Rubiaceae	<i>Antirhea</i> sp. (Mt Lewis BG 5733)	159	Annonaceae	<i>Meiogyne</i> sp. (Mt Lewis L.W. Jessup 554)
274	Icacinaceae	<i>Apodytes brachystylis</i>	193	Grossulariaceae	<i>Polyosma alangiacea</i>
26	Rubiaceae	<i>Atractocarpus fitzalanii</i> subsp. <i>tenuipes</i>	279	Sapotaceae	<i>Pouteria papyracea</i>
38	Lauraceae	<i>Beilschmiedia collina</i>	199	Sapotaceae	<i>Pouteria brownlessiana</i>
39	Lauraceae	<i>Beilschmiedia recurva</i>	201	Sapotaceae	<i>Pouteria euphlebica</i>
42	Rubiaceae	<i>Bobea myrtoides</i>	211	Myrsinaceae	<i>Rapanea achradifolia</i>
43	Ochnaceae	<i>Brackenridgea australiana</i>	215	Myrtaceae	<i>Rhodamnia blairiana</i>
55	Proteaceae	<i>Cardwellia sublimis</i>	235	Aquifoliaceae	<i>Sphenostemon lobosporus</i>
313	Proteaceae	<i>Carnavonia araliifolia</i> var. <i>araliifolia</i>	281	Symplocaceae	<i>Symplocos cochinchinensis</i> var. <i>gittonsii</i>
69	Lauraceae	<i>Cryptocarya angulata</i>	247	Myrtaceae	<i>Syzygium apodophyllum</i>
71	Lauraceae	<i>Cryptocarya densiflora</i>	253	Myrtaceae	<i>Syzygium endophloium</i>
72	Lauraceae	<i>Cryptocarya leucophylla</i>	254	Myrtaceae	<i>Syzygium johnsonii</i>
73	Lauraceae	<i>Cryptocarya lividula</i>	255	Myrtaceae	<i>Syzygium kuranda</i>
76	Lauraceae	<i>Cryptocarya putida</i>	256	Myrtaceae	<i>Syzygium luehmannii</i>
82	Proteaceae	<i>Darlingia darlingiana</i>	258	Myrtaceae	<i>Syzygium wesa</i>
100	Elaeocarpaceae	<i>Elaeocarpus foveolatus</i>	273	Unknown	<i>Unknown Unknown</i>
278	Elaeocarpaceae	<i>Elaeocarpus sericopetalus</i>	268	Myrtaceae	<i>Waterhousea unipunctata</i>
275	Lauraceae	<i>Endiandra dichrophylla</i>	271	Xanthophyllaceae	<i>Xanthophyllum octandrum</i>
115	Rutaceae	<i>Flindersia bourjotiana</i>			

SITE PO06

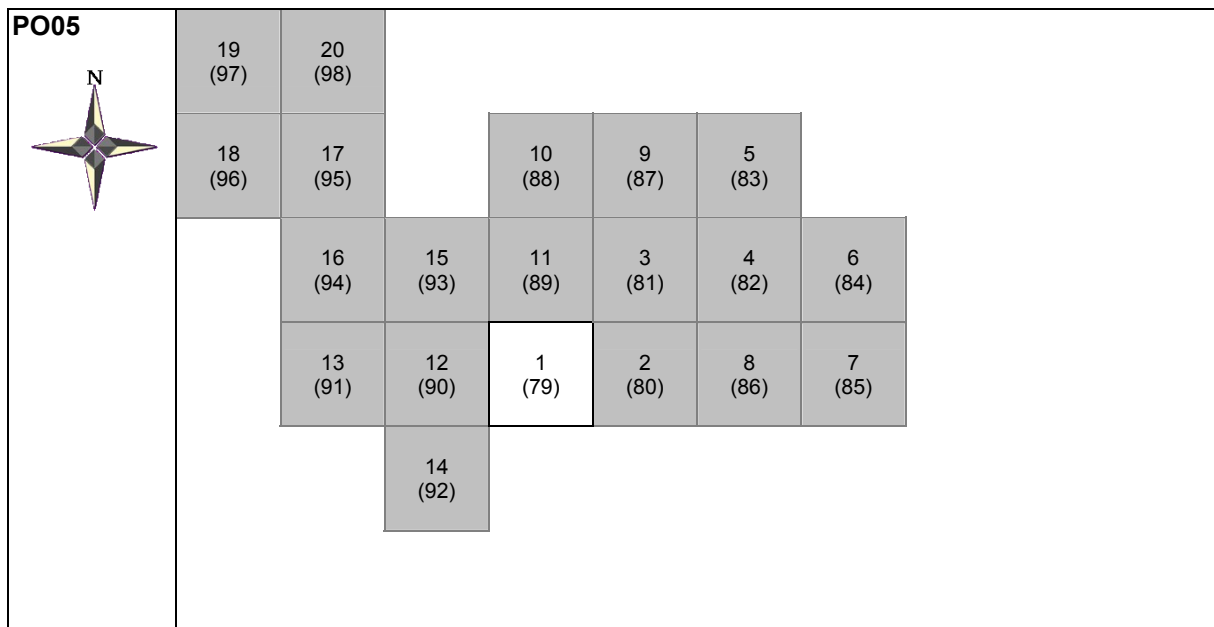
How to Get There

- The nearest landmark is the Tully River bridge on the Culpa Road.
- UTM Grid Coordinate: 55K 3542255,
8018250
- A moderately well flagged track heads west from the road at 3544497, 8018428, passing a large tree that is close to the road. It crosses a small creek (always with water) and heads gently upslope at approximately 220°.
- The track was remarked in June 2004 with pink flagging tape.
- In June 2004, a young adult cassowary frequented this site, the same as that observed at site PO05.

Site Description

- Altitude 800 metres.
- Located on a gently inclined slope on undulating low hills, with a northeasterly aspect.
- Forest Type 8 – Simple Notophyll Vine Forest (Tracey and Webb 1975).
- Regional Ecosystem 7.12.16 (Sattler and Williams 1999).
- There was no evidence of anthropogenic disturbance at this site.
- Canopy height to twenty metres.
- Prominent canopy species include *Halfordia scleroxyla*, *Flindersia bourjotiana* and *Syzygium kuranda*.

Layout of 10m x 10m Plots for Site PO06



- The star picket marking the site lies at the centre of Plot 1.
- Site specific plot numbers are given, followed by the unique plot code (bracketed) that is to be entered into the database.

Plant Species Recorded at Site PO06

Species Number	Family	Species	Species Number	Family	Species
5	Rutaceae	<i>Acronychia acronychioides</i>	107	Lauraceae	<i>Endiandra montana</i>
11	Rhamnaceae	<i>Alphitonia whitei</i>	109	Lauraceae	<i>Endiandra wolfei</i>
14	Euphorbiaceae	<i>Antidesma erostre</i>	115	Rutaceae	<i>Flindersia bourjotiana</i>
15	Rubiaceae	<i>Antirhea</i> sp. (Mt Lewis BG 5733)	284	Rutaceae	<i>Flindersia brayleyana</i>
274	Icacinaeae	<i>Apodytes brachystylis</i>	116	Rutaceae	<i>Flindersia pimenteliana</i>
17	Mimosaceae	<i>Archidendron grandiflorum</i>	121	Clusiaceae	<i>Garcinia</i> sp. (Davies Creek J.G. Tracey 14745)
26	Rubiaceae	<i>Atractocarpus fitzalanii</i> subsp. <i>tenuipes</i>	129	Rutaceae	<i>Halfordia scleroxyla</i>
282	Myrtaceae	<i>Austromyrtus</i> sp. (Gillies BG 1484)	142	Icacinaeae	<i>Irvingbaileya australis</i>
36	Lauraceae	<i>Beilschmiedia bancroftii</i>	151	Lauraceae	<i>Litsea connorsii</i>
38	Lauraceae	<i>Beilschmiedia collina</i>	153	Proteaceae	<i>Lomatia fraxinifolia</i>
42	Rubiaceae	<i>Bobea myrtoides</i>	280	Rutaceae	<i>Melicope vitiflora</i>
43	Ochnaceae	<i>Brackenridgea australiana</i>	277	Sapotaceae	<i>Niemeyera prunifera</i>
44	Rutaceae	<i>Brombya platynema</i>	272	Rutaceae	<i>Pitaviaster haplophyllus</i>
276	Winteraceae	<i>Bubbia semecarpoides</i>	193	Grossulariaceae	<i>Polyosma alangiacea</i>
55	Proteaceae	<i>Cardwellia sublimis</i>	197	Araliaceae	<i>Polyscias australiana</i>
60	Oleaceae	<i>Chionanthus axillaris</i>	279	Sapotaceae	<i>Pouteria papyracea</i>
69	Lauraceae	<i>Cryptocarya angulata</i>	201	Sapotaceae	<i>Pouteria euphlebia</i>
71	Lauraceae	<i>Cryptocarya densiflora</i>	211	Myrsinaceae	<i>Rapanea achradifolia</i>
72	Lauraceae	<i>Cryptocarya leucophylla</i>	213	Myrsinaceae	<i>Rapanea subsessilis</i> subsp. (Gordonvale S.T. Blake 9734)
73	Lauraceae	<i>Cryptocarya lividula</i>	215	Myrtaceae	<i>Rhodamnia blairiana</i>
76	Lauraceae	<i>Cryptocarya putida</i>	225	Sapindaceae	<i>Sarcotoechia lanceolata</i>
80	Cyatheaceae	<i>Cyathea rebecca</i>	235	Aquifoliaceae	<i>Sphenostemon lobosporus</i>
82	Proteaceae	<i>Darlingia darlingiana</i>	281	Symplocaceae	<i>Symplocos cochinchinensis</i> var. <i>gittonsii</i>
91	Ebenaceae	<i>Diospyros</i> sp. (<i>Millaa Millaa</i> LWJ 515)	253	Myrtaceae	<i>Syzygium endophloium</i>
283	Meliaceae	<i>Dysoxylum klanderi</i>	255	Myrtaceae	<i>Syzygium kuranda</i>
99	Elaeocarpaceae	<i>Elaeocarpus eumundi</i>	258	Myrtaceae	<i>Syzygium wesa</i>
278	Elaeocarpaceae	<i>Elaeocarpus sericopetalus</i>	273	Unknown	<i>Unknown Unknown</i>
275	Lauraceae	<i>Endiandra dichrophylla</i>	271	Xanthophyllaceae	<i>Xanthophyllum octandrum</i>

SITES ON KAURI CREEK ROAD

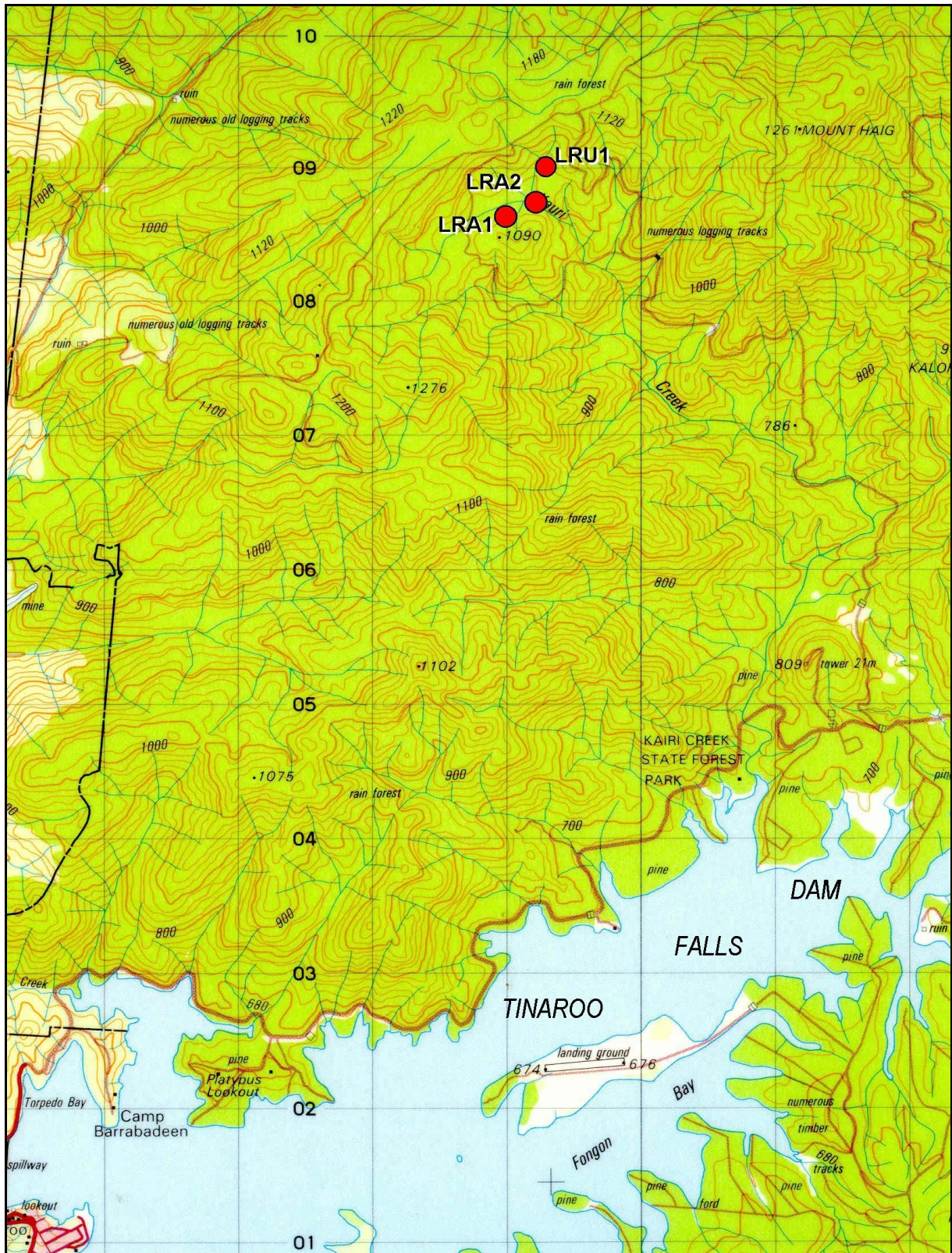


Figure 9: Location of monitoring sites (red dots) on Kauri Creek Road, in the upper reaches of Kauri Creek, Lamb Range. Map source: Royal Australian Survey Corps (1986): Tinaroo 1:50,000. Series R733, Sheet 8063-4, Edition 1AAS.

SITE LRU1


How to Get There

- The nearest landmark is Kauri Creek Road.
- UTM Grid Coordinate: 55K 349275,
8019050
- Follow Kauri Creek Road north from Lake Tinaroo to an intersection with an abandoned forestry track at 349550, 8109425. Continue six hundred metres beyond this point and park.
- On the southern side of the road, another abandoned forestry track joins Kauri Creek Road (this is shown on the Tinaroo 1:50,000 mapsheet, but the intersection is quite obscure and overgrown on the ground).
- A pink and orange flagged track heads straight downhill from this point, following a shallow gully.
- At the bottom of the hill, cross a very shallow, but somewhat muddy, trickling stream.
- The central point of this monitoring site is located on the southern banks of this stream.
- Stinging trees are present in this site.

Site Description

- Altitude 1,020 metres.
- Located on creek flats along the base of a deep gully.
- Landscape consists of high rolling hills with moderate incline through to steep slopes.
- Creek flows in an easterly direction.
- Forest Type 8 – Simple Notophyll Vine Forest (Tracey and Webb 1975).
- Regional Ecosystem 7.12.16 (Sattler and Williams 1999).
- Notes: Evidence of disease abundant and conspicuous.
- Little evidence of logging in immediate vicinity.
- Ground ferns and shrubs prominent in understorey. Weeds (*Rubus alceifolius*) present.
- Canopy height to thirty metres.

Layout of 10m x 10m Plots for Site LRU1

LRU1 		18 (220)		
		17 (229)	19 (231)	14 (226)
	16 (228)	15 (227)	20 (232)	4 (216)
	13 (225)	6 (218)	5 (217)	3 (215)
	11 (223)	10 (222)	1 (213)	2 (214)
	12 (224)	8 (220)	7 (219)	
		9 (221)		

- The star picket marking the site lies at the centre of Plot 1.

- Site specific plot numbers are given, followed by the unique plot code (bracketed) that is to be entered into the database.

Plant Species Recorded at Site LRU1

Species Number	Family	Species	Species Number	Family	Species
302	Euphorbiaceae	<i>Aleurites rockinghamensis</i>	116	Rutaceae	<i>Flindersia pimenteliana</i>
428	Rhamnaceae	<i>Alphitonia petriei</i>	117	Sterculiaceae	<i>Franciscodendron laurifolium</i>
14	Euphorbiaceae	<i>Antidesma erostre</i>	297	Cunoniaceae	<i>Gillbeea adenopetala</i>
274	Icacinaceae	<i>Apodytes brachystylis</i>	312	Euphorbiaceae	<i>Glochidion hylandii</i>
18	Mimosaceae	<i>Archidendron vaillantii</i>	129	Rutaceae	<i>Halfordia scleroxyla</i>
23	Sapindaceae	<i>Arytera pauciflora</i>	373	Euphorbiaceae	<i>Hylandia dockrillii</i>
33	Myrtaceae	<i>Austromyrtus</i> sp. (<i>Danbulla</i> L.S. Smith 10123)	142	Icacinaceae	<i>Irvingbaileya australis</i>
39	Lauraceae	<i>Beilschmiedia recurva</i>	161	Rutaceae	<i>Melicope elleryana</i>
40	Lauraceae	<i>Beilschmiedia tooram</i>	280	Rutaceae	<i>Melicope vitiflora</i>
43	Ochnaceae	<i>Brackenridgea australiana</i>	173	Lauraceae	<i>Neolitsea dealbata</i>
276	Winteraceae	<i>Bubbia semecarpoides</i>	289	Proteaceae	<i>Opisthiolepis heterophylla</i>
426	Burseraceae	<i>Canarium australasicum</i>	176	Arecaceae	<i>Oraniopsis appendiculata</i>
61	Lauraceae	<i>Cinnamomum laubatii</i>	193	Grossulariaceae	<i>Polyosma alangiacea</i>
285	Icacinaceae	<i>Citronella smythii</i>	194	Grossulariaceae	<i>Polyosma hirsuta</i>
336	Lauraceae	<i>Cryptocarya grandis</i>	195	Grossulariaceae	<i>Polyosma rhytophloia</i>
69	Lauraceae	<i>Cryptocarya angulata</i>	403	Araliaceae	<i>Polyscias murrayi</i>
70	Lauraceae	<i>Cryptocarya corrugata</i>	279	Sapotaceae	<i>Pouteria papyracea</i>
79	Sapindaceae	<i>Cupaniopsis flagelliformis</i> var. <i>flagelliformis</i>	204	Rosaceae	<i>Prunus turneriana</i>
429	Cyatheaceae	<i>Cyathea cooperi</i>	209	Cunoniaceae	<i>Pullea stutzeri</i>
80	Cyatheaceae	<i>Cyathea rebecca</i>	219	Myrtaceae	<i>Rhodomyrtus pervagata</i>
427	Monimiaceae	<i>Daphnandra repandula</i>	430	Actinidiaceae	<i>Saurauia andreana</i>
433	Urticaceae	<i>Dendrocnide moroides</i>	230	Elaeocarpaceae	<i>Sloanea australis</i> subsp. <i>parviflora</i>
290	Monimiaceae	<i>Doryphora aromatica</i>	281	Symplocaceae	<i>Symplocos cochinchinensis</i> var. <i>gittonsii</i>
100	Elaeocarpaceae	<i>Elaeocarpus foveolatus</i>	240	Symplocaceae	<i>Symplocos cochinchinensis</i> var. <i>pilosiuscula</i>
101	Elaeocarpaceae	<i>Elaeocarpus largiflorens</i> subsp. <i>largiflorens</i>	425	Myrtaceae	<i>Syzygium alatoramulum</i>
308	Elaeocarpaceae	<i>Elaeocarpus ruminatus</i>	421	Myrtaceae	<i>Syzygium trachyphloium</i>
102	Elaeocarpaceae	<i>Elaeocarpus</i> sp. (<i>Mt Bellenden Ker</i> L.J. Brass 18336)	253	Myrtaceae	<i>Syzygium endophloium</i>
299	Lauraceae	<i>Endiandra bessaphila</i>	254	Myrtaceae	<i>Syzygium johnsonii</i>
298	Lauraceae	<i>Endiandra monothyra</i> subsp. <i>monothyra</i>	257	Myrtaceae	<i>Syzygium papyraceum</i>
296	Moraceae	<i>Ficus leptoclada</i>	434	Myrtaceae	<i>Thaleroxia queenslandica</i>
432	Moraceae	<i>Ficus pleurocarpa</i>	431	Rutaceae	<i>Zanthoxylum veneficum</i>

SITE LRA1

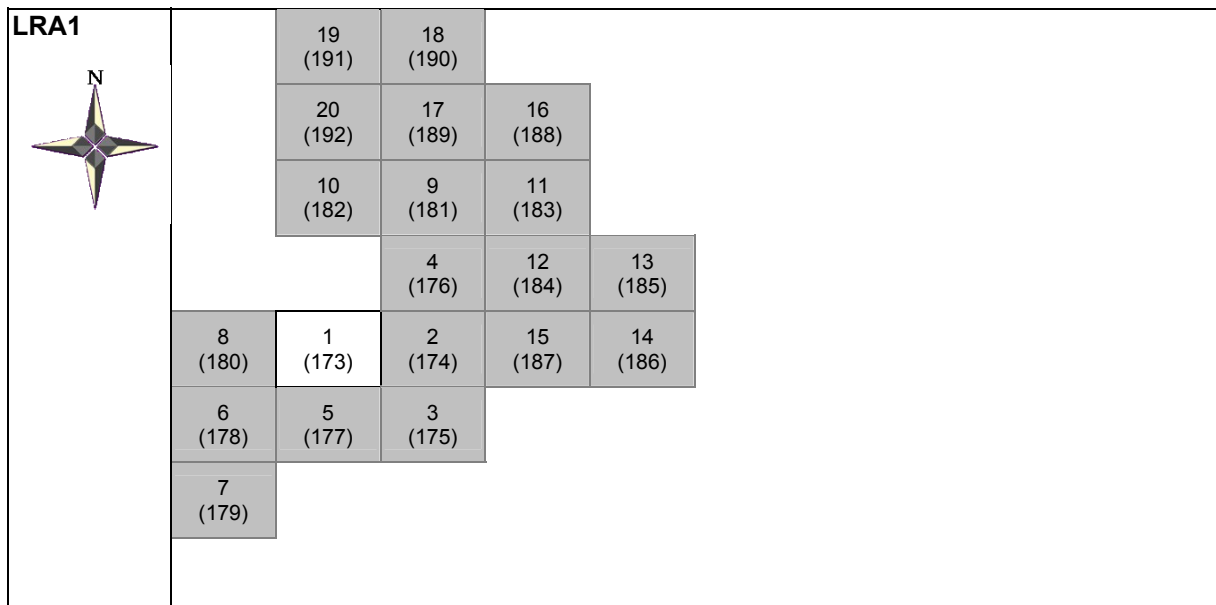
How to Get There

- The nearest landmark is Kauri Creek Road.
- UTM Grid Coordinate: 55K 348975,
8108700
- Continue downstream from monitoring site LRU1.
- An abandoned, overgrown forestry road crosses this stream immediately before it joins with Kauri Creek proper.
- From the junction, follow Kauri Creek upstream for approximately one to two hundred metres. The monitoring site is on the left bank, in a muddy, swampy, flat area.

Site Description

- Altitude 1,020 metres.
- Located on creek flats along the base of a deep gully.
- Landscape consists of high rolling hills with moderately inclined to steep slopes.
- Creek flows in an easterly direction.
- Forest Type 8 – Simple Notophyll Vine Forest (Tracey and Webb 1975).
- Regional Ecosystem 7.12.16 (Sattler and Williams 1999).
- Notes: Evidence of disease abundant and conspicuous.
- Little evidence of logging in the immediate vicinity.
- Ground ferns and shrubs prominent in understorey.
- Weeds (*Rubus alceifolius*) and some stinging trees present.
- Canopy height to thirty metres.

Layout of 10m x 10m Plots for Site LRA1



- The star picket marking the site lies at the centre of Plot 1.

- Site specific plot numbers are given, followed by the unique plot code (bracketed) that is to be entered into the database.

Plant Species Recorded at Site LRA1

Species Number	Family	Species	Species Number	Family	Species
235	Aquifoliaceae	<i>Sphenostemon lobosporus</i>	304	Lauraceae	<i>Endiandra sankeyana</i>
197	Araliaceae	<i>Polyscias australiana</i>	419	Meliaceae	<i>Synoum muelleri</i>
403	Araliaceae	<i>Polyscias murrayi</i>	290	Monimiaceae	<i>Doryphora aromatica</i>
176	Arecaceae	<i>Oraniopsis appendiculata</i>	437	Monimiaceae	<i>Levieria acuminata</i>
141	Celastraceae	<i>Hypsophila dielsiana</i>	293	Monimiaceae	<i>Tetrasynandra laxiflora</i>
303	Cunoniaceae	<i>Caldcluvia australiensis</i>	296	Moraceae	<i>Ficus leptoclada</i>
59	Cunoniaceae	<i>Ceratopetalum succirubrum</i>	432	Moraceae	<i>Ficus pleurocarpa</i>
297	Cunoniaceae	<i>Gillbeea adenopetala</i>	4	Myrtaceae	<i>Acmena resa</i>
80	Cyatheaceae	<i>Cyathea rebecca</i>	33	Myrtaceae	<i>Austromyrtus</i> sp. (<i>Danbulla</i> L.S. Smith 10123)
100	Elaeocarpaceae	<i>Elaeocarpus foveolatus</i>	425	Myrtaceae	<i>Syzygium alatoramulum</i>
102	Elaeocarpaceae	<i>Elaeocarpus</i> sp. (<i>Mt Bellenden Ker</i> L.J. Brass 18336)	421	Myrtaceae	<i>Syzygium trachyphloium</i>
230	Elaeocarpaceae	<i>Sloanea australis</i> subsp. <i>parviflora</i>	434	Myrtaceae	<i>Thaleropia queenslandica</i>
232	Elaeocarpaceae	<i>Sloanea macbrydei</i>	60	Oleaceae	<i>Chionanthus axillaris</i>
373	Euphorbiaceae	<i>Hylandia dockrillii</i>	55	Proteaceae	<i>Cardwellia sublimis</i>
194	Grossulariaceae	<i>Polyosma hirsuta</i>	390	Proteaceae	<i>Musgravea stenostachya</i>
195	Grossulariaceae	<i>Polyosma rhytophloia</i>	188	Proteaceae	<i>Placospermum coriaceum</i>
285	Icacinaceae	<i>Citronella smythii</i>	129	Rutaceae	<i>Halfordia scleroxyla</i>
142	Icacinaceae	<i>Irvingbaileya australis</i>	161	Rutaceae	<i>Melicope elleryana</i>
39	Lauraceae	<i>Beilschmiedia recurva</i>	280	Rutaceae	<i>Melicope vitiflora</i>
40	Lauraceae	<i>Beilschmiedia tooram</i>	79	Sapindaceae	<i>Cupaniopsis flagelliformis</i> var. <i>flagelliformis</i>
61	Lauraceae	<i>Cinnamomum laubatii</i>	315	Sapindaceae	<i>Mischarytera lauteriana</i>
438	Lauraceae	<i>Cryptocarya melanocarpa</i>	279	Sapotaceae	<i>Pouteria papyracea</i>
69	Lauraceae	<i>Cryptocarya angulata</i>	439	Solanaceae	<i>Solanum torvum</i>
70	Lauraceae	<i>Cryptocarya corrugata</i>	117	Sterculiaceae	<i>Franciscodendron laurifolium</i>
72	Lauraceae	<i>Cryptocarya leucophylla</i>	240	Symplocaceae	<i>Symplocos cochinchinensis</i> var. <i>pilosiuscula</i>
299	Lauraceae	<i>Endiandra bessaphila</i>	273	Unknown	Unknown
298	Lauraceae	<i>Endiandra monothyra</i> subsp. <i>monothyra</i>			

SITE LRA2


How to Get There

- The nearest landmark is Kauri Creek Road.
- UTM Grid Coordinate: 55K 349152,
8108902
- Continue downstream from monitoring site LRU1.
- An abandoned, overgrown forestry road crosses this stream immediately before it joins with Kauri Creek proper.
- Site LRA2 is located on the southern banks of the stream confluence, between the stream and the forestry road.

Site Description

- Altitude 1,020 metres.
- Creek flat at junction of two streams.
- Landscape consists of high rolling hills with moderately inclined to steep slopes.
- Creek flows in a southerly direction.
- Forest Type 8 – Simple Notophyll Vine Forest (Tracey and Webb 1975).
- Regional Ecosystem 7.12.16 (Sattler and Williams 1999).
- Notes: Abundant evidence of logging, including snig tracks and culvert across the creek.
- Evidence of severe disease.
- Slender lianes, ground ferns and epiphytes are prominent.
- Canopy height to 25 metres.
- Prominent canopy species include *Alphitonia petriei* and *Polyscias murrayi*.

Layout of 10m x 10m Plots for Site LRA2

LRA2 	19 (211)	20 (212)	14 (206)	16 (208)	
	18 (210)	17 (209)	15 (207)	8 (200)	9 (201)
		4 (196)	3 (195)	2 (194)	10 (202)
		5 (197)	7 (199)	1 (193)	13 (205)
		6 (198)	11 (203)	12 (204)	

- The star picket marking the site lies at the centre of Plot 1.

- Site specific plot numbers are given, followed by the unique plot code (bracketed) that is to be entered into the database.

Plant Species Recorded at Site LRA2

Species Number	Family	Species	Species Number	Family	Species
2	Mimosaceae	<i>Acacia celsa</i>	312	Euphorbiaceae	<i>Glochidion hylandii</i>
441	Proteaceae	<i>Alloxylon wickhamii</i>	129	Rutaceae	<i>Halfordia scleroxyla</i>
428	Rhamnaceae	<i>Alphitonia petriei</i>	372	Proteaceae	<i>Helicia recurva</i>
440	Myrtaceae	<i>Archirhodomyrtus beckleri</i>	373	Euphorbiaceae	<i>Hylandia dockrillii</i>
40	Lauraceae	<i>Beilschmiedia tooram</i>	153	Proteaceae	<i>Lomatia fraxinifolia</i>
303	Cunoniaceae	<i>Caldcluvia australiensis</i>	161	Rutaceae	<i>Melicope elleryana</i>
55	Proteaceae	<i>Cardwellia sublimis</i>	280	Rutaceae	<i>Melicope vitiflora</i>
57	Flacourtiaceae	<i>Casearia costulata</i>	315	Sapindaceae	<i>Mischarytera lauteriana</i>
69	Lauraceae	<i>Cryptocarya angulata</i>	168	Sapindaceae	<i>Mischocarpus macrocarpus</i>
70	Lauraceae	<i>Cryptocarya corrugata</i>	173	Lauraceae	<i>Neolitsea dealbata</i>
429	Cyatheaceae	<i>Cyathea cooperi</i>	289	Proteaceae	<i>Opisthiolepis heterophylla</i>
80	Cyatheaceae	<i>Cyathea rebecca</i>	176	Arecaceae	<i>Oraniopsis appendiculata</i>
427	Monimiaceae	<i>Daphnandra repandula</i>	188	Proteaceae	<i>Placospermum coriaceum</i>
290	Monimiaceae	<i>Doryphora aromatica</i>	194	Grossulariaceae	<i>Polyosma hirsuta</i>
100	Elaeocarpaceae	<i>Elaeocarpus foveolatus</i>	403	Araliaceae	<i>Polyscias murrayi</i>
101	Elaeocarpaceae	<i>Elaeocarpus largiflorens</i> subsp. <i>largiflorens</i>	199	Sapotaceae	<i>Pouteria brownlessiana</i>
308	Elaeocarpaceae	<i>Elaeocarpus ruminatus</i>	209	Cunoniaceae	<i>Pullea stutzeri</i>
299	Lauraceae	<i>Endiandra bessaphila</i>	408	Myrtaceae	<i>Rhodamnia costata</i>
359	Lauraceae	<i>Endiandra leptodendron</i>	219	Myrtaceae	<i>Rhodomyrtus pervagata</i>
304	Lauraceae	<i>Endiandra sankeyana</i>	430	Actinidiaceae	<i>Saurauia andreana</i>
435	Moraceae	<i>Ficus congesta</i>	230	Elaeocarpaceae	<i>Sloanea australis</i> subsp. <i>parviflora</i>
296	Moraceae	<i>Ficus leptoclada</i>	281	Symplocaceae	<i>Symplocos cochinchinensis</i> var. <i>gittonsii</i>
432	Moraceae	<i>Ficus pleurocarpa</i>	245	Sapindaceae	<i>Synima cordierorum</i>
117	Sterculiaceae	<i>Franciscodendron laurifolium</i>	419	Meliaceae	<i>Synoum muelleri</i>
367	Cunoniaceae	<i>Geissois biagiana</i>	421	Myrtaceae	<i>Syzygium trachyphloium</i>
297	Cunoniaceae	<i>Gillbeea adenopetala</i>	434	Myrtaceae	<i>Thaleropia queenslandica</i>

SITES ON THE CARBINE TABLELAND

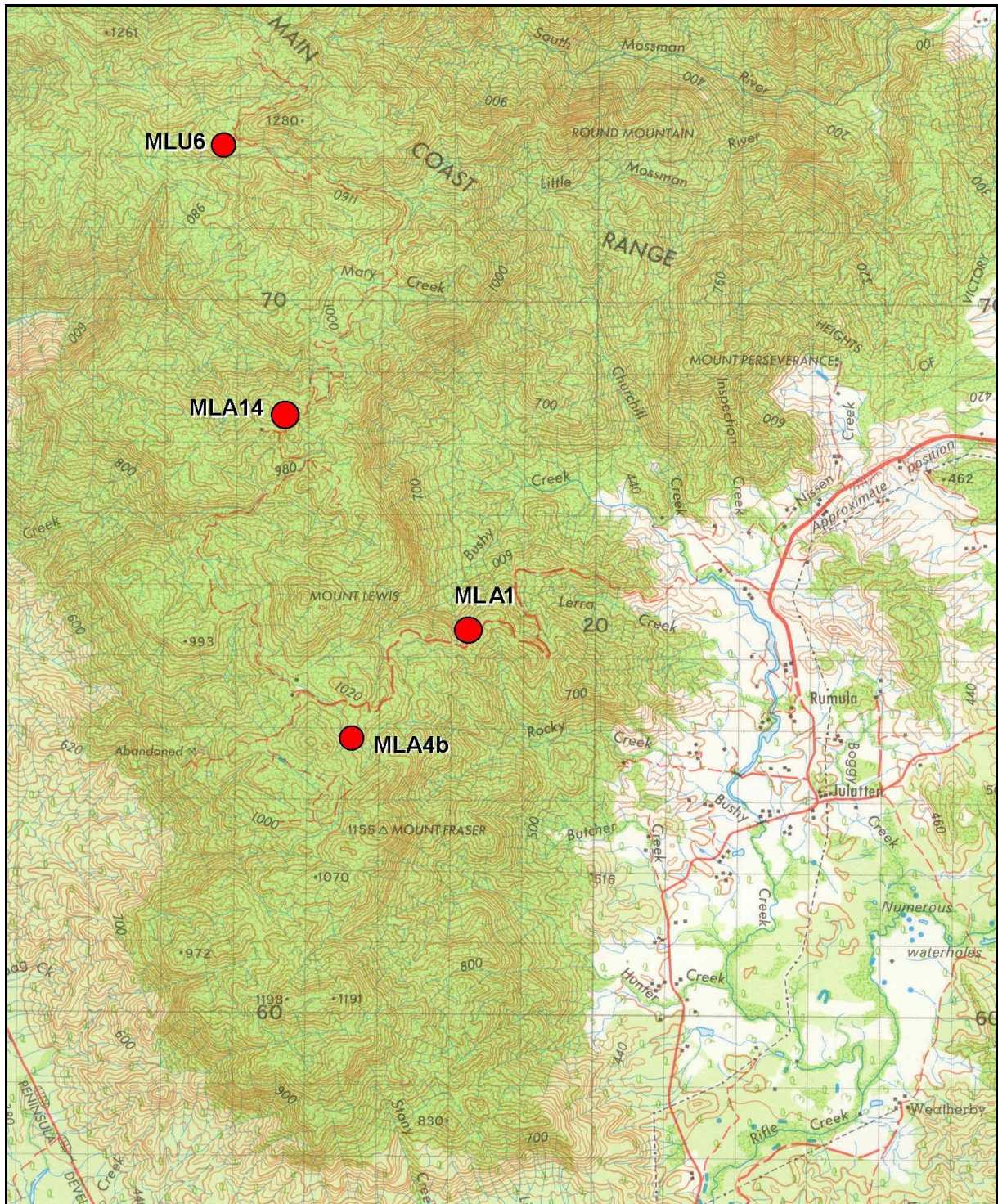


Figure 10: Location of monitoring sites (red dots) on the southern end of the Carbine Tableland, along the Mount Lewis Road. Map source: Royal Australian Survey Crops (1986): Rumula 1:50,000. Series R733, Sheet 7964-1, Edition 1AAS.

SITE MLU6

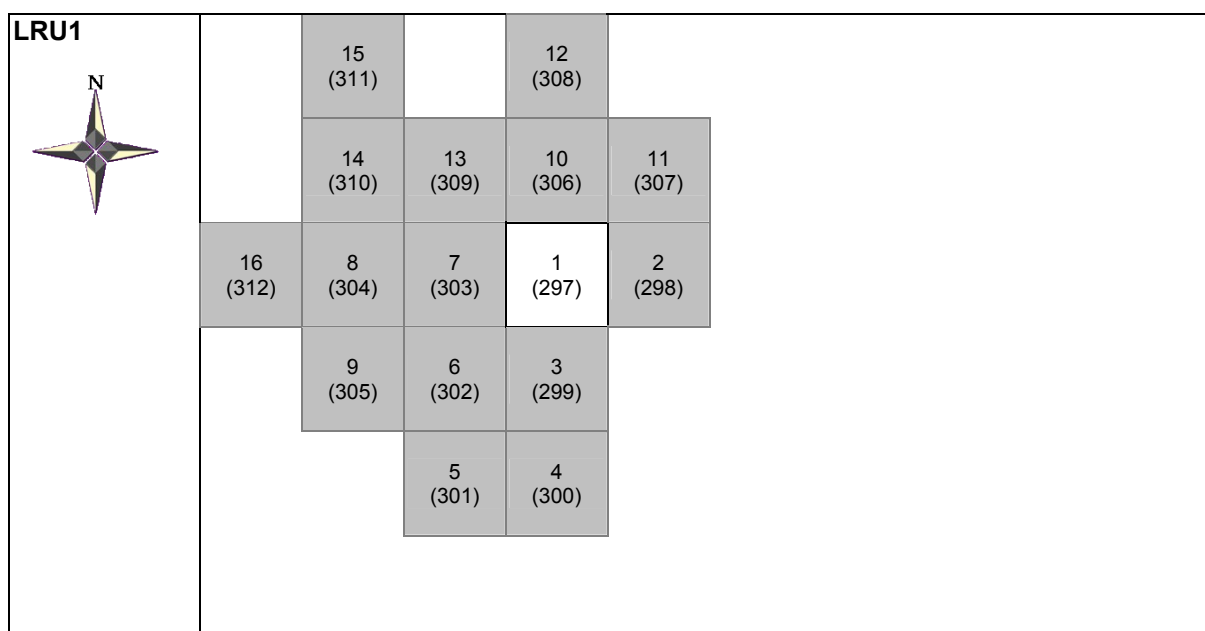
How to Get There

- The nearest landmark is the old forestry shed at the end of the Mount Lewis Road.
- UTM Grid Coordinate: 55K 314800,
8172265
- Located to the west of the CSIRO permanent plot, which is on the western side of the Mount Lewis Road, approximately three kilometres before the old forestry shed.
- Follow the main track into the site, passing a tree marked 'L23'.
- The central point of the monitoring site is located outside the CSIRO plot, about thirty metres past this tree.
- The final section of the track is flagged with pink and white tape.
- When entering, take care not to disturb experiments that may be underway within the permanent plot.

Site Description

- Altitude 1,080 metres.
- Site is located on a gently inclined hillslope on undulating low hills, with a northwesterly aspect.
- Forest Type 8 – Simple Notophyll Vine Forest (Tracey and Webb 1975).
- Regional Ecosystem 7.12.16 (Sattler and Williams 1999).
- Notes: Prominent canopy species include *Syzygium wesa*, *Elaeocarpus largiflorens* spp. *largiflorens*, *Beilschmiedia bancroftii* and *Beilschmiedia collina*.

Layout of 10m x 10m Plots for Site MLU6



- The star picket marking the site lies at the centre of Plot 1.
- Site specific plot numbers are given, followed by the unique plot code (bracketed) that is to be entered into the database.

Plant Species Recorded at Site MLU6

Species Number	Family	Species	Species Number	Family	Species
126	Annonaceae	<i>Goniothalamus australis</i>	30	Myrtaceae	<i>Austromyrtus dallachiana</i>
370	Araceae	<i>Gymnostachys anceps</i>	183	Myrtaceae	<i>Pilidiostigma tetramerum</i>
197	Araliaceae	<i>Polyscias australiana</i>	408	Myrtaceae	<i>Rhodamnia costata</i>
403	Araliaceae	<i>Polyscias murrayi</i>	254	Myrtaceae	<i>Syzygium johnsonii</i>
49	Arecaceae	<i>Calamus australis</i>	258	Myrtaceae	<i>Syzygium wesa</i>
381	Arecaceae	<i>Linospadix apetiolata</i>	421	Myrtaceae	<i>Syzygium trachyphloium</i>
149	Arecaceae	<i>Linospadix microcarya</i>	60	Oleaceae	<i>Chionanthus axillaris</i>
180	Aristolochiaceae	<i>Pararistolochia sparusifolia</i>	145	Oleaceae	<i>Jasminum didymum</i>
24	Aspleniaceae	<i>Asplenium australasicum</i>	404	Podocarpaceae	<i>Prumnopitys ladei</i>
28	Austrobaileyaceae	<i>Austrobaileya scandens</i>	55	Proteaceae	<i>Cardwellia sublimis</i>
133	Celastraceae	<i>Hedraianthera porphyropetala</i>	331	Proteaceae	<i>Catalepidia heyana</i>
121	Clusiaceae	<i>Garcinia</i> sp. (Davies Creek J.G. Tracey 14745)	82	Proteaceae	<i>Darlingia darlingiana</i>
59	Cunoniaceae	<i>Ceratopetalum succirubrum</i>	135	Proteaceae	<i>Helicia australasica</i>
367	Cunoniaceae	<i>Geissois biagiana</i>	371	Proteaceae	<i>Helicia grayi</i>
92	Ebenaceae	<i>Diospyros</i> sp. (Mt Lewis L.S. Smith 10107)	188	Proteaceae	<i>Placospermum coriaceum</i>
101	Elaeocarpaceae	<i>Elaeocarpus largiflorens</i> subsp. <i>largiflorens</i>	15	Rubiaceae	<i>Antirhea</i> sp. (Mt Lewis BG 5733)
231	Elaeocarpaceae	<i>Sloanea langii</i>	26	Rubiaceae	<i>Atractocarpus fitzalanii</i> subsp. <i>tenuipes</i>
14	Euphorbiaceae	<i>Antidesma erostre</i>	442	Rubiaceae	<i>Cyclophyllum costatum</i>
373	Euphorbiaceae	<i>Hylandia dockrillii</i>	143	Rubiaceae	<i>Ixora</i> sp. (North Mary L.A. BH 8618)
112	Gentianaceae	<i>Fagraea fagraeacea</i>	388	Rubiaceae	<i>Morinda</i> sp. (Black Leaves BGray 1677)
401	Grossulariaceae	<i>Polyosma rigidiuscula</i>	206	Rubiaceae	<i>Psychotria</i> sp. (Danbulla S.T. Blake 15262)
196	Grossulariaceae	<i>Polyosma</i> sp. (Mt Lewis B.P. Hyland RFK25241)	328	Rubiaceae	<i>Psydrax lamprophylla</i>
274	Icacinaceae	<i>Apodytes brachystylis</i>	115	Rutaceae	<i>Flindersia bourjotiana</i>
36	Lauraceae	<i>Beilschmiedia bancroftii</i>	284	Rutaceae	<i>Flindersia brayleana</i>
38	Lauraceae	<i>Beilschmiedia collina</i>	116	Rutaceae	<i>Flindersia pimenteliana</i>
39	Lauraceae	<i>Beilschmiedia recurva</i>	79	Sapindaceae	<i>Cupaniopsis flagelliformis</i> var. <i>flagelliformis</i>
70	Lauraceae	<i>Cryptocarya corrugata</i>	128	Sapindaceae	<i>Guioa lasioneura</i>
71	Lauraceae	<i>Cryptocarya densiflora</i>	131	Sapindaceae	<i>Harpullia rhyticarpa</i>
72	Lauraceae	<i>Cryptocarya leucophylla</i>	315	Sapindaceae	<i>Mischarytera lauteriana</i>
77	Lauraceae	<i>Cryptocarya saccharata</i>	386	Sapindaceae	<i>Mischocarpus exangulatus</i> vel aff.
336	Lauraceae	<i>Cryptocarya grandis</i>	168	Sapindaceae	<i>Mischocarpus macrocarpus</i>
337	Lauraceae	<i>Cryptocarya oblata</i>	221	Sapindaceae	<i>Rhysotoechia mortoniana</i>
356	Lauraceae	<i>Endiandra acuminata</i>	220	Sapindaceae	<i>Rhysotoechia florulenta</i>
298	Lauraceae	<i>Endiandra monothyra</i> subsp.	226	Sapindaceae	<i>Sarcotoechia protracta</i>

Stuart Worboys

Species Number	Family	Species	Species Number	Family	Species
		<i>monothyra</i>			
362	Lauraceae	<i>Endiandra phaeocarpa</i>	245	Sapindaceae	<i>Synima cordierorum</i>
173	Lauraceae	<i>Neolitsea dealbata</i>	311	Sapindaceae	<i>Toechima monticola</i>
10	Meliaceae	<i>Aglaia meridionalis</i>	175	Sapotaceae	<i>Niemeyera</i> sp. (Mt Lewis A.K. Irvine 1402)
9	Meliaceae	<i>Aglaia brassii</i>	199	Sapotaceae	<i>Pouteria brownlessiana</i>
419	Meliaceae	<i>Synoum muelleri</i>	201	Sapotaceae	<i>Pouteria euphlebia</i>
18	Mimosaceae	<i>Archidendron vaillantii</i>	202	Sapotaceae	<i>Pouteria</i> sp. (Mt Lewis B.P. Hyland 579)
236	Monimiaceae	<i>Stegathera macooraia</i>	190	Sapotaceae	<i>Pouteria pearsoniorum</i>
265	Monimiaceae	<i>Tetrasynandra</i> sp. (Mt Lewis B.P. Hyland 1053)	223	Smilacaceae	<i>Ripogonum album</i>
269	Monimiaceae	<i>Wilkiea angustifolia</i>	234	Smilacaceae	<i>Smilax glyciphylla</i>
364	Moraceae	<i>Ficus crassipes</i>	292	Sterculiaceae	<i>Argyrodendron peralatum</i>
19	Myrsinaceae	<i>Ardisia brevipedata</i>	21	Sterculiaceae	<i>Argyrodendron</i> sp. (Mt Haig L.S. Smith+ 14307)
211	Myrsinaceae	<i>Rapanea achradifolia</i>	117	Sterculiaceae	<i>Franciscodendron laurifolium</i>
213	Myrsinaceae	<i>Rapanea subsessilis</i> subsp. (Gordonvale S.T. Blake 9734)	334	Vitaceae	<i>Cissus hypoglauca</i>
261	Myrsinaceae	<i>Tapeinosperma</i> sp. (Cedar Bay J.G. Tracey 14780)	271	Xanthophyllaceae	<i>Xanthophyllum octandrum</i>
4	Myrtaceae	<i>Acmena resa</i>			

SITE MLA1

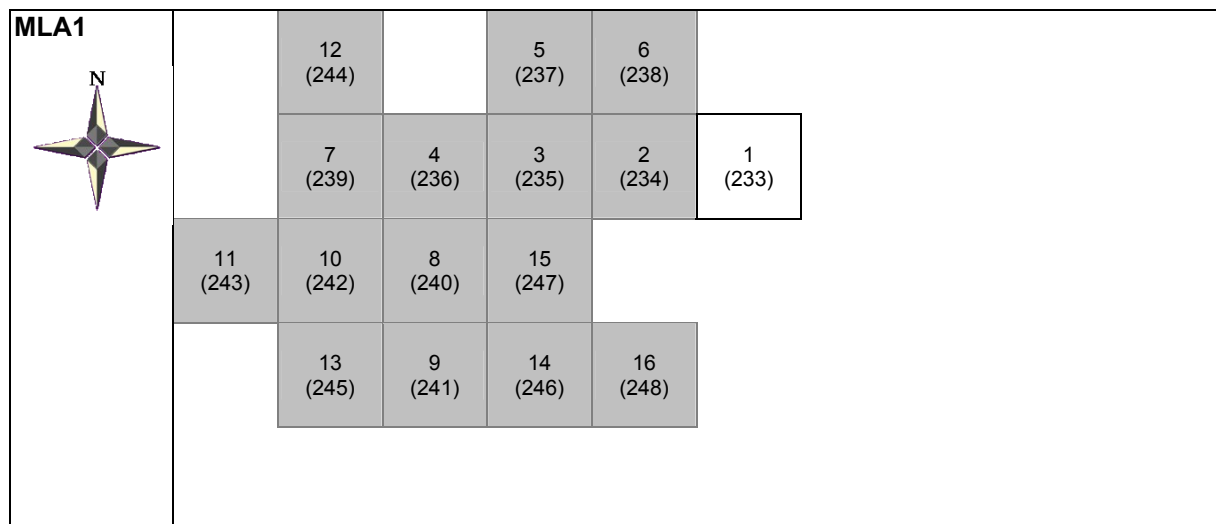
How to Get There

- The nearest landmark is Mount Lewis Road.
- UTM Grid Coordinate: 55K 318307,
8165290
- This site can be readily found using the coordinates provided and a GPS.
- Site MLA1 straddles an abandoned forestry track that follows a ridgeline up from the Mount Lewis Road.
- The Mount Lewis Road passes within one hundred metres of the site.
- Pink flagging tape marks the access track to the site.

Site Description

- Altitude 875 metres.
- Site located on moderately inclined to steep hillslope and hillcrest on rolling high hills.
- Site has a west, southwesterly aspect.
- Forest Type 8 – Simple Notophyll Vine Forest (Tracey and Webb 1975).
- Regional Ecosystem 7.12.16 (Sattler and Williams 1999).
- Note: Located on an old snig track, only a short distance from the Mount Lewis Road.
- Canopy height to 35 metres,
- Ferns prominent in the understorey.
- Prominent canopy species include *Pouteria euphlebia*, *Syzygium kuranda* and *Balanops australiana*.

Layout of 10m x 10m Plots for Site MLA1



- The star picket marking the site lies at the centre of Plot 1.
- Site specific plot numbers are given, followed by the unique plot code (bracketed) that is to be entered into the database.

Plant Species Recorded at Site MLA1

Species Number	Family	Species	Species Number	Family	Species
126	Annonaceae	<i>Goniothalamus australis</i>	2	Mimosaceae	<i>Acacia celsa</i>
13	Apocynaceae	<i>Alstonia muelleriana</i>	18	Mimosaceae	<i>Archidendron vaillantii</i>
162	Apocynaceae	<i>Melodinus australis</i>	236	Monimiaceae	<i>Steghanthera maccooraia</i>
156	Araliaceae	<i>Mackinlaya confusa</i>	424	Monimiaceae	<i>Wilkiea wardellii</i>
197	Araliaceae	<i>Polyscias australiana</i>	239	Moraceae	<i>Streblus glaber</i> var. <i>australianus</i>
446	Araliaceae	<i>Polyscias purpurea</i>	20	Myrsinaceae	<i>Ardisia pachyrrhachis</i>
51	Arecaceae	<i>Calamus moti</i>	211	Myrsinaceae	<i>Rapanea achradifolia</i>
176	Arecaceae	<i>Oraniopsis appendiculata</i>	252	Myrtaceae	<i>Syzygium cormiflorum</i>
322	Balanopaceae	<i>Balanops australiana</i>	255	Myrtaceae	<i>Syzygium kuranda</i>
133	Celastraceae	<i>Hedraianthera porphyropetala</i>	250	Myrtaceae	<i>Syzygium wilsonii</i> subsp. <i>cryptophlebium</i>
141	Celastraceae	<i>Hypsophila dielsiana</i>	60	Oleaceae	<i>Chionanthus axillaris</i>
121	Clusiaceae	<i>Garcinia</i> sp. (Davies Creek J.G. Tracey 14745)	118	Pandanaceae	<i>Freycinetia excelsa</i>
366	Clusiaceae	<i>Garcinia warrenii</i>	179	Pandanaceae	<i>Pandanus monticola</i>
368	Cunoniaceae	<i>Gillbeea whypallana</i>	55	Proteaceae	<i>Cardwellia sublimis</i>
80	Cyatheaceae	<i>Cyathea rebecca</i>	56	Proteaceae	<i>Carnavonia araliifolia</i> var. <i>montana</i>
351	Elaeocarpaceae	<i>Elaeocarpus bancroftii</i>	82	Proteaceae	<i>Darlingia darlingiana</i>
98	Elaeocarpaceae	<i>Elaeocarpus elliffii</i>	390	Proteaceae	<i>Musgravea stenostachya</i>
354	Elaeocarpaceae	<i>Elaeocarpus largiflorens</i> subsp. <i>retinervis</i>	188	Proteaceae	<i>Placospermum coriaceum</i>
278	Elaeocarpaceae	<i>Elaeocarpus sericopetalus</i>	428	Rhamnaceae	<i>Alphitonia petriei</i>
232	Elaeocarpaceae	<i>Sloanea macbrydei</i>	229	Rhamnaceae	<i>Schistocarpea johnsonii</i>
350	Euphorbiaceae	<i>Drypetes iodiformis</i>	26	Rubiaceae	<i>Atractocarpus fitzalanii</i> subsp. <i>tenuipes</i>
384	Euphorbiaceae	<i>Macaranga subdentata</i>	44	Rutaceae	<i>Brombya platynema</i>
445	Flacourtiaceae	<i>Homalium circumpinnatum</i>	115	Rutaceae	<i>Flindersia bourjotiana</i>
112	Gentianaceae	<i>Fagraea fagraeacea</i>	116	Rutaceae	<i>Flindersia pimenteliana</i>
194	Grossulariaceae	<i>Polyosma hirsuta</i>	272	Rutaceae	<i>Pitaviaster haplophyllus</i>
274	Icacinaeae	<i>Apodytes brachystylis</i>	128	Sapindaceae	<i>Guioa lasioneura</i>
285	Icacinaeae	<i>Citronella smythii</i>	131	Sapindaceae	<i>Harpullia rhyticarpa</i>
38	Lauraceae	<i>Beilschmiedia collina</i>	412	Sapindaceae	<i>Sarcopteryx montana</i>
69	Lauraceae	<i>Cryptocarya angulata</i>	225	Sapindaceae	<i>Sarcotoechia lanceolata</i>
71	Lauraceae	<i>Cryptocarya densiflora</i>	201	Sapotaceae	<i>Pouteria euphlebia</i>
73	Lauraceae	<i>Cryptocarya lividula</i>	190	Sapotaceae	<i>Pouteria pearsoniorum</i>
105	Lauraceae	<i>Endiandra hypotephra</i>	234	Smilacaceae	<i>Smilax glycyphylla</i>
109	Lauraceae	<i>Endiandra wolfei</i>	117	Sterculiaceae	<i>Franciscodendron laurifolium</i>
9	Meliaceae	<i>Aglaia brassii</i>	244	Symplocaceae	<i>Symplocos crassiramifera</i>
			45	Winteraceae	<i>Bubbia queenslandiana</i> subsp. <i>queenslandiana</i>

SITE MLA4B (PREVIOUSLY MLA5)

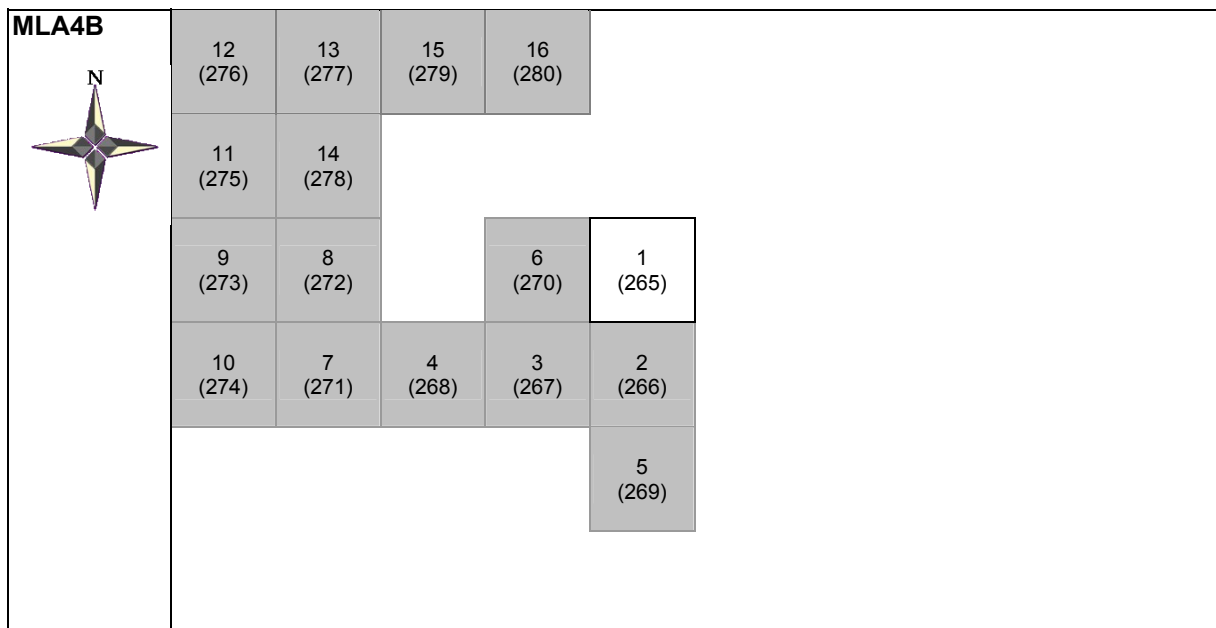
How to Get There

- The nearest landmark is the gravel pit on the Mount Lewis Road, located at 316938, 8164235.
- UTM Grid Coordinate: 55K 315050,
8164150
- Park at the gravel pit located on the Mount Lewis Road at 316938, 8164235.
- Walk east along the Mount Lewis Road for about fifty metres and turn south onto an abandoned and somewhat overgrown forestry track. The track heads down the ridgeline at a moderately steep angle.
- Pink flagging tape marks the access to the site, which is located on a steep slope on the left side of the ridge track.

Site Description

- Altitude 940 metres.
- Located on a moderately inclined hillslope on high rolling hills with a southwesterly aspect.
- Forest Type 8 – Simple Notophyll Vine Forest (Tracey and Webb 1975).
- Regional Ecosystem 7.12.16 (Sattler and Williams 1999).
- Note: Site lies near the end of an abandoned snig track and on first visit was observed to be suffering from severe dieback.
- Canopy height to twenty metres
- Prominent canopy species include *Flindersia bourjotiana*, *Sloanea macbrydei* and *Cardwellia sublimis*.

Layout of 10m x 10m Plots for Site MLA4B



- The star picket marking the site lies at the centre of Plot 1.

- Site specific plot numbers are given, followed by the unique plot code (bracketed) that is to be entered into the database.

Plant Species Recorded at Site MLA4B

Species Number	Family	Species	Species Number	Family	Species
126	Annonaceae	<i>Goniothalamus australis</i>	236	Monimiaceae	<i>Stegathera maccooraia</i>
162	Apocynaceae	<i>Melodinus australis</i>	239	Moraceae	<i>Streblus glaber</i> var. <i>australianus</i>
181	Apocynaceae	<i>Parsonsia straminea</i>	20	Myrsinaceae	<i>Ardisia pachyrrhachis</i>
235	Aquifoliaceae	<i>Sphenostemon lobosporus</i>	211	Myrsinaceae	<i>Rapanea achradifolia</i>
85	Araliaceae	<i>Delarbrea michieana</i>	32	Myrtaceae	<i>Austromyrtus shepherdii</i>
157	Araliaceae	<i>Mackinlaya macrosciadea</i>	215	Myrtaceae	<i>Rhodamnia blairiana</i>
49	Arecaceae	<i>Calamus australis</i>	219	Myrtaceae	<i>Rhodomyrtus pervagata</i>
149	Arecaceae	<i>Linospadix microcarya</i>	252	Myrtaceae	<i>Syzygium cormiflorum</i>
176	Arecaceae	<i>Oraniopsis appendiculata</i>	253	Myrtaceae	<i>Syzygium endophloium</i>
180	Aristolochiaceae	<i>Pararistolochia sparusifolia</i>	254	Myrtaceae	<i>Syzygium johnsonii</i>
141	Celastraceae	<i>Hypsophila dielsiana</i>	255	Myrtaceae	<i>Syzygium kuranda</i>
121	Clusiaceae	<i>Garcinia</i> sp. (Davies Creek J.G. Tracey 14745)	258	Myrtaceae	<i>Syzygium wesa</i>
368	Cunoniaceae	<i>Gillbeea whypallana</i>	247	Myrtaceae	<i>Syzygium apodophyllum</i>
80	Cyatheaceae	<i>Cyathea rebecca</i>	250	Myrtaceae	<i>Syzygium wilsonii</i> subsp. <i>cryptophlebium</i>
444	Elaeocarpaceae	<i>Aceratium ferrugineum</i>	60	Oleaceae	<i>Chionanthus axillaris</i>
98	Elaeocarpaceae	<i>Elaeocarpus elliffii</i>	118	Pandanaceae	<i>Freycinetia excelsa</i>
232	Elaeocarpaceae	<i>Sloanea macbrydei</i>	179	Pandanaceae	<i>Pandanus monticola</i>
323	Euphorbiaceae	<i>Baloghia parviflora</i>	187	Pittosporaceae	<i>Pittosporum trilobum</i>
373	Euphorbiaceae	<i>Hylandia dockrillii</i>	192	Podocarpaceae	<i>Podocarpus smithii</i>
384	Euphorbiaceae	<i>Macaranga subdentata</i>	191	Polypodiaceae	<i>Platyterium bifurcatum</i>
112	Gentianaceae	<i>Fagraea fagraeacea</i>	55	Proteaceae	<i>Cardwellia sublimis</i>
147	Gesneriaceae	<i>Lenbrassia australiana</i> var. <i>australiana</i>	56	Proteaceae	<i>Carnavonia araliifolia</i> var. <i>montana</i>
196	Grossulariaceae	<i>Polyosma</i> sp. (Mt Lewis B.P. Hyland RFK25241)	82	Proteaceae	<i>Darlingia darlingiana</i>
274	Icacinaeae	<i>Apodytes brachystylis</i>	137	Proteaceae	<i>Helicia lewisensis</i>
285	Icacinaeae	<i>Citronella smythii</i>	153	Proteaceae	<i>Lomatia fraxinifolia</i>
36	Lauraceae	<i>Beilschmiedia bancroftii</i>	188	Proteaceae	<i>Placospermum coriaceum</i>
38	Lauraceae	<i>Beilschmiedia collina</i>	229	Rhamnaceae	<i>Schistocarpea johnsonii</i>
69	Lauraceae	<i>Cryptocarya angulata</i>	15	Rubiaceae	<i>Antirhea</i> sp. (Mt Lewis BG 5733)
70	Lauraceae	<i>Cryptocarya corrugata</i>	16	Rubiaceae	<i>Antirhea tenuiflora</i>
71	Lauraceae	<i>Cryptocarya densiflora</i>	143	Rubiaceae	<i>Ixora</i> sp. (North Mary L.A. BH 8618)
72	Lauraceae	<i>Cryptocarya leucophylla</i>	115	Rutaceae	<i>Flindersia bourjotiana</i>
73	Lauraceae	<i>Cryptocarya lividula</i>	116	Rutaceae	<i>Flindersia pimenteliana</i>
104	Lauraceae	<i>Endiandra dielsiana</i>	128	Sapindaceae	<i>Guioa lasioneura</i>
105	Lauraceae	<i>Endiandra hypotephra</i>	131	Sapindaceae	<i>Harpullia rhyticarpa</i>

Species Number	Family	Species	Species Number	Family	Species
106	Lauraceae	<i>Endiandra jonesii</i>	412	Sapindaceae	<i>Sarcopteryx montana</i>
107	Lauraceae	<i>Endiandra montana</i>	199	Sapotaceae	<i>Pouteria brownlessiana</i>
109	Lauraceae	<i>Endiandra wolfei</i>	279	Sapotaceae	<i>Pouteria papyracea</i>
150	Lauraceae	<i>Litsea bennettii</i>	190	Sapotaceae	<i>Pouteria pearsoniorum</i>
87	Liliaceae	<i>Dianella atraxis</i>	234	Smilacaceae	<i>Smilax glyciophylla</i>
10	Meliaceae	<i>Aglaia meridionalis</i>	117	Sterculiaceae	<i>Franciscodendron laurifolium</i>
9	Meliaceae	<i>Aglaia brassii</i>	242	Symplocaceae	<i>Symplocos ampulliformis</i>
97	Meliaceae	<i>Dysoxylum papuanum</i>	380	Thymeleaceae	<i>Lethedon setosa</i>
			271	Xanthophyllaceae	<i>Xanthophyllum octandrum</i>

SITE MLA14

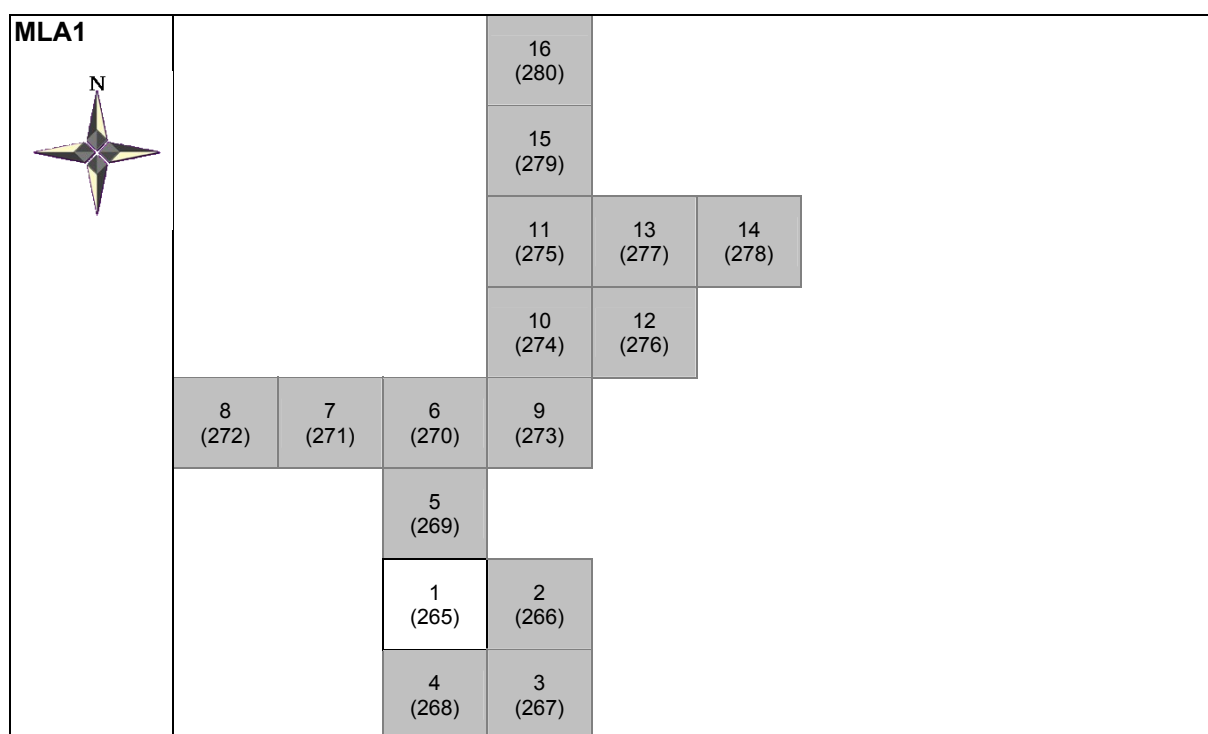
How to Get There

- The nearest landmark is Mount Lewis Road.
- UTM Grid Coordinate: 55K 315050,
8164150
- Park on the side of the Mount Lewis Road at 315996, 8168514.
- The monitoring site is located a short distance down an abandoned forestry track, which heads west from this point.

Site Description

- Altitude 1,040 metres.
- Site located on a gently inclined hillslope on undulating low hills, with a westerly aspect.
- Forest Type 2a – Mesophyll Vine Forest (Tracey and Webb 1975).
- Regional Ecosystem 7.12.1 (Sattler and Williams 1999).
- Notes: No evidence of disease was recorded within site MLA14; however, road construction appears to have altered drainage patterns at a nearby creek flat, causing swampiness.
- Several trees in this area were sick or dead.
- Site located partly on an abandoned logging camp or log loading area.
- Regrowth is dominated by *Cunoniaceae*.
- Prominent canopy species include *Elaeocarpus elliffii*, *Sloanea macbrydei* and *Syzygium gustavioides*.

Layout of 10m x 10m Plots for Site MLA14



- The star picket marking the site lies at the centre of Plot 1.
- Site specific plot numbers are given, followed by the unique plot code (bracketed) that is to be entered into the database.

Plant Species Recorded at Site MLA14

Species Number	Family	Species	Species Number	Family	Species
126	Annonaceae	<i>Goniothalamus australis</i>	10	Meliaceae	<i>Aglaia meridionalis</i>
162	Apocynaceae	<i>Melodinus australis</i>	9	Meliaceae	<i>Aglaia brassii</i>
163	Apocynaceae	<i>Melodinus bacellianus</i>	2	Mimosaceae	<i>Acacia celsa</i>
395	Apocynaceae	<i>Parsonsia latifolia</i>	290	Monimiaceae	<i>Doryphora aromatica</i>
403	Araliaceae	<i>Polyscias murrayi</i>	393	Monimiaceae	<i>Palmeria scandens</i>
379	Arecaceae	<i>Laccospadix australasica</i>	236	Monimiaceae	<i>Stegantthera maccooraia</i>
381	Arecaceae	<i>Linospadix apetiolata</i>	265	Monimiaceae	<i>Tetrasynandra</i> sp. (Mt Lewis B.P. Hyland 1053)
176	Arecaceae	<i>Oraniopsis appendiculata</i>	269	Monimiaceae	<i>Wilkiea angustifolia</i>
24	Aspleniaceae	<i>Asplenium australasicum</i>	424	Monimiaceae	<i>Wilkiea wardellii</i>
374	Celastraceae	<i>Hypsophila halleyana</i>	19	Myrsinaceae	<i>Ardisia brevipedata</i>
121	Clusiaceae	<i>Garcinia</i> sp. (Davies Creek J.G. Tracey 14745)	211	Myrsinaceae	<i>Rapanea achradifolia</i>
			4	Myrtaceae	<i>Acmena resa</i>
303	Cunoniaceae	<i>Caldcluvia australiensis</i>	215	Myrtaceae	<i>Rhodamnia blairiana</i>
367	Cunoniaceae	<i>Geissois biagiana</i>	408	Myrtaceae	<i>Rhodamnia costata</i>
368	Cunoniaceae	<i>Gillbeea whypallana</i>	253	Myrtaceae	<i>Syzygium endophloium</i>
209	Cunoniaceae	<i>Pullea stutzeri</i>	258	Myrtaceae	<i>Syzygium wesa</i>
80	Cyatheaceae	<i>Cyathea rebecca</i>	420	Myrtaceae	<i>Syzygium gustavioides</i>
66	Dracaenaceae	<i>Cordyline cannifolia</i>	60	Oleaceae	<i>Chionanthus axillaris</i>
92	Ebenaceae	<i>Diospyros</i> sp. (Mt Lewis L.S. Smith 10107)	118	Pandanaceae	<i>Freycinetia excelsa</i>
98	Elaeocarpaceae	<i>Elaeocarpus elliffii</i>	94	Polypodiaceae	<i>Drynaria rigidula</i>
354	Elaeocarpaceae	<i>Elaeocarpus largiflorens</i> subsp. <i>retinervis</i>	55	Proteaceae	<i>Cardwellia sublimis</i>
278	Elaeocarpaceae	<i>Elaeocarpus sericopetalus</i>	371	Proteaceae	<i>Helicia grayi</i>
232	Elaeocarpaceae	<i>Sloanea mabrydei</i>	153	Proteaceae	<i>Lomatia fraxinifolia</i>
112	Gentianaceae	<i>Fagraea fagraeacea</i>	390	Proteaceae	<i>Musgravea stenostachya</i>
147	Gesneriaceae	<i>Lenbrassia australiana</i> var. <i>australiana</i>	188	Proteaceae	<i>Placospermum coriaceum</i>
1	Grossulariaceae	<i>Abrophyllum ornans</i>	428	Rhamnaceae	<i>Alphitonia petriei</i>
401	Grossulariaceae	<i>Polyosma rigidiuscula</i>	204	Rosaceae	<i>Prunus turneriana</i>
274	Icacinaceae	<i>Apodytes brachystylis</i>	15	Rubiaceae	<i>Antirhea</i> sp. (Mt Lewis BG 5733)
38	Lauraceae	<i>Beilschmiedia collina</i>	206	Rubiaceae	<i>Psychotria</i> sp. (Danbulla S.T. Blake 15262)
61	Lauraceae	<i>Cinnamomum laubatii</i>	116	Rutaceae	<i>Flindersia pimenteliana</i>
69	Lauraceae	<i>Cryptocarya angulata</i>	132	Sapindaceae	<i>Harpullia frutescens</i>
70	Lauraceae	<i>Cryptocarya corrugata</i>	165	Sapindaceae	<i>Mischocarpus exangulatus</i>

Stuart Worboys

Species Number	Family	Species	Species Number	Family	Species
71	Lauraceae	<i>Cryptocarya densiflora</i>	168	Sapindaceae	<i>Mischocarpus macrocarpus</i>
72	Lauraceae	<i>Cryptocarya leucophylla</i>	245	Sapindaceae	<i>Synima cordierorum</i>
74	Lauraceae	<i>Cryptocarya mackinnoniana</i>	190	Sapotaceae	<i>Pouteria pearsoniorum</i>
337	Lauraceae	<i>Cryptocarya oblata</i>	117	Sterculiaceae	<i>Franciscodendron laurifolium</i>
356	Lauraceae	<i>Endiandra acuminata</i>	242	Symplocaceae	<i>Symplocos ampulliformis</i>
299	Lauraceae	<i>Endiandra bessaphila</i>	243	Symplocaceae	<i>Symplocos cochinchinensis</i> var. <i>glaberrima</i>
106	Lauraceae	<i>Endiandra jonesii</i>	45	Winteraceae	<i>Bubbia queenslandiana</i> subsp. <i>queenslandiana</i>
107	Lauraceae	<i>Endiandra montana</i>	271	Xanthophyllaceae	<i>Xanthophyllum octandrum</i>
362	Lauraceae	<i>Endiandra phaeocarpa</i>	409	Xanthorrhoeaceae	<i>Romnaldia grallata</i>

MOUNT BARTLE FRERE WESTERN ACCESS TRACK

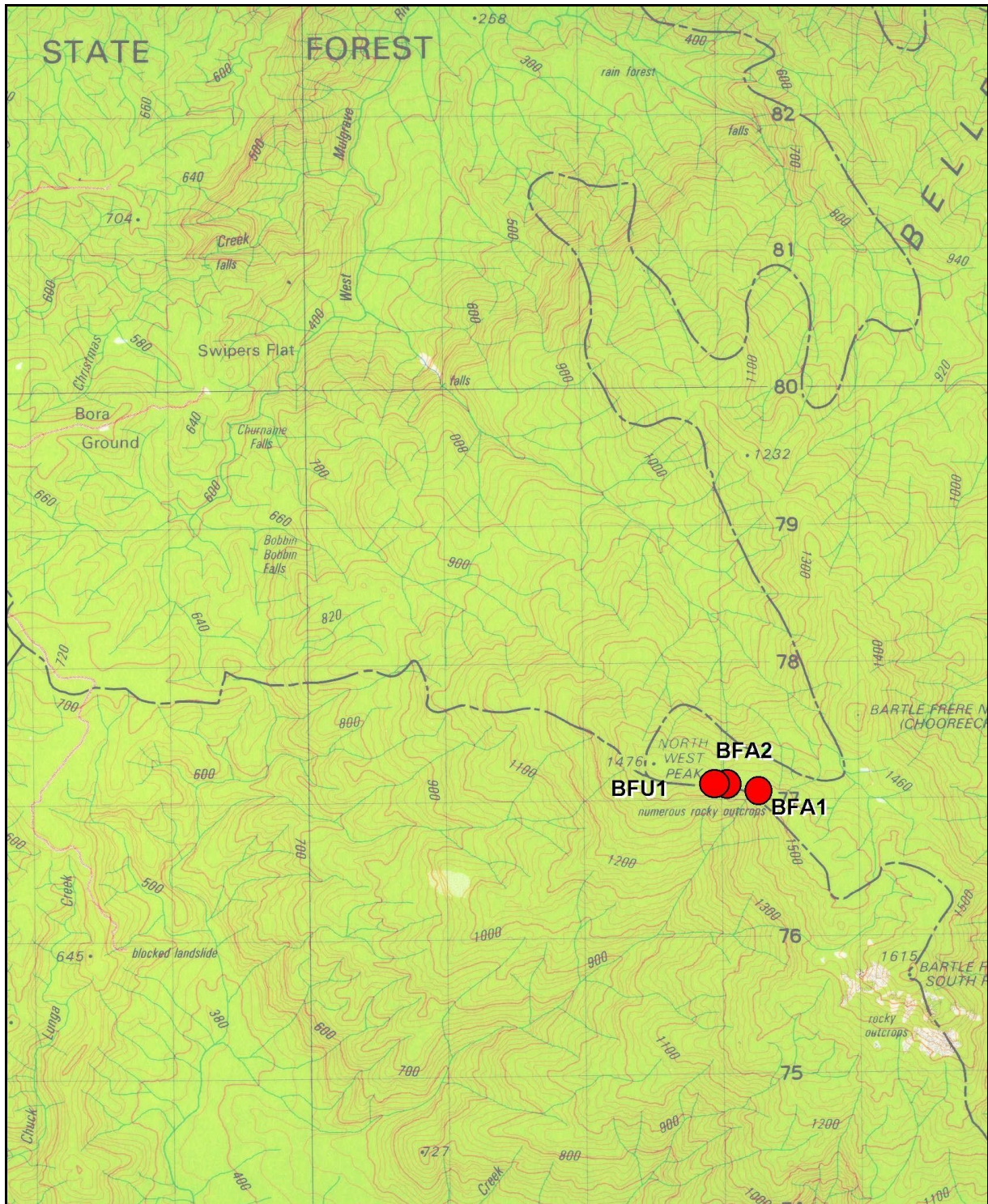


Figure 11: Location of monitoring sites (red dots) on the Mount Bartle Frere Western Access Track. Map source: Royal Australian Survey Corps (1986): Bartle Frere Queensland 1:50,000. Series R733, Sheet 8063-2, Edition 1AA3.

SITE BFU1

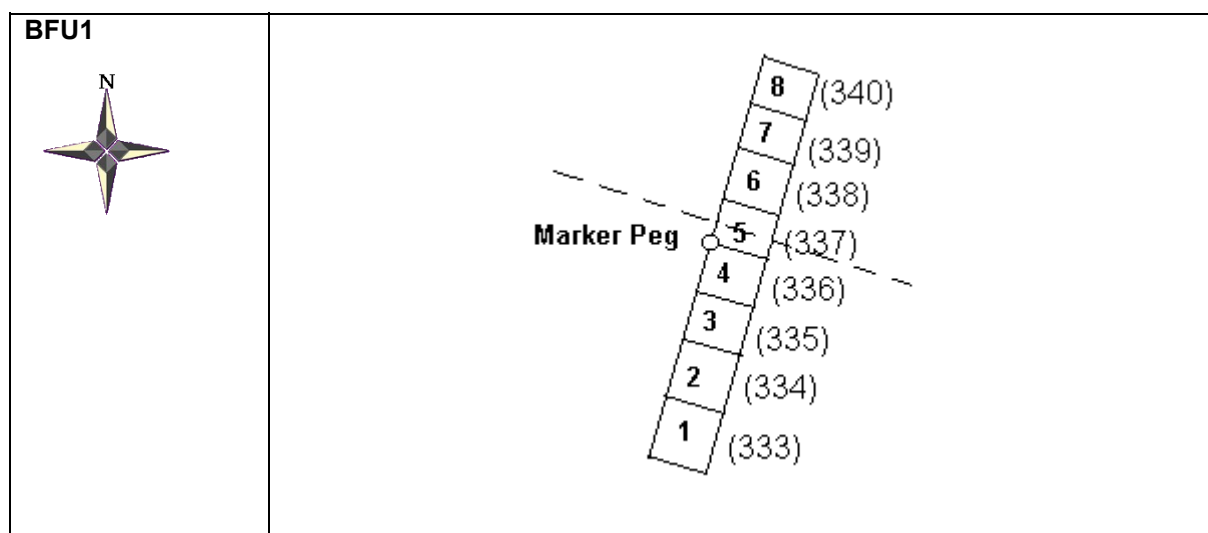
How to Get There

- The nearest landmark is an outcrop located at 373411, 8077037 on the Mount Bartle Frere western access track.
- UTM Grid Coordinate: A GPS reading was not possible at this site but the site coordinates are estimated to be: 55K 372936,
8077150
- The marker peg is located three metres to the south of the main walking track, exactly 95 metres west of the marker peg for site BFA2.
- This site consists of eight plots that span the Mount Bartle Frere western access track (see layout diagram, below).
- The site is located approximately ten minutes' walk west of a rocky outcrop located at 373411, 8077037.

Site Description

- Altitude 1,420 metres.
- Located on a narrow east-west ridgeline with moderately inclined to steep falls to both north and south.
- Forest Type 9 – Simple Microphyll Vine-fern Forest (Tracey and Webb 1975).
- Regional Ecosystem 7.12.19 (Sattler and Williams 1999).
- Note: Tree ferns prominent in understorey.
- Canopy to thirty metres.
- Prominent canopy species include *Elaeocarpus ferruginiflorus*, *Cinnamomum propinquum* and *Musgravea stenostachya*.

Layout of 10m x 10m Plots for Site BFU1



- The galvanised steel dropper marking the site lies at the northwest corner of Plot 4, as shown.
- Site specific plot numbers are given, followed by the unique plot code (bracketed) that is to be entered into the database.

Plant Species Recorded at Site BFU1

Species Number	Family	Species	Species Number	Family	Species
459	Apocynaceae	<i>Alyxia orophila</i>	454	Myrtaceae	<i>Syzygium fratris</i>
85	Araliaceae	<i>Delarbrea michieana</i>	254	Myrtaceae	<i>Syzygium johnsonii</i>
468	Araliaceae	<i>Polyscias bellendenkerensis</i>	258	Myrtaceae	<i>Syzygium wesa</i>
379	Arecaceae	<i>Laccospadix australasica</i>	467	Myrtaceae	<i>Uromyrtus metrosideros</i>
322	Balanopaceae	<i>Balanops australiana</i>	56	Proteaceae	<i>Carnavonia araliifolia</i> var. <i>montana</i>
347	Celastraceae	<i>Denhamia viridissima</i>	470	Proteaceae	<i>Eidothea zoexylocarya</i>
374	Celastraceae	<i>Hypsophila halleyana</i>	390	Proteaceae	<i>Musgravea stenostachya</i>
80	Cyatheaceae	<i>Cyathea rebecca</i>	458	Proteaceae	<i>Triunia montana</i>
463	Elaeocarpaceae	<i>Elaeocarpus ferruginiflorus</i>	206	Rubiaceae	<i>Psychotria</i> sp. (<i>Danbulla</i> S.T. Blake 15262)
453	Euphorbiaceae	<i>Rockinghamia brevipes</i>	6	Rutaceae	<i>Acronychia chooreechillum</i>
112	Gentianaceae	<i>Fagraea fagraeacea</i>	457	Rutaceae	<i>Flindersia pimenteliana</i> f. <i>oppositifolia</i>
401	Grossulariaceae	<i>Polyosma rigidiuscula</i>	23	Sapindaceae	<i>Arytera pauciflora</i>
455	Lauraceae	<i>Cinnamomum propinquum</i>	469	Sapindaceae	<i>Guioa montana</i>
70	Lauraceae	<i>Cryptocarya corrugata</i>	169	Sapindaceae	<i>Mischocarpus pyriformis</i> subsp. <i>pyriformis</i>
236	Monimiaceae	<i>Stegathera macooraia</i>	224	Sapindaceae	<i>Sarcotoechia cuneata</i>
239	Moraceae	<i>Streblus glaber</i> var. <i>australianus</i>	462	Sapotaceae	<i>Pouteria singuliflora</i>
464	Myrsinaceae	<i>Myrsine oreophila</i> (ms B.R. Jackes)	452	Sterculiaceae	<i>Argyrodendron</i> sp. (Karnak P.I. Forster+ PIF 10711)
461	Myrtaceae	<i>Lenwebbia lasioclada</i>	243	Symplocaceae	<i>Symplocos cochinchinensis</i> var. <i>glaberrima</i>
215	Myrtaceae	<i>Rhodamnia blairiana</i>	262	Winteraceae	<i>Tasmannia membranacea</i>
247	Myrtaceae	<i>Syzygium apodophyllum</i>			

SITE BFA1

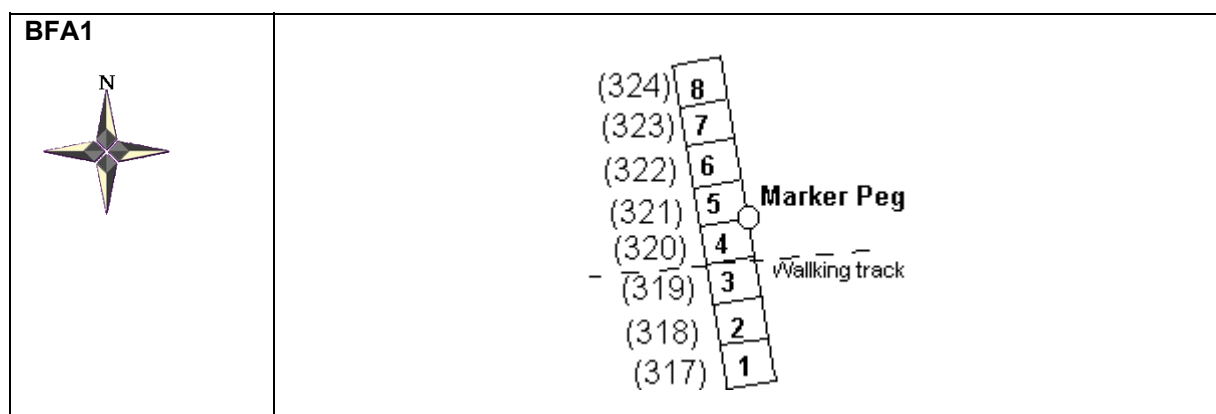
How to Get There

- The nearest landmark is an outcrop located at 373411, 8077037 on the Mount Bartle Frere western access track.
- UTM Grid Coordinate: 55K 373266,
8077125
- This site consists of eight plots that span the Mount Bartle Frere western access track (see layout diagram, below).
- The site is located approximately five minutes' walk west of a rocky outcrop located at 373411, 8077037.
- The marker peg (made of light galvanised steel) is located eight metres to the north of the track.

Site Description

- Altitude 1,432 metres.
- Located on a narrow east-west ridgeline with moderately inclined to steep falls to both north and south.
- Forest Type 9 – Simple Microphyll Vine-fern Forest (Tracey and Webb 1975).
- Regional Ecosystem 7.12.19 (Sattler and Williams 1999).
- Note: Tree ferns prominent in understorey.
- Canopy to thirty metres.
- Prominent canopy species include *Elaeocarpus ferruginiflorus*, *Cinnamomum propinquum* and *Musgravea stenostachya*.

Layout of 10m x 10m Plots for Site BFA1



- The galvanised steel dropper marking the site lies at the northeast corner of Plot 4, as shown.
- Site specific plot numbers are given, followed by the unique plot code (bracketed) that is to be entered into the database.

Plant Species Recorded at Site BFA1

Species Number	Family	Species	Species Number	Family	Species
459	Apocynaceae	<i>Alyxia orophila</i>	215	Myrtaceae	<i>Rhodamnia blairiana</i>
235	Aquifoliaceae	<i>Sphenostemon lobosporus</i>	247	Myrtaceae	<i>Syzygium apodophyllum</i>
379	Areaceae	<i>Laccospadix australasica</i>	454	Myrtaceae	<i>Syzygium fratris</i>
374	Celastraceae	<i>Hypsophila halleyana</i>	254	Myrtaceae	<i>Syzygium johnsonii</i>
80	Cyatheaceae	<i>Cyathea rebecca</i>	258	Myrtaceae	<i>Syzygium wesa</i>
463	Elaeocarpaceae	<i>Elaeocarpus ferruginiflorus</i>	56	Proteaceae	<i>Carnavonia araliifolia</i> var. <i>montana</i>
466	Elaeocarpaceae	<i>Elaeocarpus linsmithii</i>	390	Proteaceae	<i>Musgravea stenostachya</i>
453	Euphorbiaceae	<i>Rockinghamia brevipes</i>	456	Proteaceae	<i>Orites excelsa</i>
112	Gentianaceae	<i>Fagraea fagraeacea</i>	458	Proteaceae	<i>Triunia montana</i>
401	Grossulariaceae	<i>Polyosma rigidiuscula</i>	206	Rubiaceae	<i>Psychotria</i> sp. (Danbulla S.T. Blake 15262)
455	Lauraceae	<i>Cinnamomum propinquum</i>	6	Rutaceae	<i>Acronychia chooreechillum</i>
465	Lauraceae	<i>Cryptocarya bellendenkerana</i>	457	Rutaceae	<i>Flindersia pimenteliana</i> f. <i>oppositifolia</i>
70	Lauraceae	<i>Cryptocarya corrugata</i>	169	Sapindaceae	<i>Mischocarpus pyriformis</i> subsp. <i>pyriformis</i>
151	Lauraceae	<i>Litsea connorsii</i>	224	Sapindaceae	<i>Sarcotoechia cuneata</i>
236	Monimiaceae	<i>Stegathera macoorai</i>	462	Sapotaceae	<i>Pouteria singuliflora</i>
464	Myrsinaceae	<i>Myrsine oreophila</i> (ms B.R. Jackes)	452	Sterculiaceae	<i>Argyrodendron</i> sp. (Karnak P.I. Forster+ PIF 10711)
30	Myrtaceae	<i>Austromyrtus dallachiana</i>	243	Symplocaceae	<i>Symplocos cochinchinensis</i> var. <i>glaberrima</i>
461	Myrtaceae	<i>Lenwebbia lasioclada</i>			

SITE BFA2

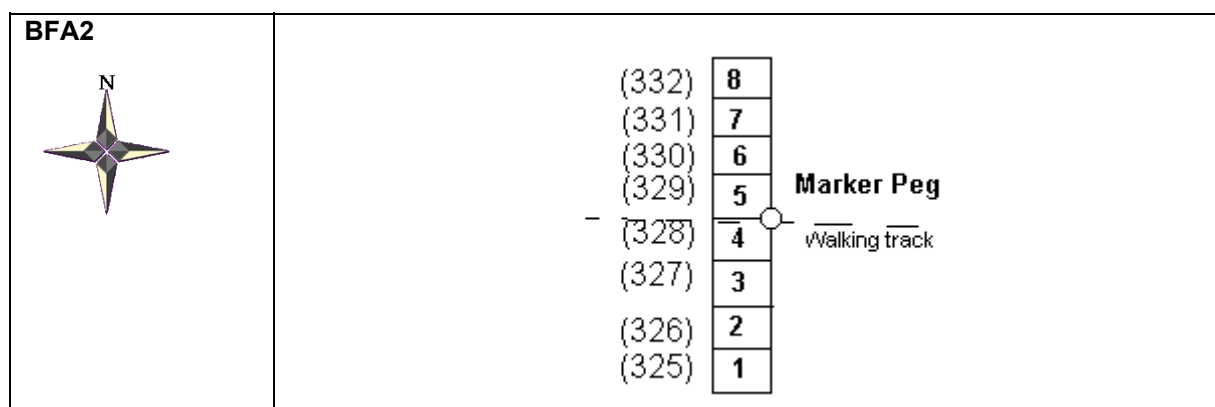
How to Get There

- The nearest landmark is an outcrop located at 373411, 8077037 on the Mount Bartle Frere western access track.
- UTM Grid Coordinate: 55K 373030,
8077139
- This site consists of eight plots that span the Mount Bartle Frere western access track (see layout diagram, below).
- The site is located approximately twelve minutes' walk west of a rocky outcrop located at 373411, 8077037.
- The marker peg (made of light galvanised steel) is located three metres to the south of the track.

Site Description

- Altitude 1,420 metres.
- Located on a narrow east-west ridgeline with moderately inclined to steep falls to both north and south.
- Forest Type 9 – Simple Microphyll Vine-fern Forest (Tracey and Webb 1975).
- Regional Ecosystem 7.12.19 (Sattler and Williams 1999).
- Note: Clumping palms (*Laccospadix australasica*) prominent in understorey.
- Canopy to thirty metres.
- Prominent canopy species include *Elaeocarpus ferruginiflorus*, *Syzygium wesa* and *Musgravea stenostachya*.

Layout of 10m x 10m Plots for Site BFA2



- The galvanised steel dropper marking the site lies at the northeast corner of Plot 4, as shown.
- Site specific plot numbers are given, followed by the corresponding unique plot code (bracketed) that is to be entered into the database.

Plant Species Recorded at Site BFA2

Species Number	Family	Species	Species Number	Family	Species
459	Apocynaceae	<i>Alyxia orophila</i>	461	Myrtaceae	<i>Lenwebbia lasioclada</i>
85	Araliaceae	<i>Delarbrea michieana</i>	215	Myrtaceae	<i>Rhodamnia blairiana</i>
468	Araliaceae	<i>Polyscias bellendenkerensis</i>	247	Myrtaceae	<i>Syzygium apodophyllum</i>
379	Arecaceae	<i>Laccospadix australasica</i>	454	Myrtaceae	<i>Syzygium fratris</i>
322	Balanopaceae	<i>Balanops australiana</i>	254	Myrtaceae	<i>Syzygium johnsonii</i>
374	Celastraceae	<i>Hypsophila halleyana</i>	258	Myrtaceae	<i>Syzygium wesa</i>
80	Cyatheaceae	<i>Cyathea rebecca</i>	185	Pittosporaceae	<i>Pittosporum rubiginosum</i>
463	Elaeocarpaceae	<i>Elaeocarpus ferruginiflorus</i>	56	Proteaceae	<i>Carnavonia araliifolia</i> var. <i>montana</i>
463	Elaeocarpaceae	<i>Elaeocarpus ferruginiflorus</i>	153	Proteaceae	<i>Lomatia fraxinifolia</i>
100	Elaeocarpaceae	<i>Elaeocarpus foveolatus</i>	390	Proteaceae	<i>Musgravea stenostachya</i>
453	Euphorbiaceae	<i>Rockinghamia brevipes</i>	456	Proteaceae	<i>Orites excelsa</i>
112	Gentianaceae	<i>Fagraea fagraeacea</i>	458	Proteaceae	<i>Triunia montana</i>
401	Grossulariaceae	<i>Polyosma rigidiuscula</i>	206	Rubiaceae	<i>Psychotria</i> sp. (<i>Danbulla</i> S. T. Blake 15262)
471	Grossulariaceae	<i>Quintinia quatrefagesii</i>	6	Rutaceae	<i>Acronychia chooreechillum</i>
455	Lauraceae	<i>Cinnamomum propinquum</i>	457	Rutaceae	<i>Flindersia pimenteliana</i> f. <i>oppositifolia</i>
465	Lauraceae	<i>Cryptocarya bellendenkerana</i>	469	Sapindaceae	<i>Guioa montana</i>
70	Lauraceae	<i>Cryptocarya corrugata</i>	169	Sapindaceae	<i>Mischocarpus pyriformis</i> subsp. <i>pyriformis</i>
72	Lauraceae	<i>Cryptocarya leucophylla</i>	224	Sapindaceae	<i>Sarcotoechia cuneata</i>
150	Lauraceae	<i>Litsea bennettii</i>	462	Sapotaceae	<i>Pouteria singuliflora</i>
236	Monimiaceae	<i>Steghanthera macoorai</i>	452	Sterculiaceae	<i>Argyrodendron</i> sp. (<i>Karnak P.I. Forster+ PIF 10711</i>)
239	Moraceae	<i>Streblus glaber</i> var. <i>australianus</i>	242	Symplocaceae	<i>Symplocos ampulliformis</i>
464	Myrsinaceae	<i>Myrsine oreophila</i> (ms B.R. Jackes)	243	Symplocaceae	<i>Symplocos cochinchinensis</i> var. <i>glaberrima</i>
			262	Winteraceae	<i>Tasmannia membranacea</i>

APPENDIX B
DATA RECORDING SHEETS

DATA RECORDING SHEETS

The following data recording sheets display the information that must be recorded for each plot in each monitoring site. Depending on the preference of the user, they can be used as is or copied to a waterproof notebook for use in the field.

The data recording sheet used in describing the environment at each new site is also provided.

1. For use in data collection at established sites; and
2. For use in detailed description of new sites.

DATA RECORDING SHEET

1. Site Identification

(a) Date:		(b) Observers:	
------------------	--	-----------------------	--

(c) Easting or Latitude:		(g) Datum:	<input type="checkbox"/> AGD '66
(d) Northing or Longitude:			<input type="checkbox"/> WGS '84
(e) Altitude:			<input type="checkbox"/> GDA '94
(f) Accuracy:			

(h) Locality Name:	Koombooloomba / Tully Falls / Old Culpa	<input type="checkbox"/>
	Lamb Range	<input type="checkbox"/>
	Mount Lewis	<input type="checkbox"/>
	Kirrama	<input type="checkbox"/>
	Bartle Frere	<input type="checkbox"/>
	Other (specify)	<input type="checkbox"/>

2. Site Health

(a) Severity of Dieback		(b) Tree Fall Damage	
0 insignificant		1 none	
1 slight		2 slight	
2 moderate		3 moderate	
3 severe		4 severe	

(c) Site Drainage		(d) Disturbance to Soil Surface	
1 poorly drained		1 insignificant	
2 well drained		2 minor	
3 rapidly drained		3 moderate	
		4 severe	

APPENDIX C
FORMAT OF DIEBACK DATABASE

FORMAT OF DIEBACK DATABASE

MONITORING PLOT INFORMATION TABLE

The plot information table given here provides background information on the locality and dieback status for each of the 350 monitoring plots visited between 2002 and 2004.

This table should not be altered unless new monitoring sites are created, or information regarding established sites (e.g. correction of Grid Coordinates) needs to be altered.

Plot Code

- A unique plot code is assigned to each 10m x 10m monitoring plot. This number must be entered into each row of the database.

Area

- Identifies the general area or region where the study site is located.

Site Code

- A site code is given to each monitoring site. Each site comprises between eight and twenty monitoring plots, the layout of which is shown in Appendix A.

Dieback

- Identifies whether dieback is reported from the site. For most study sites, their location was determined from air photograph interpretation. Consequently, dieback affected canopies visible in air photographs are not always clearly visible on the ground.

Plot

- Lists the plot numbers in each site.

Easting and Northing

- Lists the UTM Grid Coordinates for the centre of most 10m x 10m monitoring plots. The datum used is AGD 1966, which means the listed coordinates can be used to find the sites on currently available 1:50,000 topographic maps.

Monitoring Plot Information Table

Unique Plot Code	Area	Site Code	Dieback	Plot	Easting	Northing
1	Koombooloomba	CO03	No	1	346725	8033625
2	Koombooloomba	CO03	No	2	346725	8033635
3	Koombooloomba	CO03	No	3	346715	8033635
4	Koombooloomba	CO03	No	4	346705	8033635
5	Koombooloomba	CO03	No	5	346695	8033635
6	Koombooloomba	CO03	No	6	346695	8033645
7	Koombooloomba	CO03	No	7	346705	8033645
8	Koombooloomba	CO03	No	8	346705	8033655
9	Koombooloomba	CO03	No	9	346705	8033665
10	Koombooloomba	CO03	No	10	346715	8033655
11	Koombooloomba	CO03	No	11	346715	8033665
12	Koombooloomba	CO03	No	12	346715	8033675
13	Koombooloomba	CO03	No	13	346705	8033675
14	Koombooloomba	CO03	No	14	346725	8033665
15	Koombooloomba	CO03	No	15	346725	8033655
16	Koombooloomba	CO03	No	16	346735	8033655
17	Koombooloomba	CO03	No	17	346735	8033645
18	Koombooloomba	CO03	No	18	346725	8033645
19	Koombooloomba	CO03	No	19	346715	8033645
20	Koombooloomba	CO03	No	20	346715	8033625
21	Koombooloomba	CO04	No	1	353720	8018775
22	Koombooloomba	CO04	No	2	353720	8018765
23	Koombooloomba	CO04	No	3	353720	8018755
24	Koombooloomba	CO04	No	4	353710	8018755
25	Koombooloomba	CO04	No	5	353710	8018765
26	Koombooloomba	CO04	No	6	353710	8018775
27	Koombooloomba	CO04	No	7	353700	8018775
28	Koombooloomba	CO04	No	8	353730	8018765
29	Koombooloomba	CO04	No	9	353730	8018775
30	Koombooloomba	CO04	No	10	353730	8018785
31	Koombooloomba	CO04	No	11	353740	8018785
32	Koombooloomba	CO04	No	12	353740	8018775
33	Koombooloomba	CO04	No	13	353750	8018775
34	Koombooloomba	CO04	No	14	353760	8018775
35	Koombooloomba	CO04	No	15	353760	8018765
36	Koombooloomba	CO04	No	16	353750	8018765
37	Koombooloomba	CO04	No	17	353750	8018755
38	Koombooloomba	CO04	No	18	353760	8018755

Unique Plot Code	Area	Site Code	Dieback	Plot	Easting	Northing
39	Koombooloomba	CO04	No	19	353740	8018755
40	Koombooloomba	CO04	No	20	353740	8018745
41	Koombooloomba	PO03	Yes	1	346642	8033829
42	Koombooloomba	PO03	Yes	2	346652	8033829
43	Koombooloomba	PO03	Yes	3	346652	8033819
44	Koombooloomba	PO03	Yes	4	346652	8033839
45	Koombooloomba	PO03	Yes	5	346642	8033819
46	Koombooloomba	PO03	Yes	6	346632	8033819
47	Koombooloomba	PO03	Yes	7	346632	8033809
48	Koombooloomba	PO03	Yes	8	346632	8033829
49	Koombooloomba	PO03	Yes	9	346652	8033849
50	Koombooloomba	PO03	Yes	10	346642	8033849
51	Koombooloomba	PO03	Yes	11	346662	8033849
52	Koombooloomba	PO03	Yes	12	346662	8033839
53	Koombooloomba	PO03	Yes	13	346672	8033839
54	Koombooloomba	PO03	Yes	14	346672	8033829
55	Koombooloomba	PO03	Yes	15	346662	8033829
56	Koombooloomba	PO03	Yes	16	346662	8033859
57	Koombooloomba	PO03	Yes	17	346652	8033859
58	Koombooloomba	PO03	Yes	18	346642	8033859
59	Koombooloomba	PO05	Yes	1	354499	8018695
60	Koombooloomba	PO05	Yes	2	354499	8018705
61	Koombooloomba	PO05	Yes	3	354509	8018705
62	Koombooloomba	PO05	Yes	4	354499	8018715
63	Koombooloomba	PO05	Yes	5	354489	8018715
64	Koombooloomba	PO05	Yes	6	354479	8018715
65	Koombooloomba	PO05	Yes	7	354479	8018705
66	Koombooloomba	PO05	Yes	8	354489	8018705
67	Koombooloomba	PO05	Yes	9	354489	8018695
68	Koombooloomba	PO05	Yes	10	354509	8018695
69	Koombooloomba	PO05	Yes	11	354519	8018695
70	Koombooloomba	PO05	Yes	12	354519	8018685
71	Koombooloomba	PO05	Yes	13	354519	8018675
72	Koombooloomba	PO05	Yes	14	354529	8018675
73	Koombooloomba	PO05	Yes	15	354539	8018675
74	Koombooloomba	PO05	Yes	16	354539	8018665
75	Koombooloomba	PO05	Yes	17	354529	8018665
76	Koombooloomba	PO05	Yes	18	354519	8018665
77	Koombooloomba	PO05	Yes	19	354529	8018685

Unique Plot Code	Area	Site Code	Dieback	Plot	Easting	Northing
78	Koombooloomba	PO05	Yes	20	354529	8018695
79	Koombooloomba	PO06	Yes	1	354255	8018250
80	Koombooloomba	PO06	Yes	2	354265	8018250
81	Koombooloomba	PO06	Yes	3	354265	8018260
82	Koombooloomba	PO06	Yes	4	354275	8018260
83	Koombooloomba	PO06	Yes	5	354275	8018270
84	Koombooloomba	PO06	Yes	6	354285	8018260
85	Koombooloomba	PO06	Yes	7	354285	8018250
86	Koombooloomba	PO06	Yes	8	354275	8018250
87	Koombooloomba	PO06	Yes	9	354265	8018270
88	Koombooloomba	PO06	Yes	10	354255	8018270
89	Koombooloomba	PO06	Yes	11	354255	8018260
90	Koombooloomba	PO06	Yes	12	354245	8018250
91	Koombooloomba	PO06	Yes	13	354235	8018250
92	Koombooloomba	PO06	Yes	14	354245	8018240
93	Koombooloomba	PO06	Yes	15	354245	8018260
94	Koombooloomba	PO06	Yes	16	354235	8018260
95	Koombooloomba	PO06	Yes	17	354235	8018270
96	Koombooloomba	PO06	Yes	18	354225	8018270
97	Koombooloomba	PO06	Yes	19	354225	8018280
98	Koombooloomba	PO06	Yes	20	354235	8018280
99	Koombooloomba	Pilot Study A1	Yes	1	346486	8033149
100	Koombooloomba	Pilot Study A2	Yes	2	346496	8033149
101	Koombooloomba	Pilot Study A3	Yes	3	346506	8033149
102	Koombooloomba	Pilot Study A4	Yes	4	346516	8033149
103	Koombooloomba	Pilot Study A5	Yes	5	346526	8033149
104	Koombooloomba	Pilot Study A6	Yes	6	346536	8033149
105	Koombooloomba	Pilot Study A7	Yes	7	346546	8033149
106	Koombooloomba	Pilot Study A8	Yes	8	346556	8033149
107	Koombooloomba	Pilot Study A9	Yes	9	346566	8033149
108	Koombooloomba	Pilot Study A10	Yes	10	346576	8033149
109	Koombooloomba	Pilot Study B1	Yes	11	346486	8033139
110	Koombooloomba	Pilot Study B2	Yes	12	346496	8033139
111	Koombooloomba	Pilot Study B3	Yes	13	346506	8033139
112	Koombooloomba	Pilot Study B4	Yes	14	346516	8033139
113	Koombooloomba	Pilot Study B5	Yes	15	346526	8033139
114	Koombooloomba	Pilot Study B6	Yes	16	346536	8033139
115	Koombooloomba	Pilot Study B7	Yes	17	346546	8033139
116	Koombooloomba	Pilot Study B8	Yes	18	346556	8033139

Unique Plot Code	Area	Site Code	Dieback	Plot	Easting	Northing
117	Koombooloomba	Pilot Study B9	Yes	19	346566	8033139
118	Koombooloomba	Pilot Study B10	Yes	20	346576	8033139
119	Koombooloomba	Pilot Study C1	Yes	21	346486	8033129
120	Koombooloomba	Pilot Study C2	Yes	22	346496	8033129
121	Koombooloomba	Pilot Study C3	Yes	23	346506	8033129
122	Koombooloomba	Pilot Study C4	Yes	24	346516	8033129
123	Koombooloomba	Pilot Study C5	Yes	25	346526	8033129
124	Koombooloomba	Pilot Study C6	Yes	26	346536	8033129
125	Koombooloomba	Pilot Study C7	Yes	27	346546	8033129
126	Koombooloomba	Pilot Study C8	Yes	28	346556	8033129
127	Koombooloomba	Pilot Study C9	Yes	29	346566	8033129
128	Koombooloomba	Pilot Study C10	Yes	30	346576	8033129
129	Koombooloomba	Pilot Study D1	Yes	31	346486	8033119
130	Koombooloomba	Pilot Study D2	Yes	32	346496	8033119
131	Koombooloomba	Pilot Study D3	Yes	33	346506	8033119
132	Koombooloomba	Pilot Study D4	Yes	34	346516	8033119
133	Koombooloomba	Pilot Study D5	Yes	35	346526	8033119
134	Koombooloomba	Pilot Study D6	Yes	36	346536	8033119
135	Koombooloomba	Pilot Study D7	Yes	37	346546	8033119
136	Koombooloomba	Pilot Study D8	Yes	38	346556	8033119
137	Koombooloomba	Pilot Study D9	Yes	39	346566	8033119
138	Koombooloomba	Pilot Study D10	Yes	40	346576	8033119
139	Koombooloomba	Pilot Study E1	Yes	41	346486	8033109
140	Koombooloomba	Pilot Study E2	Yes	42	346496	8033109
141	Koombooloomba	Pilot Study E3	Yes	43	346506	8033109
142	Koombooloomba	Pilot Study E4	Yes	44	346516	8033109
143	Koombooloomba	Pilot Study E5	Yes	45	346526	8033109
144	Koombooloomba	Pilot Study E6	Yes	46	346536	8033109
145	Koombooloomba	Pilot Study E7	Yes	47	346546	8033109
146	Koombooloomba	Pilot Study E8	Yes	48	346556	8033109
147	Koombooloomba	Pilot Study E9	Yes	49	346566	8033109
148	Koombooloomba	Pilot Study E10	Yes	50	346576	8033109
149	Koombooloomba	Pilot Study F1	Yes	51	346486	8033099
150	Koombooloomba	Pilot Study F2	Yes	52	346496	8033099
151	Koombooloomba	Pilot Study F3	Yes	53	346506	8033099
152	Koombooloomba	Pilot Study F4	Yes	54	346516	8033099
153	Koombooloomba	Pilot Study F5	Yes	55	346526	8033099
154	Koombooloomba	Pilot Study F6	Yes	56	346536	8033099
155	Koombooloomba	Pilot Study F7	Yes	57	346546	8033099

Unique Plot Code	Area	Site Code	Dieback	Plot	Easting	Northing
156	Koombooloomba	Pilot Study F8	Yes	58	346556	8033099
157	Koombooloomba	Pilot Study F9	Yes	59	346566	8033099
158	Koombooloomba	Pilot Study F10	Yes	60	346576	8033099
159	Koombooloomba	Pilot Study G1	Yes	61	346486	8033089
160	Koombooloomba	Pilot Study G2	Yes	62	346496	8033089
161	Koombooloomba	Pilot Study G3	Yes	63	346506	8033089
162	Koombooloomba	Pilot Study G4	Yes	64	346516	8033089
163	Koombooloomba	Pilot Study G5	Yes	65	346526	8033089
164	Koombooloomba	Pilot Study G6	Yes	66	346536	8033089
165	Koombooloomba	Pilot Study G7	Yes	67	346546	8033089
166	Koombooloomba	Pilot Study G8	Yes	68	346556	8033089
167	Koombooloomba	Pilot Study G9	Yes	69	346566	8033089
168	Koombooloomba	Pilot Study G10	Yes	70	346576	8033089
169	Koombooloomba	Pilot Study H7	Yes	71	346546	8033079
170	Koombooloomba	Pilot Study H8	Yes	72	346556	8033079
171	Koombooloomba	Pilot Study H9	Yes	73	346566	8033079
172	Koombooloomba	Pilot Study H10	Yes	74	346576	8033079
173	Lamb Range	LRA1	Yes	1	348975	8108700
174	Lamb Range	LRA1	Yes	2	348985	8108700
175	Lamb Range	LRA1	Yes	3	348985	8108690
176	Lamb Range	LRA1	Yes	4	348985	8108710
177	Lamb Range	LRA1	Yes	5	348975	8108690
178	Lamb Range	LRA1	Yes	6	348965	8108690
179	Lamb Range	LRA1	Yes	7	348965	8108680
180	Lamb Range	LRA1	Yes	8	348965	8108700
181	Lamb Range	LRA1	Yes	9	348985	8108720
182	Lamb Range	LRA1	Yes	10	348975	8108720
183	Lamb Range	LRA1	Yes	11	348995	8108720
184	Lamb Range	LRA1	Yes	12	348995	8108710
185	Lamb Range	LRA1	Yes	13	349005	8108710
186	Lamb Range	LRA1	Yes	14	349005	8108700
187	Lamb Range	LRA1	Yes	15	348995	8108700
188	Lamb Range	LRA1	Yes	16	348995	8108730
189	Lamb Range	LRA1	Yes	17	348985	8108730
190	Lamb Range	LRA1	Yes	18	348985	8108740
191	Lamb Range	LRA1	Yes	19	348975	8108740
192	Lamb Range	LRA1	Yes	20	348975	8108730
193	Lamb Range	LRA2	Yes	1	349152	8108902
194	Lamb Range	LRA2	Yes	2	349152	8108912

Unique Plot Code	Area	Site Code	Dieback	Plot	Easting	Northing
195	Lamb Range	LRA2	Yes	3	349142	8108912
196	Lamb Range	LRA2	Yes	4	349132	8108912
197	Lamb Range	LRA2	Yes	5	349132	8108902
198	Lamb Range	LRA2	Yes	6	349132	8108892
199	Lamb Range	LRA2	Yes	7	349142	8108902
200	Lamb Range	LRA2	Yes	8	349152	8108922
201	Lamb Range	LRA2	Yes	9	349172	8108912
202	Lamb Range	LRA2	Yes	10	349162	8108912
203	Lamb Range	LRA2	Yes	11	349152	8108892
204	Lamb Range	LRA2	Yes	12	349162	8108892
205	Lamb Range	LRA2	Yes	13	349162	8108902
206	Lamb Range	LRA2	Yes	14	349142	8108922
207	Lamb Range	LRA2	Yes	15	349142	8108932
208	Lamb Range	LRA2	Yes	16	349152	8108932
209	Lamb Range	LRA2	Yes	17	349132	8108922
210	Lamb Range	LRA2	Yes	18	349122	8108922
211	Lamb Range	LRA2	Yes	19	349122	8108932
212	Lamb Range	LRA2	Yes	20	349132	8108932
213	Lamb Range	LRU1	No	1	349275	8109050
214	Lamb Range	LRU1	No	2	349285	8109050
215	Lamb Range	LRU1	No	3	349285	8109060
216	Lamb Range	LRU1	No	4	349285	8109070
217	Lamb Range	LRU1	No	5	349275	8109060
218	Lamb Range	LRU1	No	6	349265	8109060
219	Lamb Range	LRU1	No	7	349275	8109040
220	Lamb Range	LRU1	No	8	349265	8109040
221	Lamb Range	LRU1	No	9	349265	8109030
222	Lamb Range	LRU1	No	10	349265	8109050
223	Lamb Range	LRU1	No	11	349255	8109050
224	Lamb Range	LRU1	No	12	349255	8109040
225	Lamb Range	LRU1	No	13	349255	8109060
226	Lamb Range	LRU1	No	14	349285	8109080
227	Lamb Range	LRU1	No	15	349265	8109070
228	Lamb Range	LRU1	No	16	349255	8109070
229	Lamb Range	LRU1	No	17	349265	8109080
230	Lamb Range	LRU1	No	18	349265	8109090
231	Lamb Range	LRU1	No	19	349275	8109080
232	Lamb Range	LRU1	No	20	349275	8109070
233	Mount Lewis	MLA1	Yes	1	318307	8165290

Unique Plot Code	Area	Site Code	Dieback	Plot	Easting	Northing
234	Mount Lewis	MLA1	Yes	2	318297	8165290
235	Mount Lewis	MLA1	Yes	3	318287	8165290
236	Mount Lewis	MLA1	Yes	4	318277	8165290
237	Mount Lewis	MLA1	Yes	5	318287	8165300
238	Mount Lewis	MLA1	Yes	6	318297	8165300
239	Mount Lewis	MLA1	Yes	7	318267	8165290
240	Mount Lewis	MLA1	Yes	8	318277	8165280
241	Mount Lewis	MLA1	Yes	9	318277	8165270
242	Mount Lewis	MLA1	Yes	10	318267	8165280
243	Mount Lewis	MLA1	Yes	11	318257	8165280
244	Mount Lewis	MLA1	Yes	12	318267	8165300
245	Mount Lewis	MLA1	Yes	13	318267	8165270
246	Mount Lewis	MLA1	Yes	14	318287	8165270
247	Mount Lewis	MLA1	Yes	15	318287	8165280
248	Mount Lewis	MLA1	Yes	16	318297	8165270
249	Mount Lewis	MLA2	Yes	1	317250	8165300
250	Mount Lewis	MLA2	Yes	2	317260	8165300
251	Mount Lewis	MLA2	Yes	3	317240	8165300
252	Mount Lewis	MLA2	Yes	4	317250	8165290
253	Mount Lewis	MLA2	Yes	5	317240	8165290
254	Mount Lewis	MLA2	Yes	6	317250	8165280
255	Mount Lewis	MLA2	Yes	7	317240	8165280
256	Mount Lewis	MLA2	Yes	8	317260	8165280
257	Mount Lewis	MLA2	Yes	9	317260	8165290
258	Mount Lewis	MLA2	Yes	10	317270	8165300
259	Mount Lewis	MLA2	Yes	11	317270	
260	Mount Lewis	MLA2	Yes	12	317280	8165300
261	Mount Lewis	MLA2	Yes	13	317290	8165300
262	Mount Lewis	MLA2	Yes	14	317280	8165310
263	Mount Lewis	MLA2	Yes	15	317270	8165310
264	Mount Lewis	MLA2	Yes	16	317270	8165320
265	Mount Lewis	MLA4b	Yes	1	316963	8164251
266	Mount Lewis	MLA4b	Yes	2	316963	8164241
267	Mount Lewis	MLA4b	Yes	3	316953	8164241
268	Mount Lewis	MLA4b	Yes	4	316943	8164241
269	Mount Lewis	MLA4b	Yes	5	316963	8164231
270	Mount Lewis	MLA4b	Yes	6	316953	8164251
271	Mount Lewis	MLA4b	Yes	7	316933	8164241
272	Mount Lewis	MLA4b	Yes	8	316933	8164251

Unique Plot Code	Area	Site Code	Dieback	Plot	Easting	Northing
273	Mount Lewis	MLA4b	Yes	9	316923	8164251
274	Mount Lewis	MLA4b	Yes	10	316923	8164241
275	Mount Lewis	MLA4b	Yes	11	316923	8164261
276	Mount Lewis	MLA4b	Yes	12	316923	8164271
277	Mount Lewis	MLA4b	Yes	13	316933	8164271
278	Mount Lewis	MLA4b	Yes	14	316933	8164261
279	Mount Lewis	MLA4b	Yes	15	316943	8164271
280	Mount Lewis	MLA4b	Yes	16	316953	8164271
281	Mount Lewis	MLA14	Yes	1	315812	8168582
282	Mount Lewis	MLA14	Yes	2	315822	8168582
283	Mount Lewis	MLA14	Yes	3	315822	8168572
284	Mount Lewis	MLA14	Yes	4	315812	8168572
285	Mount Lewis	MLA14	Yes	5	315812	8168592
286	Mount Lewis	MLA14	Yes	6	315812	8168602
287	Mount Lewis	MLA14	Yes	7	315802	8168602
288	Mount Lewis	MLA14	Yes	8	315792	8168602
289	Mount Lewis	MLA14	Yes	9	315822	8168602
290	Mount Lewis	MLA14	Yes	10	315822	8168612
291	Mount Lewis	MLA14	Yes	11	315822	8168622
292	Mount Lewis	MLA14	Yes	12	315832	8168612
293	Mount Lewis	MLA14	Yes	13	315832	8168622
294	Mount Lewis	MLA14	Yes	14	315842	8168622
295	Mount Lewis	MLA14	Yes	15	315822	8168632
296	Mount Lewis	MLA14	Yes	16	315822	8168642
297	Mount Lewis	MLU6	No	1	314800	8172265
298	Mount Lewis	MLU6	No	2	314810	8172265
299	Mount Lewis	MLU6	No	3	314800	8172255
300	Mount Lewis	MLU6	No	4	314800	8172245
301	Mount Lewis	MLU6	No	5	314790	8172245
302	Mount Lewis	MLU6	No	6	314790	8172255
303	Mount Lewis	MLU6	No	7	314790	8172265
304	Mount Lewis	MLU6	No	8	314780	8172265
305	Mount Lewis	MLU6	No	9	314780	8172255
306	Mount Lewis	MLU6	No	10	314800	8172275
307	Mount Lewis	MLU6	No	11	314810	8172275
308	Mount Lewis	MLU6	No	12	314800	8172285
309	Mount Lewis	MLU6	No	13	314790	8172275
310	Mount Lewis	MLU6	No	14	314780	8172275
311	Mount Lewis	MLU6	No	15	314780	8172285

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Unique Plot Code	Area	Site Code	Dieback	Plot	Easting	Northing
312	Mount Lewis	MLU6	No	16	314770	8172265
313	Kirrama	KIA1	Yes	1		
314	Kirrama	KIA2	Yes	1		
315	Kirrama	KIU1	No	1	372160	7982995
316	Mount Mackay	MMA1	Yes	1	316083	8160223
317	Bartle Frere	BFA1	Yes	1		
318	Bartle Frere	BFA1	Yes	2		
319	Bartle Frere	BFA1	Yes	3		
320	Bartle Frere	BFA1	Yes	4	373266	8077125
321	Bartle Frere	BFA1	Yes	5		
322	Bartle Frere	BFA1	Yes	6		
323	Bartle Frere	BFA1	Yes	7		
324	Bartle Frere	BFA1	Yes	8		
325	Bartle Frere	BFA2	Yes	1		
326	Bartle Frere	BFA2	Yes	2		
327	Bartle Frere	BFA2	Yes	3		
328	Bartle Frere	BFA2	Yes	4	373030	8077139
329	Bartle Frere	BFA2	Yes	5		
330	Bartle Frere	BFA2	Yes	6		
331	Bartle Frere	BFA2	Yes	7		
332	Bartle Frere	BFA2	Yes	8		
333	Bartle Frere	BFU1	No	1		
334	Bartle Frere	BFU1	No	2		
335	Bartle Frere	BFU1	No	3		
336	Bartle Frere	BFU1	No	4	372936	8077037
337	Bartle Frere	BFU1	No	5		
338	Bartle Frere	BFU1	No	6		
339	Bartle Frere	BFU1	No	7		
340	Bartle Frere	BFU1	No	8		
341	Bellenden Ker	KA1	Yes	1	378537	8091112
342	Bellenden Ker	KA1	Yes	1	377989	8090426
343	Bellenden Ker	KA3	Yes	1	378713	8091554
344	Bellenden Ker	KA4	Yes	1	378683	8091955
345	Bellenden Ker	KA5	Yes	1	377261	8091310
346	Bellenden Ker	KU1	No	1	378094	8090700
347	Bellenden Ker	KU2	No	1	378190	8090688
348	Bellenden Ker	KU3	No	1	378543	8090641
349	Bellenden Ker	KU4	No	1	378587	8091284
350	Bellenden Ker	KU5	No	1	377419	8091115

SPECIES LIST TABLE

The species list table in the database assigns a unique number to each species recorded during tree health assessments, with 445 species currently listed.

This table should not be altered unless new species are recorded at monitoring sites, or information regarding listed species (e.g. a change in their conservation status) needs to be altered.

Species Number

- A unique number is assigned to each species identified during tree health assessments. This number must be entered into each row of the database.

Family

- Plant family to which the species belongs.

Genus, Species

- Name of plant, as listed in Henderson (2002) or by B. R. Jackes (pers. comm.).

Successional Status

- This column provides an indication of the ecology of the plant. It indicates whether the plant species is typical of disturbed forests (i.e. the plant is a pioneer species), well developed, or undisturbed forests. This determination was made with reference to ecological notes in Hyland *et al.* (1999). A detailed justification of the coding presented is given on page 37 of Gadek and Worboys (2003).

Conservation Status

- The conservation status of the species, as listed in the *Queensland Nature Conservation (Wildlife) Regulation 1994*. This column was updated in June 2004, but may need updating if the regulation is revised.

Species List Table

Species #	Family	Genus	Species	Successional Status	Conservation Status
1	Grossulariaceae	Abrophyllum	<i>ornans</i>	1	
2	Mimosaceae	Acacia	<i>celsa</i>	1	
3	Elaeocarpaceae	Aceratium	<i>concinnum</i>	3	
444	Elaeocarpaceae	Aceratium	<i>ferrugineum</i>	3	R (Qld)
4	Myrtaceae	Acmena	<i>resa</i>	3	
287	Rutaceae	Acronychia	<i>acidula</i>	1	
5	Rutaceae	Acronychia	<i>acronychioides</i>	3	
6	Rutaceae	Acronychia	<i>chooreechillum</i>		
7	Rutaceae	Acronychia	<i>parviflora</i>	4	
8	Rutaceae	Acronychia	<i>vestita</i>	1	
327	Cunoniaceae	Acsmithia	<i>davidsonii</i>	3	
448	Adiantaceae	Adiantum	<i>diaphanum</i>	0	
9	Meliaceae	Aglaia	<i>brassii</i>	3	R (Qld)
10	Meliaceae	Aglaia	<i>meridionalis</i>	3	
291	Alangiaceae	Alangium	<i>villosum</i> subsp. <i>polyosmoides</i>	3	
302	Euphorbiaceae	Aleurites	<i>rockinghamensis</i>	1	
441	Proteaceae	Alloxylon	<i>wickhamii</i>	3	
428	Rhamnaceae	Alphitonia	<i>petriei</i>	1	
11	Rhamnaceae	Alphitonia	<i>whitei</i>	3	
12	Zingiberaceae	Alpinia	<i>arctiflora</i>	1	
13	Apocynaceae	Alstonia	<i>muelleriana</i>	1	
459	Apocynaceae	Alyxia	<i>orophila</i>	0	
14	Euphorbiaceae	Antidesma	<i>erostre</i>	3	
15	Rubiaceae	Antirhea	sp. (Mount Lewis BG 5733)	4	
16	Rubiaceae	Antirhea	<i>tenuiflora</i>	3	
274	Icacinaceae	Apodytes	<i>brachystylis</i>	3	
17	Mimosaceae	Archidendron	<i>grandiflorum</i>	2	
18	Mimosaceae	Archidendron	<i>vaillantii</i>	3	
440	Myrtaceae	Archirhodomyrtus	<i>beckleri</i>	1	
19	Myrsinaceae	Ardisia	<i>brevipedata</i>	3	
20	Myrsinaceae	Ardisia	<i>pachyrrhachis</i>	3	
316	Myrsinaceae	Ardisia	sp. (Mountain Ardisia BH 8778)		
292	Sterculiaceae	Argyrodendron	<i>peralatum</i>	3	
452	Sterculiaceae	Argyrodendron	sp. (Karnak P. I. Forster + PIF 10711)	3	
21	Sterculiaceae	Argyrodendron	sp. (Mount Haig L. S. Smith + 14307)	3	

Species #	Family	Genus	Species	Successional Status	Conservation Status
22	Aristolochiaceae	Aristolochia	<i>deltantha</i>		
317	Aristolochiaceae	Aristolochia sp.	(Mount Lewis)		
23	Sapindaceae	Arytera	<i>pauciflora</i>	3	
24	Aspleniaceae	Asplenium	<i>australasicum</i>	2	
318	Aspleniaceae	Asplenium	<i>laserpitiifolium</i>		
319	Aspleniaceae	Asplenium	<i>simplicifrons</i>		
25	Proteaceae	Athertonia	<i>diversifolia</i>	3	
26	Rubiaceae	Atractocarpus	<i>fitzalanii</i> subsp. <i>tenuipes</i>		
122	Rubiaceae	Atractocarpus	<i>merikin</i>	3	
186	Pittosporaceae	Auranticarpa	<i>papyracea</i>	3	
28	Austrobaileyaceae	Austrobaileya	<i>scandens</i>	3	
320	Euphorbiaceae	Austrobuxus	<i>megacarpus</i>		R (Qld)
29	Monimiaceae	Austromatthaea	<i>elegans</i>	4	
30	Myrtaceae	Austromyrtus	<i>dallachiana</i>	3	
31	Myrtaceae	Austromyrtus	<i>minutiflora</i>	3	
32	Myrtaceae	Austromyrtus	<i>shepherdii</i>		
33	Myrtaceae	Austromyrtus	sp. (Danbulla L. S. Smith 10123)		
282	Myrtaceae	Austromyrtus	sp. (Gillies B. G. 1484)	3	
321	Myrtaceae	Austromyrtus	sp. (Mount Lewis B. Gray 831)		R (Qld)
34	Fabaceae	Austrostenisia	<i>stipularis</i>		
322	Balanopaceae	Balanops	<i>australiana</i>		
35	Euphorbiaceae	Baloghia	<i>inophylla</i>		
323	Euphorbiaceae	Baloghia	<i>parviflora</i>		
36	Lauraceae	Beilschmiedia	<i>bancroftii</i>	3	
37	Lauraceae	Beilschmiedia	<i>brunnea</i>	3	
38	Lauraceae	Beilschmiedia	<i>collina</i>	3	
39	Lauraceae	Beilschmiedia	<i>recurva</i>	3	
40	Lauraceae	Beilschmiedia	<i>tooram</i>	3	
41	Blechnaceae	Blechnum	<i>cartilagineum</i>		
42	Rubiaceae	Bobea	<i>myrtoides</i>	3	
447	Stangeriaceae	Bowenia	<i>spectabilis</i>	0	
43	Ochnaceae	Brackenridgea	<i>australiana</i>	3	
44	Rutaceae	Brombya	<i>platynema</i>	3	
45	Winteraceae	Bubbia	<i>queenslandiana</i> subsp. <i>queenslandiana</i>	3	R (Qld)
276	Winteraceae	Bubbia	<i>semecarpoides</i>	3	
46	Proteaceae	Buckinghamia	<i>celsissima</i>	3	
326	Orchidaceae	Bulbophyllum	<i>baileyi</i>		
324	Orchidaceae	Bulbophyllum	<i>johnsonii</i>		

Species #	Family	Genus	Species	Successional Status	Conservation Status
325	Orchidaceae	Bulbophyllum	<i>lageniforme</i>		
47	Orchidaceae	Bulbophyllum	sp.		
48	Caesalpiniaceae	Caesalpinia	<i>major</i>		
49	Arecaceae	Calamus	<i>australis</i>		
50	Arecaceae	Calamus	<i>caryotoides</i>		
51	Arecaceae	Calamus	<i>moti</i>		
303	Cunoniaceae	Caldcluvia	<i>australiensis</i>	3	
426	Burseraceae	Canarium	<i>australasicum</i>		
52	Burseraceae	Canarium	<i>muelleri</i>	3	
54	Rubiaceae	Canthium	sp.		
53	Rubiaceae	Canthium	sp. (Herberton Range S. F. Kajewski 1377)	3	
55	Proteaceae	Cardwellia	<i>sublimis</i>	3	
313	Proteaceae	Carnavonia	<i>araliifolia</i> var. <i>araliifolia</i>	3	
56	Proteaceae	Carnavonia	<i>araliifolia</i> var. <i>montana</i>	3	
57	Flacourtiaceae	Casearia	<i>costulata</i>	3	
58	Flacourtiaceae	Casearia	<i>dallachii</i>	3	
307	Fabaceae	Castanospermum	<i>australe</i>	3	
294	Sapindaceae	Castanospora	<i>alphanthii</i>	3	
331	Proteaceae	Catalepidia	<i>heyana</i>		
332	Araliaceae	Cephalalaria	<i>cephalobotrys</i>		
59	Cunoniaceae	Ceratopetalum	<i>succirubrum</i>	2	
60	Oleaceae	Chionanthus	<i>axillaris</i>	3	
333	Sapotaceae	Chrysophyllum	sp. (Mount Lewis A. K. Irvine 1402)	3	
61	Lauraceae	Cinnamomum	<i>laubatii</i>	3	
455	Lauraceae	Cinnamomum	<i>propinquum</i>	3	R (Qld)
334	Vitaceae	Cissus	<i>hypoglauca</i>		
62	Vitaceae	Cissus	<i>penninervis</i>		
63	Vitaceae	Cissus	<i>sterculiifolia</i>		
285	Icacinaceae	Citronella	<i>smythii</i>	3	
64	Lamiaceae	Clerodendrum	<i>grayi</i>		
65	Sapindaceae	Cnesmocarpon	<i>dasyantha</i>	3	
66	Dracaenaceae	Cordyline	<i>cannifolia</i>	2	
67	Corynocarpaceae	Corynocarpus	<i>cribbianus</i>	3	
68	Euphorbiaceae	Croton	<i>triacros</i>		
335	Polypodiaceae	Crypsinus	<i>simplicissimus</i>		
69	Lauraceae	Cryptocarya	<i>angulata</i>	3	
465	Lauraceae	Cryptocarya	<i>bellendenkerana</i>	3	
314	Lauraceae	Cryptocarya	<i>cocosoides</i>	3	
70	Lauraceae	Cryptocarya	<i>corrugata</i>	3	

Species #	Family	Genus	Species	Successional Status	Conservation Status
71	Lauraceae	Cryptocarya	<i>densiflora</i>	3	
336	Lauraceae	Cryptocarya	<i>grandis</i>	3	
72	Lauraceae	Cryptocarya	<i>leucophylla</i>	3	
73	Lauraceae	Cryptocarya	<i>lividula</i>	3	
74	Lauraceae	Cryptocarya	<i>mackinnoniana</i>	3	
438	Lauraceae	Cryptocarya	<i>melanocarpa</i>	3	
75	Lauraceae	Cryptocarya	<i>murrayi</i>	3	
337	Lauraceae	Cryptocarya	<i>oblata</i>	3	
76	Lauraceae	Cryptocarya	<i>putida</i>	3	
77	Lauraceae	Cryptocarya	<i>saccharata</i>	3	
78	Lauraceae	Cryptocarya	<i>smaragdina</i>	3	
338	Lauraceae	Cryptocarya	<i>vulgaris</i>	3	
79	Sapindaceae	Cupaniopsis	<i>flagelliformis</i> var. <i>flagelliformis</i>	3	
429	Cyatheaceae	Cyathea	<i>cooperi</i>		
80	Cyatheaceae	Cyathea	<i>rebecca</i>		
442	Rubiaceae	Cyclophyllum	<i>costatum</i>	3	V (Qld), V (Cth)
306	Rubiaceae	Cyclophyllum	<i>multiflorum</i>		
339	Orchidaceae	Cymbidium	<i>madidum</i>		
81	Orchidaceae	Cymbidium	<i>sp.</i>		
340	Orchidaceae	Cymbidium	<i>suave</i>		
427	Monimiaceae	Daphnandra	<i>repandula</i>	3	
82	Proteaceae	Darlingia	<i>darlingiana</i>	1	
341	Davalliaceae	Davallia	<i>denticulata</i>		
83	Davidsoniaceae	Davidsonia	<i>pruriens</i>	3	
84	Myrtaceae	Decaspermum	<i>humile</i>	3	
85	Araliaceae	Delarbrea	<i>michieana</i>	3	
342	Orchidaceae	Dendrobium	<i>adae</i>		
343	Orchidaceae	Dendrobium	<i>carrii</i>		
344	Orchidaceae	Dendrobium	<i>gracilicaule</i>		
345	Orchidaceae	Dendrobium	<i>jonesii</i> var. <i>magnificum</i>		
433	Urticaceae	Dendrocnide	<i>moroides</i>	1	
346	Loranthaceae	Dendrophthoe	? <i>glabrescens</i>		
347	Celastraceae	Denhamia	<i>viridissima</i>		
86	Annonaceae	Desmos	<i>goezeanus</i>		
87	Liliaceae	Dianella	<i>atraxis</i>	3	
88	Dichapetalaceae	Dichapetalum	<i>papuanum</i>	3	
348	Polypodiaceae	Dictymia	<i>brownii</i>		
89	Rutaceae	Dinosperma	<i>stipitatum</i>	3	
288	Ebenaceae	Diospyros	<i>cupulosa</i>	2	

Species #	Family	Genus	Species	Successional Status	Conservation Status
90	Ebenaceae	Diospyros	<i>pentamera</i>	2	
91	Ebenaceae	Diospyros	sp. (Millaa Millaa L. W. J. 515)	4	
92	Ebenaceae	Diospyros	sp. (Mount Lewis L. S. Smith 10107)	2	R (Qld)
290	Monimiaceae	Doryphora	<i>aromatica</i>	3	
93	Monimiaceae	Dryadodaphne	sp. (Mount Lewis B. P. Hyland + RFK 1496)	3	
94	Polypodiaceae	Drynaria	<i>rigidula</i>		
95	Euphorbiaceae	Drypetes	<i>acuminata</i>	3	
350	Euphorbiaceae	Drypetes	<i>iodoformis</i>	3	
283	Meliaceae	Dysoxylum	<i>klanderii</i>	3	
96	Meliaceae	Dysoxylum	<i>oppositifolium</i>	3	
97	Meliaceae	Dysoxylum	<i>papuanum</i>	3	
470	Proteaceae	Eidothea	<i>zoexylocarya</i>	3	R (Qld)
351	Elaeocarpaceae	Elaeocarpus	<i>bancroftii</i>	3	
352	Elaeocarpaceae	Elaeocarpus	<i>carolinae</i>	3	
98	Elaeocarpaceae	Elaeocarpus	<i>elliffii</i>	3	
99	Elaeocarpaceae	Elaeocarpus	<i>eumundi</i>	3	
463	Elaeocarpaceae	Elaeocarpus	<i>ferruginiflorus</i>	3	
100	Elaeocarpaceae	Elaeocarpus	<i>foveolatus</i>	3	
101	Elaeocarpaceae	Elaeocarpus	<i>largiflorens</i> subsp. <i>largiflorens</i>	1	
354	Elaeocarpaceae	Elaeocarpus	<i>largiflorens</i> subsp. <i>retinervis</i>	3	
466	Elaeocarpaceae	Elaeocarpus	<i>linsmithii</i>	2	
308	Elaeocarpaceae	Elaeocarpus	<i>ruminatus</i>	3	
278	Elaeocarpaceae	Elaeocarpus	<i>sericopetalus</i>	3	
102	Elaeocarpaceae	Elaeocarpus	sp. (Mount Bellenden Ker L. J. Brass 18336)	3	
355	Elaeocarpaceae	Elaeocarpus	sp. (Windsor Tableland BH5541)		
103	Myrsinaceae	Embelia	<i>grayi</i>		
309	Rhamnaceae	Emmenosperma	<i>alphitonioides</i>	3	
356	Lauraceae	Endiandra	<i>acuminata</i>	3	
299	Lauraceae	Endiandra	<i>bessaphila</i>	3	
275	Lauraceae	Endiandra	<i>dichrophylla</i>	3	R (Qld)
104	Lauraceae	Endiandra	<i>dielsiana</i>	3	
105	Lauraceae	Endiandra	<i>hypotephra</i>	2	
106	Lauraceae	Endiandra	<i>jonesii</i>	3	R (Qld)
359	Lauraceae	Endiandra	<i>leptodendron</i>	2	
298	Lauraceae	Endiandra	<i>monothyra</i> subsp. <i>monothyra</i>	3	

Species #	Family	Genus	Species	Successional Status	Conservation Status
436	Lauraceae	Endiandra	<i>monothyra</i> subsp. <i>trichophylla</i>	3	
107	Lauraceae	Endiandra	<i>montana</i>	3	
108	Lauraceae	Endiandra	<i>palmerstonii</i>	3	
362	Lauraceae	Endiandra	<i>phaeocarpa</i>	3	R (Qld)
304	Lauraceae	Endiandra	<i>sankeyana</i>	3	
109	Lauraceae	Endiandra	<i>wolfei</i>	3	
110	Eupomatiaceae	Eupomatia	<i>laurina</i>	1	
111	Cyperaceae	Exocarya	<i>scleroides</i>	1	
112	Gentianaceae	Fagraea	<i>fagraeacea</i>	3	
435	Moraceae	Ficus	<i>congesta</i>	1	
364	Moraceae	Ficus	<i>crassipes</i>	3	
296	Moraceae	Ficus	<i>leptoclada</i>	1	
432	Moraceae	Ficus	<i>pleurocarpa</i>	3	
472	Moraceae	Ficus	<i>septica</i>	1	
113	Moraceae	Ficus	<i>watkinsiana</i>	3	
365	Flagellariaceae	Flagellaria	<i>indica</i>		
114	Rutaceae	Flindersia	<i>acuminata</i>	3	
115	Rutaceae	Flindersia	<i>bourjotiana</i>	3	
284	Rutaceae	Flindersia	<i>brayleana</i>	3	
116	Rutaceae	Flindersia	<i>pimenteliana</i>	3	
457	Rutaceae	Flindersia	<i>pimenteliana</i> f. <i>oppositifolia</i>	3	R (Qld)
117	Sterculiaceae	Franciscodendron	<i>laurifolium</i>	3	
118	Pandanaceae	Freycinetia	<i>excelsa</i>		
119	Pandanaceae	Freycinetia	<i>scandens</i>		
120	Himantandraceae	Galbulimima	<i>baccata</i>	3	
121	Clusiaceae	Garcinia	sp. (Davies Creek J. G. Tracey 14745)	3	
366	Clusiaceae	Garcinia	<i>warrenii</i>	3	
367	Cunoniaceae	Geissois	<i>biagiana</i>	3	
286	Proteaceae	Gevuina	<i>bleasdalei</i>	3	
297	Cunoniaceae	Gillbeea	<i>adenopetala</i>	3	
368	Cunoniaceae	Gillbeea	<i>whypallana</i>	3	
123	Euphorbiaceae	Glochidion	<i>harveyanum</i>		
312	Euphorbiaceae	Glochidion	<i>hylandii</i>	1	
124	Euphorbiaceae	Glochidion	<i>sessiliflorum</i> var. <i>pedicellatum</i>	3	
125	Lamiaceae	Gmelina	<i>fasciculiflora</i>	3	
126	Annonaceae	Goniothalamus	<i>australis</i>	2	
127	Sapindaceae	Guioa	<i>acutifolia</i>	1	
128	Sapindaceae	Guioa	<i>lasioneura</i>	3	

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469	Sapindaceae	Guioa	<i>montana</i>	3	
370	Araceae	Gymnostachys	<i>anceps</i>		
129	Rutaceae	Halfordia	<i>scleroxyla</i>	3	
130	Annonaceae	Haplostichanthus	sp. (Topaz L. W. Jessup 520)	3	R (Qld)
132	Sapindaceae	Harpullia	<i>frutescens</i>	4	
131	Sapindaceae	Harpullia	<i>rhyticarpa</i>	4	
133	Celastraceae	Hedraianthera	<i>porphyropetala</i>	3	
134	Monimiaceae	Hedycarya	<i>loxocarya</i>	3	
135	Proteaceae	Helicia	<i>australasica</i>	3	
371	Proteaceae	Helicia	<i>grayi</i>		R (Qld)
136	Proteaceae	Helicia	<i>lamingtoniana</i>	3	R (Qld)
137	Proteaceae	Helicia	<i>lewisensis</i>	3	R (Qld)
138	Proteaceae	Helicia	<i>nortoniana</i>	3	
372	Proteaceae	Helicia	<i>recurva</i>		R (Qld)
451	Philydraceae	Helmholtzia	<i>acorifolia</i>	4	
445	Flacourtiaceae	Homalium	<i>circumpinnatum</i>	3	
373	Euphorbiaceae	Hylandia	<i>dockrillii</i>	3	
139	Menispermaceae	Hypserpa	<i>decumbens</i>		
140	Menispermaceae	Hypserpa	<i>smilacifolia</i>		R (Qld)
141	Celastraceae	Hypsophila	<i>dielsiana</i>	3	
374	Celastraceae	Hypsophila	<i>halleyana</i>		
142	Icacinaceae	Irvingbaileya	<i>australis</i>	3	
375	Rubiaceae	Ixora	<i>orophila</i>	3	
143	Rubiaceae	Ixora	sp. (North Mary L. A. BH 8618)	3	
305	Sapindaceae	Jagera	<i>pseudorhus</i> var. <i>integerrima</i>	3	
144	Oleaceae	Jasminum	<i>aemulum</i>		
145	Oleaceae	Jasminum	<i>didymum</i>		
146	Oleaceae	Jasminum	<i>kajewskii</i>		
379	Arecaceae	Laccospadix	<i>australasica</i>		
147	Gesneriaceae	Lenbrassia	<i>australiana</i> var. <i>australiana</i>	3	R (Qld)
461	Myrtaceae	Lenwebbia	<i>lasioclada</i>	2	
148	Sapindaceae	Lepiderema	<i>ixiocarpa</i>	4	
380	Thymeleaceae	Lethedon	<i>setosa</i>	3	
437	Monimiaceae	Levieria	<i>acuminata</i>	3	
381	Arecaceae	Linospadix	<i>apetiolata</i>		
149	Arecaceae	Linospadix	<i>microcarya</i>		R (Qld)
382	Orchidaceae	Liparis	<i>nugentiae</i>		
150	Lauraceae	Litsea	<i>bennettii</i>		

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151	Lauraceae	Litsea	<i>connorsii</i>	2	
152	Lauraceae	Litsea	<i>leefeana</i>	1	
153	Proteaceae	Lomatia	<i>fraxinifolia</i>	3	
154	Lygodiaceae	Lygodium	<i>reticulatum</i>	1	
155	Euphorbiaceae	Macaranga	<i>inamoena</i>	3	
384	Euphorbiaceae	Macaranga	<i>subdentata</i>	3	
156	Araliaceae	Mackinlaya	<i>confusa</i>	3	
157	Araliaceae	Mackinlaya	<i>macrosciadea</i>	3	
450	Myrsinaceae	Maesa	<i>dependens</i>	1	
158	Euphorbiaceae	Mallotus	<i>polyadenos</i>	3	
385	Rutaceae	Medicosma	<i>fareana</i>	3	
159	Annonaceae	Meiogyne	sp. (Mount Lewis L. W. Jessup 554)		
160	Rutaceae	Melicope	<i>broadbentiana</i>	1	
161	Rutaceae	Melicope	<i>elleryana</i>	1	
280	Rutaceae	Melicope	<i>vitiflora</i>	3	
300	Rutaceae	Melicope	<i>xanthoxyloides</i>	1	
162	Apocynaceae	Melodinus	<i>australis</i>	2	
163	Apocynaceae	Melodinus	<i>bacellianus</i>		
164	Annonaceae	Melodorum	<i>uhrii</i>		
315	Sapindaceae	Mischarytera	<i>lauteriana</i>	3	
165	Sapindaceae	Mischocarpus	<i>exangulatus</i>	3	
386	Sapindaceae	Mischocarpus	<i>exangulatus</i> vel aff.	3	
166	Sapindaceae	Mischocarpus	<i>grandissimus</i>	3	
167	Sapindaceae	Mischocarpus	<i>lachnocarpus</i>	3	
168	Sapindaceae	Mischocarpus	<i>macrocarpus</i>	3	
169	Sapindaceae	Mischocarpus	<i>pyriformis</i> subsp. <i>pyriformis</i>	3	
387	Orchidaceae	Mobilabium	<i>hamatum</i>		
170	Rubiaceae	Morinda	<i>jasminoides</i>		
171	Rubiaceae	Morinda	sp.		
388	Rubiaceae	Morinda	sp. (Black Leaves B. Gray 1677)		
389	Araliaceae	Motherwellia	<i>haplosciadea</i>		
390	Proteaceae	Musgravea	<i>stenostachya</i>	3	
301	Myristicaceae	Myristica	<i>insipida</i>	3	
464	Myrsinaceae	Myrsine	<i>oreophila</i> (Ms B. R. Jackes)	0	
172	Apocynaceae	Neisosperma	<i>poweri</i>	2	
173	Lauraceae	Neolitsea	<i>dealbata</i>	1	
174	Bignoniaceae	Neosepicaea	<i>jucunda</i>		
391	Nephrolepidaceae	Nephrolepis	<i>auriculata</i>		

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277	Sapotaceae	Niemeyera	<i>prunifera</i>	3	
175	Sapotaceae	Niemeyera	sp. (Mount Lewis A. K. Irvine 1402)	3	
289	Proteaceae	Opisthiolepis	<i>heterophylla</i>	3	
176	Arecaceae	Oraniopsis	<i>appendiculata</i>	3	
392	Thymeleaceae	Oreodendron	<i>biflorum</i>		V (Cth), R (Qld)
456	Proteaceae	Orites	<i>excelsa</i>	3	
177	Menispermaceae	Pachygone	<i>longifolia</i>		
393	Monimiaceae	Palmeria	<i>scandens</i>		
179	Pandanaceae	Pandanus	<i>monticola</i>	4	
180	Aristolochiaceae	Pararistolochia	<i>sparusifolia</i>		
395	Apocynaceae	Parsonsia	<i>latifolia</i>		
181	Apocynaceae	Parsonsia	<i>straminea</i>	2	
182	Celastraceae	Perrottetia	<i>arborescens</i>	2	
397	Orchidaceae	Phreatia	<i>crassiuscula</i>		
183	Myrtaceae	Pilidiostigma	<i>tetramerum</i>	4	
184	Myrtaceae	Pilidiostigma	<i>tropicum</i>	3	
272	Rutaceae	Pitaviaster	<i>haplophyllus</i>	3	
185	Pittosporaceae	Pittosporum	<i>rubiginosum</i>	3	
187	Pittosporaceae	Pittosporum	<i>trilobum</i>		
188	Proteaceae	Placospermum	<i>coriaceum</i>	1	
191	Polypodiaceae	Platynerium	<i>bifurcatum</i>		
398	Polypodiaceae	Platynerium	<i>hillii</i>		
399	Orchidaceae	Plectorrhiza	<i>tridentata</i>		
192	Podocarpaceae	Podocarpus	<i>smithii</i>	3	
400	Annonaceae	Polyaulax	sp. (Mount Lewis L. W. J. 554)	3	
193	Grossulariaceae	Polyosma	<i>alangiacea</i>	3	
194	Grossulariaceae	Polyosma	<i>hirsuta</i>	3	
195	Grossulariaceae	Polyosma	<i>rhytophloia</i>	3	
401	Grossulariaceae	Polyosma	<i>rigidiuscula</i>		
196	Grossulariaceae	Polyosma	sp. (Mount Lewis B. P. Hyland RFK25241)	3	
197	Araliaceae	Polyscias	<i>australiana</i>	1	
468	Araliaceae	Polyscias	<i>bellendenkerensis</i>	2	R (Qld)
402	Araliaceae	Polyscias	<i>elegans</i>	1	
403	Araliaceae	Polyscias	<i>murrayi</i>	1	
446	Araliaceae	Polyscias	<i>purpurea</i>	4	
198	Araceae	Pothos	<i>longipes</i>	2	
199	Sapotaceae	Pouteria	<i>brownlessiana</i>	3	
310	Sapotaceae	Pouteria	<i>castanosperma</i>	3	

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200	Sapotaceae	Pouteria	<i>chartacea</i>	3	
201	Sapotaceae	Pouteria	<i>euphlebia</i>	3	
279	Sapotaceae	Pouteria	<i>papyracea</i>	3	
190	Sapotaceae	Pouteria	<i>pearsoniorum</i>	3	
462	Sapotaceae	Pouteria	<i>singuliflora</i>	2	
202	Sapotaceae	Pouteria	sp. (Mountt Lewis B. P. Hyland 579)		
404	Podocarpaceae	Prumnopitys	<i>ladei</i>	3	
204	Rosaceae	Prunus	<i>turneriana</i>	1	
205	Rubiaceae	Psychotria	sp.		
405	Rubiaceae	Psychotria	sp. (Daintree NP P. I. Forster + PIF21974)		
206	Rubiaceae	Psychotria	sp. (Danbulla S. T. Blake 15262)	4	
406	Rubiaceae	Psychotria	sp. (Mount Lewis V. K. Moriarty 2445)	4	
207	Rubiaceae	Psychotria	sp. (Utchee Creek H. Flecker NQNC 5313)	4	
407	Rubiaceae	Psychotria	<i>submontana</i>	4	
328	Rubiaceae	Psydrax	<i>lamprophylla</i>		
330	Rubiaceae	Psydrax	<i>odorata</i>	3	
208	Blechnaceae	Pteridoblechnum	<i>neglectum</i>		
209	Cunoniaceae	Pullea	<i>stutzeri</i>	3	
471	Grossulariaceae	Quintinia	<i>quatrefagesii</i>	3	
211	Myrsinaceae	Rapanea	<i>achradifolia</i>	3	
212	Myrsinaceae	Rapanea	<i>porosa</i>		
213	Myrsinaceae	Rapanea	<i>subsessilis</i> subsp. (Gordonvale S. T. Blake 9734)		
214	Myrsinaceae	Rapanea	<i>variabilis</i>		
215	Myrtaceae	Rhodamnia	<i>blairiana</i>	3	
408	Myrtaceae	Rhodamnia	<i>costata</i>	3	
216	Myrtaceae	Rhodamnia	<i>sessiliflora</i>	2	
217	Myrtaceae	Rhodamnia	<i>spongiosa</i>	3	
218	Myrtaceae	Rhodomyrtus	<i>macrocarpa</i>	3	
219	Myrtaceae	Rhodomyrtus	<i>pervagata</i>	1	
220	Sapindaceae	Rhysotoechia	<i>florulenta</i>		
221	Sapindaceae	Rhysotoechia	<i>mortoniana</i>		
223	Smilacaceae	Ripogonum	<i>album</i>		
453	Euphorbiaceae	Rockinghamia	<i>brevipes</i>	3	
409	Xanthorrhoeaceae	Romnaldia	<i>grallata</i>		
410	Orchidaceae	Sarcochilus	<i>serrulatus</i>		
411	Menispermaceae	Sarcopetalum	<i>harveyanum</i>		

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412	Sapindaceae	Sarcopteryx	<i>montana</i>		R (Qld)
224	Sapindaceae	Sarcotoechia	<i>cuneata</i>	3	
225	Sapindaceae	Sarcotoechia	<i>lanceolata</i>	3	
226	Sapindaceae	Sarcotoechia	<i>protracta</i>	3	
413	Sapindaceae	Sarcotoechia	sp. (Mountain Sarcotoechia WWC 100)		
227	Sapindaceae	Sarcotoechia	<i>villosa</i>	3	R (Qld)
430	Actinidiaceae	Saurauia	<i>andreana</i>		
449	Goodeniaceae	Scaevola	<i>enantophylla</i>	0	
228	Araliaceae	Schefflera	<i>actinophylla</i>	2	
229	Rhamnaceae	Schistocarpaea	<i>johnsonii</i>	3	
230	Elaeocarpaceae	Sloanea	<i>australis</i> subsp. <i>parviflora</i>	3	
231	Elaeocarpaceae	Sloanea	<i>langii</i>	3	
232	Elaeocarpaceae	Sloanea	<i>macbrydei</i>	3	
233	Smilacaceae	Smilax	<i>calophylla</i>		
234	Smilacaceae	Smilax	<i>glyciphylla</i>		
439	Solanaceae	Solanum	<i>torvum</i>	1	
414	Proteaceae	Sphalmium	<i>racemosum</i>	3	
235	Aquifoliaceae	Sphenostemon	<i>lobosporus</i>	3	
236	Monimiaceae	Steghanthera	<i>macoorai</i>		
415	Proteaceae	Stenocarpus	<i>davallioides</i>	3	R (Qld)
237	Proteaceae	Stenocarpus	<i>reticulatus</i>	3	
238	Proteaceae	Stenocarpus	<i>sinuatus</i>	3	
416	Menispermaceae	Stephania	<i>japonica</i>		
239	Moraceae	Streblus	<i>glaber</i> var. <i>australianus</i>	3	
203	Podocarpaceae	Sundacarpus	<i>amarus</i>	3	
242	Symplocaceae	Symplocos	<i>ampulliformis</i>		R (Qld)
281	Symplocaceae	Symplocos	<i>cochinchinensis</i> var. <i>gittonsii</i>	3	
243	Symplocaceae	Symplocos	<i>cochinchinensis</i> var. <i>glaberrima</i>	3	
240	Symplocaceae	Symplocos	<i>cochinchinensis</i> var. <i>pilioluscula</i>	3	
244	Symplocaceae	Symplocos	<i>crassiramifera</i>	4	R (Qld)
417	Symplocaceae	Symplocos	<i>cyanocarpa</i>		
418	Symplocaceae	Symplocos	sp. (North Mary L. A. B. Gray 2543)		
241	Symplocaceae	Symplocos	<i>stawellii</i> var. <i>montana</i>		R (Qld)
245	Sapindaceae	Synima	<i>cordierorum</i>	3	
246	Sapindaceae	Synima	<i>macrophylla</i>	3	
419	Meliaceae	Synoum	<i>muelleri</i>	3	

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425	Myrtaceae	Syzygium	<i>alatoramulum</i>	3	
247	Myrtaceae	Syzygium	<i>apodophyllum</i>	3	
251	Myrtaceae	Syzygium	<i>canicortex</i>	3	
252	Myrtaceae	Syzygium	<i>cormiflorum</i>	3	
253	Myrtaceae	Syzygium	<i>endophloium</i>	3	
454	Myrtaceae	Syzygium	<i>fratris</i>	3	
420	Myrtaceae	Syzygium	<i>gustavioides</i>	3	
254	Myrtaceae	Syzygium	<i>johnsonii</i>	3	
255	Myrtaceae	Syzygium	<i>kuranda</i>	3	
256	Myrtaceae	Syzygium	<i>luehmannii</i>	3	
257	Myrtaceae	Syzygium	<i>papyraceum</i>	3	
421	Myrtaceae	Syzygium	<i>trachyphloium</i>	3	
258	Myrtaceae	Syzygium	<i>wesa</i>	3	
250	Myrtaceae	Syzygium	<i>wilsonii</i> subsp. <i>cryptophlebium</i>	3	
260	Apocynaceae	Tabernaemontana	<i>pandacaqui</i>	2	
261	Myrsinaceae	Tapeinosperma	sp. (Cedar Bay J. G. Tracey 14780)		
262	Winteraceae	Tasmannia	<i>membranea</i>	3	
263	Dilleniaceae	Tetracera	<i>nordtiana</i> var. <i>nordtiana</i>		
293	Monimiaceae	Tetrasynandra	<i>laxiflora</i>	3	
264	Monimiaceae	Tetrasynandra	<i>pubescens</i>	2	
265	Monimiaceae	Tetrasynandra	sp. (Mount Lewis B. P. Hyland 1053)		R (Qld)
434	Myrtaceae	Thaleropia	<i>queenslandica</i>	3	R (Qld)
266	Sapindaceae	Toechima	<i>erythrocarpum</i>	3	
311	Sapindaceae	Toechima	<i>monticola</i>	3	
423	Cucurbitaceae	Trichosanthes	sp. (Mount Lewis B. Gray 167)		
458	Proteaceae	Triunia	<i>montana</i>	4	
267	Moraceae	Trophis	<i>scandens</i> subsp. <i>scandens</i>		
273	Unknown	Unknown	<i>Unknown</i>		
467	Myrtaceae	Uromyrtus	<i>metrosideros</i>	2	
268	Myrtaceae	Waterhousea	<i>unipunctata</i>	3	
269	Monimiaceae	Wilkiea	<i>angustifolia</i>		
270	Monimiaceae	Wilkiea	sp. (Barong L. W. Jessup 719)		
424	Monimiaceae	Wilkiea	<i>wardellii</i>		R (Qld)
271	Xanthophyllaceae	Xanthophyllum	<i>octandrum</i>	3	
431	Rutaceae	Zanthoxylum	<i>veneficum</i>	3	