'QUERCUS PARK'

VEGETATION MANAGEMENT PLAN



Prepared for Rural Youth Organization of Tasmania (Inc) by

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17 March 2005
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Introduction

Situated near Carrick, approximately 15km south west of Launceston, in Tasmania's central north, 'Quercus Park' is the home of the State's annual Agfest. Showcasing a variety of agricultural products and services, Agfest runs over the first Thursday, Friday, and Saturday in May, and is overseen and coordinated by the Rural Youth Organization of Tasmania (Inc.).

The Rural Youth Organization of Tasmania, in collaboration with Greening Australia (Tasmania), is endeavouring to institute a range of land management practices at 'Quercus Park', to protect and enhance the onsite environment, and simultaneously provide the opportunity to showcase best practice on-farm vegetation management practices to the thousands of people who visit the site annually.

Why protect and enhance the natural values of Quercus Park?

As a site visited by many people with an interest in land management and primary production, 'Quercus Park' is an ideal site to share information about best practice land management for environmental outcomes in a practical way.

Through a combination of on-ground techniques, including fencing of remnant vegetation, the removal of weeds, the creation of shelterbelts and buffer zones through direct seeding or planting, and the sensitive management of wastewater on-site, a number of environmental benefits may be observed at 'Quercus Park'. These include:

- the maintenance and improvement of the biodiversity and general health of on-site native vegetation;
- a corresponding increase in habitat availability for native plants and animals;
- the potential to improve local water quality; as well as to control salinity problems, erosion and loss of topsoil from the site;
- the opportunity to protect and provide habitat for threatened species.

These activities should also serve to provide shelter from the wind and sun for visitors to the site, and to increase the site's aesthetic appeal.

Objectives

- Protect and enhance remnant vegetation at 'Quercus Park'
- Improve the habitat values of 'Quercus Park' for native plant and animal species
- Showcase best practice on-farm management techniques of native vegetation on a working property.
- Improve water quality on-site and minimize flow of wastewater into the Liffey River
- Promote understanding of conservation activities on agricultural properties
- Establish a sense of pride and ownership in the conservation works conducted at the Quercus Park site
- Involve Rural Youth in on-ground works, and have educational field days where Greening Australia and Rural Youth work together.
- Ensure that conservation activities are appropriate to the site, and monitor their success over the longer term

Current natural values of 'Quercus Park'

Native vegetation communities

'Quercus Park' has been largely cleared of its native vegetation, and contains significant areas of improved pasture. There are still some remnants of the native inland black peppermint (*Eucalyptus amygdalina*) woodlands, which may be seen in figure 1.

These woodlands contain black peppermints with an understorey of native grasses, orchids and lilies, but would probably have a greater shrubby component were stock excluded from them. Other vegetation types seen within 'Quercus Park' include a strip of riparian vegetation that extends along the Liffey River, which is largely infested with introduced species; and improved pasture, which consists principally of introduced grasses and covers most of the paddocks observed on site.

Considerable work has already been undertaken to protect and enhance the native vegetation on-site. Some smaller areas of bush have been fenced, and key sections have been planted with local provenance, native species. Most of the plants observed in the revegetated areas appeared to be growing well, but were experiencing undue competition from grasses and other weeds, which need to be slashed.

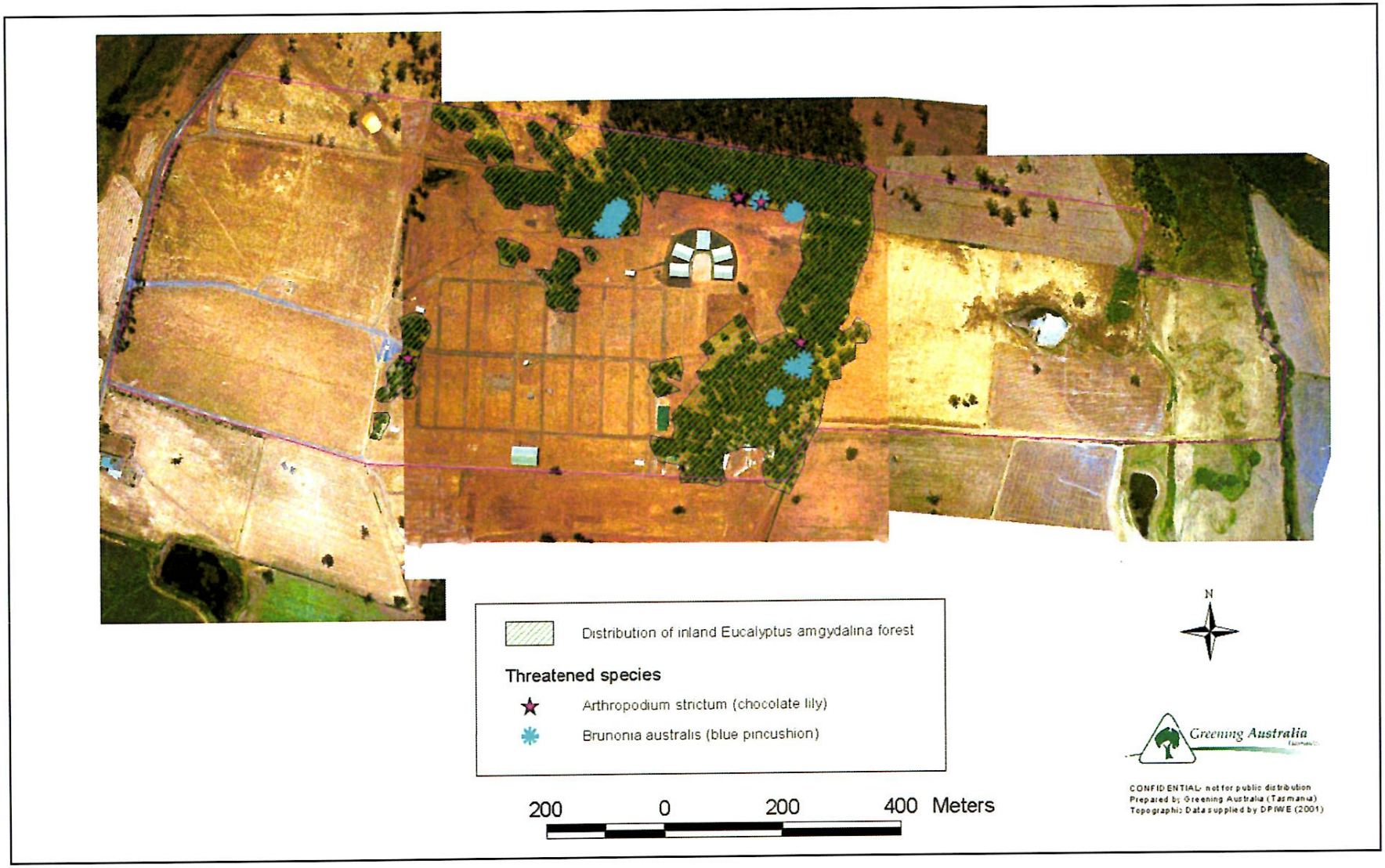

Figure 1 - Distribution of significant native vegetation at 'Quercus Park'.

Management issues within Quercus Park

Native vegetation

Of the vegetation communities contained within 'Quercus Park', the areas of inland *Eucalyptus amygdalina* woodland are of the greatest significance. These remnants are of high conservation value in their own right, and in some sections of the property, they are known to house populations of threatened flora species. They also provide important habitat for native fauna species.

Unfortunately, these areas are often used as dumping grounds for waste materials on site, as car parks, or as sources of firewood. In the especially important patch of woodland by the accommodation blocks, large piles of woodchips and straw bales have been dumped, effectively smothering the growth of the threatened plants seen growing throughout the remaining understorey in this area. There are also considerable numbers of empty 44-gallon drums stockpiled in this area, and what appears to be a stack of refuse wood ready for burning located at the edge of the road which leads down to the river. These activities are not likely to promote to the long-term health of this important remnant, and may be seen to contravene the *Tasmanian Threatened Species Act 1992*, which prohibits activities that are damaging to threatened species in areas where they are known to occur.

When managing areas containing threatened species, it is important to manage for the threatened species first, then for threatened communities, and lastly for other areas of native vegetation. Extinct species cannot be resurrected, but ecosystems may eventually rebuild themselves in the long term. Threatened species known to be at risk at 'Quercus Park' include the blue pincushion (*Brunonia australis*), and the chocolate lily (*Arthropodium strictum*).

There are also a number of isolated, mature eucalypts scattered throughout the property, which are individually important as habitat trees. In some cases, these trees are to be found in the midst of gorse infestations, and grazing around their bases has allowed little opportunity for regeneration.

Weed management

'Quercus Park' is home to a considerable array of weeds of environmental significance. The most notable of these include gorse (*Ulex europaeus*), willows (*Salix* spp.), blackberries (*Rubus fruticosus* agg.), Californian thistle (*Cirsium arvense*), which are all listed under the *Weed Management Act 1999,* as well as hawthorn (*Crataegus monogyna)*, Scotch thistle (*Cirsium vulgare*), and a variety of grassy and herbaceous weeds of crop and pasture. Weeds impact on the health and viability of areas used for agricultural production, as well as on native ecosystems, where they can out-compete native species and, in some cases, alter the nature of entire ecosystems.

Gorse is well established throughout the property, occupying paddocks, fence lines and lurking within remnant woodlands (figure 3). Some work has been done to poison it within these woodland patches, and significant amounts have been removed from along the riverbank, but there has been little follow-up work to remove the resultant dead gorse bushes.

Willows are also present along the stretch of the Liffey River that marks the boundary of the 'Quercus Park' property.

Blackberries were observed throughout the property, but were generally confined to fence lines and riparian strips.

Threatened flora

A brief survey conducted of two of the remnant patches of inland *Eucalyptus amygdalina* woodland revealed populations of two threatened flora species.

A population of rare chocolate lilies (*Arthropodium strictum*) was found to be present in the CWA Grove, a small patch of black peppermints found near the ticket gate (figure 2). This species was also found in abundance in the woodland patch situated near the accommodation compound, along with a population of blue pincushions (*Brunonia australis*), which are listed as vulnerable under the *Tasmanian Threatened Species Act 1995*. Many blue pincushions were also found in the northern block of inland *Eucalyptus amygdalina* woodland. Note sheets detailing these species may be found in Appendix 1.



Figure 2 - CWA grove, home to the threatened chocolate lily (*Arthropodium strictum*) (inset).

Other threatened flora recorded from areas near 'Quercus Park' includes blue grass lilies (*Caesia calliantha*), clover glycine (*Glycine latrobeana*), common hemp bush (*Gynatrix pulchella*), clustered rush (*Juncus vaginatus*), Cunningham's violet (*Viola cunninghamii*), and swamp everlasting (*Xerochrysum palustre*) (Parks and Wildlife, 2003).

Threatened fauna

Threatened fauna species known to utilize the area around 'Quercus Park' include wedge-tailed eagles (*Aquila audax fleayii*), green and gold bell frogs (*Litoria reniformis*), and Tasmanian masked owls (*Tyto novahollandiae castanops*) (DPIWE, 2002a). Eastern barred bandicoots (*Perameles gunnii gunnii*) are also likely to use parts of 'Quercus Park' as habitat.

Californian thistles were observed in the riparian strip along the River Liffey, and it is likely that they grow elsewhere throughout the property. Scotch thistles are broadly distributed throughout the property, and may be seen in most areas of introduced pasture.

There are many large specimens of hawthorn present on the property, mostly confined to fence lines and the fenced riparian section at the property's eastern boundary. Quaking grass (*Briza major*) was seen to be present in the important remnant by the accommodation block, and may pose a threat to the threatened native species present in the understorey of this area.



Figure 3 – Distribution of gorse (*Ulex europaeus*) at 'Quercus Park'

Water quality management

The eastern boundary of 'Quercus Park' is defined by the River Liffey, and there are several drainage lines that run down to the river flats. There is also a dam situated in the eastern section of the property.

The riparian strip has been fenced to prevent stock access to the river, and many of the drainage lines have been fenced. The drainage line running along the southern boundary of the property has been fenced, and was planted out with local native species in July 2003. These plants should help to filter run-off from the surrounding paddocks. At present, grey water and septic tank overflow are diverted by a drain, then a pipe, into the dam. From here, the overflow makes its way down to the River Liffey essentially untreated. It is desirable that this situation be improved.

A previous assessment of the site suggested that some form of constructed wetland be established to allow this wastewater to be filtered prior to it entering the Liffey, which, if properly maintained, would provide a valuable environmental service on-site and could provide habitat for a variety of native species.

Pest species and diseases

Animal pest species known to be present at the 'Quercus Park' site include rabbits, hares and feral cats.

No sign of the root rot fungus, *Phytophthora cinnamomi*, which impacts on some native vegetation communities, was observed on site, although this fungus is known to infect soils in the surrounding area (figure 4).

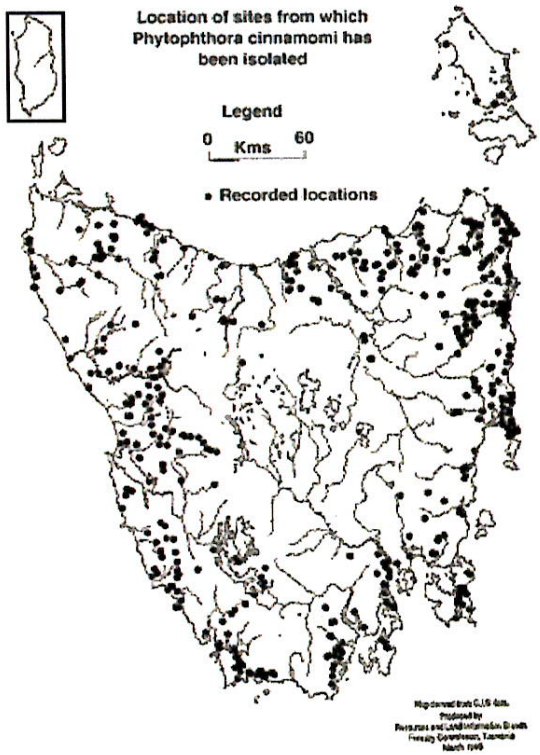

Figure 4 - Distribution of the root rot fungus *Phytophthora cinnamomi* throughout Tasmania.

Creation of habitat and shelter areas

'Quercus Park' has been largely cleared over the years, leaving little in the way of the original native vegetation at the site. In recent years, works have been undertaken to remedy this, to provide habitat for native species, and to improve the health of the property as a whole.

Some areas are in the process of being revegetated as shelterbelts, by the planting out of tube stock. These areas may be seen in figure 5.

Local provenance native species were planted in the drainage line running along the property's southern boundary in July 2003. Although the native species appear to be establishing successfully, weeds are also thriving in this well-watered area, with long grasses, blackberries and gorse threatening to overwhelm the native planting. Recent slashing has reduced the bulk of vegetation growing around the planted species, but further follow-up work is needed to ensure the native plants continue to thrive.

An area by the ticket gate has also been planted out by Greening Australia with native species, to provide habitat and demonstrate site rehabilitation techniques using local native species.



Figure 5 – Location of shelterbelts and potential shelter areas at 'Quercus Park'.

Management Action Plan for 'Quercus Park'

Introduction

The primary objective of this management action plan is to provide guidelines to protect and restore existing natural values of 'Quercus Park' by managing threats such as weeds, pedestrian, vehicle and stock access, and revegetating parts of these areas to establish habitat and areas of biodiversity. In achieving this, it is envisaged that 'Quercus Park' will be able to be presented as a showcase property for best practice on-farm management of native vegetation.

A second objective is to plan the creation of corridors of native vegetation throughout the property. These corridors of local vegetation will have multiple benefits including a mosaic of habitat for wildlife across the property, shelter for stock and visitors, a source of seed for natural regeneration in the future and will create an aesthetically pleasing landscape for visitors to the property.

The property has been separated into management zones, grouping areas with similar attributes, to allow for more effective prioritisation of on-ground works. These zones may be seen in figure 6.

A work plan has been designed for each restoration area. This plan outlines the current state of the site, the site's priority, management issues and actions, revegetation species lists, and a works timeline. Priorities have been designated according to the sites' current natural values. The priority categories are as follows:

- **High** - actions should be undertaken as soon as possible.
- **Medium** - actions should be undertaken within five years.
- **Low** - actions should be undertaken at the completion of high and medium priority actions.

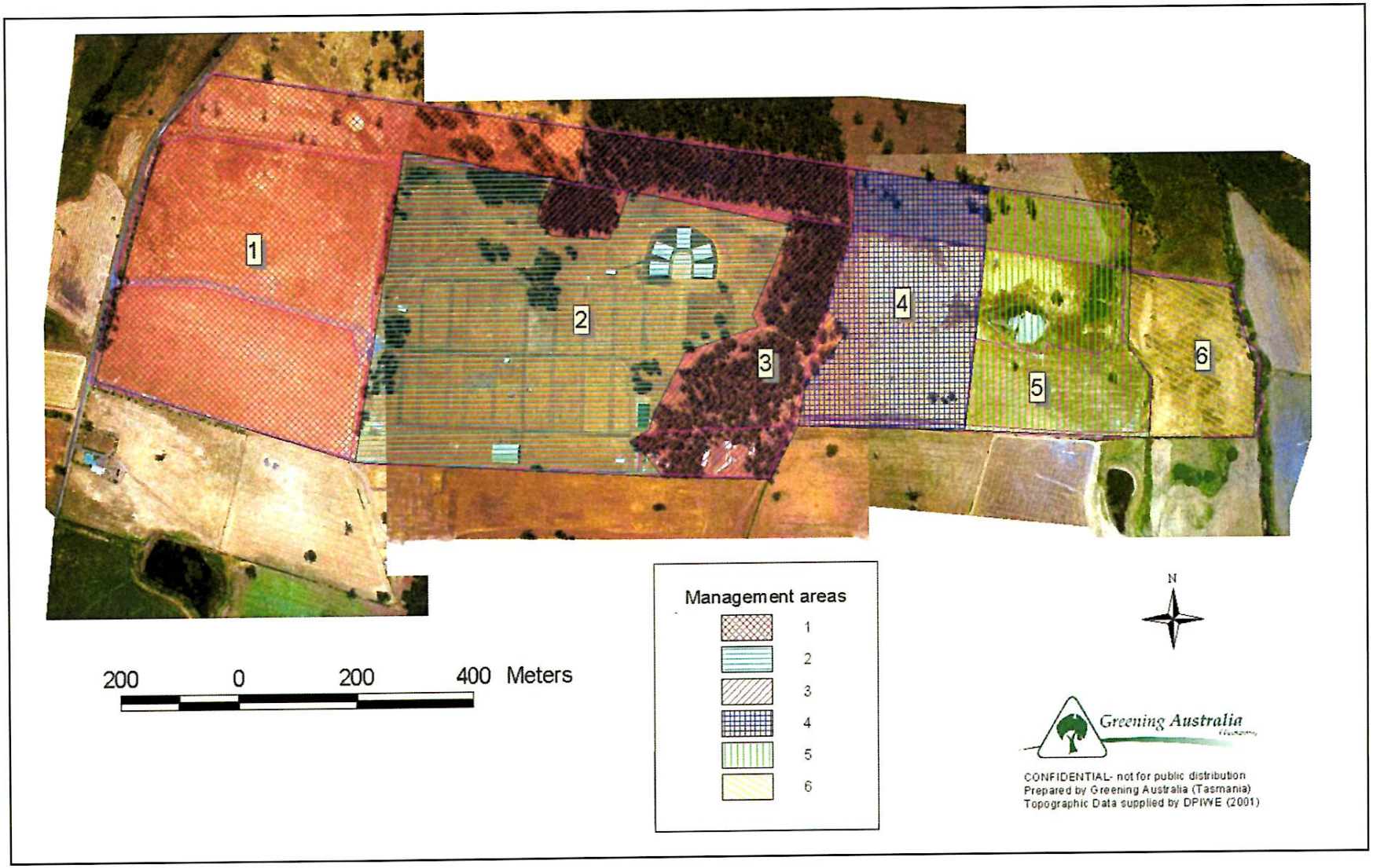

Figure 6 – Management zones within 'Quercus Park'.

Revegetation Planning

Revegetation design

The multiple benefits of revegetation need to be considered when designing the planting area and species. When the main objective of the planting is to restore habitat and biodiversity, the area should have as small an edge to area ratio as possible, i.e. large blocks are better than narrow rectangles. Where possible, planting areas should be located to buffer an existing natural area or connect remnant natural areas.

When the main objective of the planting is shelter, corridors along fence lines are the preferred option. Wider corridors suffer less edge effect (wind, weed invasion, stock damage) and allow increased plant diversity (mixture of species and heights).

The revegetation areas planned for 'Quercus Park' are a combination of planting for habitat reconstruction (local native species selected to replicate the structure and some of the floristics of the original vegetation) and shelter (belts of plants located along fence lines).

Site preparation

Good site preparation is critical to a successful revegetation project. Ripping or mound ploughing will assist plant establishment, except in sandy soils. It improves water penetration, drainage, and root establishment.

Weeds (both woody and pasture grasses) need to be controlled prior to planting to lower competition with establishing plants. Weed control is commonly achieved through the application of herbicide and/or heavy mulching or topsoil scalping. In pasture situations whole areas can be sprayed out; in areas of native vegetation, weeds can be spot sprayed. It is important to keep the young plants free of weed competition for a period of eighteen months to two years. Herbicide should be applied when the weeds are growing vigorously. An application of a knockdown herbicide such as glyphosate in the spring preceding the planting year will have best results. A follow up application of a knockdown in the following autumn before planting may also be required. Where herbicide is to be applied in areas close to water bodies, 'frog friendly' herbicides should be used, to minimize harm to local fauna.

Stock-proof fencing must be erected prior to planting. In areas close to native vegetation, wallaby proof fencing is advised.

Species Selection

The use of local native plants is highly recommended for all revegetation projects, whether the purpose is for shelter or habitat restoration. Plants grown from locally collected seed are likely to be better adapted to local conditions (e.g. frost, drought) and will provide habitat for native fauna.

The idea is to create a very simplified natural system by using plants that naturally grow together. Select a combination of species providing a variety of heights, density and flowering times. A combination of trees, shrubs and understorey plants from different plant families will help to create a more stable, healthy revegetation project. Some understorey plants may need to be added a year or so latter following the establishment of canopy plants.

Plants can be sourced from a nursery that specialises in local native plants. 'Habitat' nursery at Liffey (SE Deloraine) is a local nursery that produces healthy tubestock suitable for revegetation. This nursery rewards early orders (before end September for planting in the following winter/spring) by reducing the cost of seedlings.

The seedlings should be protected against climatic extremes and browsing by tree guards.

Timing

The recommended timing for tubestock planting is late winter/early spring. The aim is to plant when the ground is wet and cool. It is essential to consider your seedling requirements and order them at least 10-12 months prior to planting out.

Site Maintenance

Maintenance of revegetation projects is critical. Revegetation sites should be regularly monitored to check for threats including insect damage, weeds and collapsed guards. In an extremely dry year, follow up watering may be necessary. A deep watering over a very dry period may prevent plant loss. A high survival rate without irrigation can be expected if the seedlings are planted with time to make adequate root development before summer, and if the summer is not exceptionally dry.

Follow-up weed control is often required. However, it is difficult and will never replace good weed control before planting. Hand chipping is a much safer method than spraying around tree guards. Shelterbelts and areas that have been planted out with native should be brush cut twice a year, around mid-November and in May, just before Agfest. If spraying work is to be done to reduce the weed cover in these areas, this should be done in early January. If this spraying work is to coincide with the brush-cutting of the shelter belts, it should not be done on the same day.

Tree guards will need to be checked every few months, as guard collapse is a major cause of plant death. Tree guards need to be removed as plants become established, usually after two to three years.

Management issues

Zone 1 – Paddocks in westernmost section of 'Quercus Park', closest to entrance (28 Ha)

This zone is principally composed of introduced pasture, with some shelter belts planted along the edges of paddocks. Part of this area provides parking during the Agfest event.

Aims

To protect remnant native vegetation, and improve the general health of the area, through the removal of any major weeds present in the area.

Objectives

- Remove any gorse found within the area, especially within the shelterbelts.

Management recommendations for Zone 1 – High Priority		
Location	Shelterbelt planted along the northernmost road in northwest corner of 'Quercus Park' (see figure 3, 5).	
Area (approx.)	1 Ha	
Threatening processes and related management issues	Gorse has previously been removed from this shelterbelt. It is important that any gorse seedlings that emerge be removed to prevent recolonization.	
Actions	**Activity**	**Timing**
	Control any gorse found in shelter belt	Spring 1/Summer 1/Autumn 1

Zone 2 – Main arena for Agfest (25 Ha)

This zone encompasses the central section of the property in which the bulk of the Agfest event is conducted.

Aims

Protect threatened species and vegetation remnants within the area, remove weeds and create shelter areas to shield the site from wind.

Objectives

- Fence CWA Grove remnant to protect threatened species on site.
- Work with Country Women's Assoctiation (CWA) to encourage their participation in the management of this patch.
- Put in interpretation signs for areas fenced to tell people about chocolate lilies.
- Remove gorse and other weeds from shelterbelts and patches of bush.

Management recommendations for Zone 2 – High Priority		
Location	CWA Grove native vegetation remnant, western edge of Zone 2	
Area (approx.)	1 Ha	
Threatening processes and related management issues	Protect threatened chocolate lilies within this area by fencing this remnant and controlling weeds within the fenced area. Install gates to allow vehicular access during Agfest. Install interpretation signs to highlight the significance of this area.	
Actions	**Activity**	**Timing**
	Fence CWA grove.	Spring 1
	Install interpretation signage	Summer 1
	Control any weed populations found to occur	Autumn /Spring /Summer 1&2

Zone 3 – Forested section of 'Quercus Park' (15 Ha)

This high priority forested area stretches along the central northern section of 'Quercus Park', and extends down the centre of the property.

Aims

Protect and enhance the high conservation priority forested area and its threatened flora, through fencing and weed removal, and provide opportunities for the public to understand the environmental works.

Objectives

- Fence and create a plan for disturbance that will complement management of the remnant and its threatened species.
- Remove woodchips and refuse from this remnant to aid in rehabilitation of the native vegetation.
- Construct a short walk through the section of woodland near the accommodation blocks to show people the threatened flora species (blue pincushions and chocolate lilies)
- Remove gorse and do follow-up weed control
- Investigate removing quaking grass (*Briza major*) from this high priority area
- Create a site plan for this zone showcasing various management regimes.

Management recommendations for Zone 3 – High Priority		
Location	Forested section surrounding the main Agfest arena	
Area (approx.)	15 Ha	
Threatening processes and related management issues	This important high priority native vegetation remnant is seriously degraded by the dumping of woodchips and other refuse within it. To protect it from further degradation, the woodchips and spare materials should be removed, and the area should be fenced to discourage such use in future. Gorse within the area should also be removed. A working bee where representatives of Greening Australia and Rural Youth work on this site could be combined with an information session regarding the threatened species and communities values within this remnant. This area needs to be fenced to exclude stock and prevent overgrazing of the understorey. A plan for creating disturbance by slashing, grazing, or fire should be drafted for the area.	
Actions	**Activity**	**Timing**
	Remove refuse and spare materials from the area. These could be spread over roads on site, or contained within purpose built enclosures within the car park or pasture areas.	Spring 1

	Control any gorse found in zone	Autumn 1/Spring 1/Summer 1&2
	Fence remnant, installing gates to allow access for vehicles during Agfest. Padlocks should be installed on gates.	Spring1/Summer 1
	Informative session regarding the environmental values of this high priority remnant.	Spring 1/Summer 1, preferably to be conducted on the same day as the gorse control or fencing.

Management recommendations for Zone 3 – Medium Priority		
Location	Southern section of forested area surrounding the main Agfest arena	
Area (approx.)	8 Ha	
Threatening processes and related management issues	Quaking grass should be removed from the area by hand pulling, to reduce competition with the threatened plant species. Care should be taken not to impact upon the native grasses and threatened flora.	
Actions	**Activity**	**Timing**
	Control any quaking grass found in zone by hand pulling	Spring 1
	Follow-up weed control	Autumn 1

Management recommendations for Area 3 – Low Priority		
Location	Forested section surrounding the main Agfest arena	
Area (approx.)	15 Ha	
Threatening processes and related management issues	As a high priority native vegetation remnant, this area provides an excellent opportunity to show active management techniques for an area with threatened species. The construction of a short walk with appropriate signage for would provide a very useful and interesting experience for visitors to the site.	
Actions	**Activity**	**Timing**
	Install walk with appropriate signage	At the completion of high and medium priority actions.

Zone 4 – Central eastern paddocks with sparse trees and gorse (10 Ha)

This area is mostly covered with introduced pasture, with a few mature eucalypts and some areas of gorse infestation.

Aims

To improve general health of the area, through the removal of gorse and creation of habitat areas to increase biodiversity values.

Objectives

- Remove gorse in paddocks and along lane ways, carefully avoiding similar looking native species, particularly the *Hymenanthera dentata* (figure 7), found near the western end of the southern fence line.
- Plant under isolated trees to encourage some regeneration



Figure 7 - *Hymenanthera dentata*, the native tree violet.

Management recommendations for Zone 4 – High Priority		
Location	Central eastern paddock at 'Quercus Park'	
Area (approx)	10 Ha	
Threatening processes and related management issues	This area contains a small gorse population, which should be removed as soon as possible. Subsequent re-infestations should be removed as swiftly as practicable, to prevent re-establishment. Establishing native species in the areas from which gorse is removed will make it more difficult for the gorse to re-establish.	
Actions	**Activity**	**Timing**
	Control any gorse found in zone	Spring 1/Summer 1/Autumn 1
	Follow up weed control	Spring/Summer 2&3

<table>
<tr><th colspan="3">Management recommendations for Zone 4 – Medium Priority</th></tr>
<tr><td>Location</td><td colspan="2">Proposed shelter belt at eastern edge of paddock abutting dam</td></tr>
<tr><td>Area (approx)</td><td colspan="2">1 Ha</td></tr>
<tr><td>Threatening processes and related management issues</td><td colspan="2">The installation of a shelterbelt along this paddock edge would provide a link between other sections of vegetation on the property, and provide shelter for the surrounding sections of pasture.</td></tr>
<tr><td rowspan="4">Actions</td><td>Activity</td><td>Timing</td></tr>
<tr><td>Site preparation for planting/direct seeding</td><td>Autumn 1/Autumn 2</td></tr>
<tr><td>Plant seedlings/direct seed</td><td>Winter 2</td></tr>
<tr><td>Follow up weed control</td><td>Spring/Summer 2&3</td></tr>
<tr><td>Species List</td><td colspan="2">Plants suitable for revegetation in this area may include:

Acacia dealbata
Acacia genistifolia
Acacia mearnsii
Acacia melanoxylon
Astroloma humifusum
Bossaia prostrata
Bursaria spinosa
Chrysocephalum apiculatum
Dodonaea viscosa
Eucalyptus amygdalina
Eucalyptus viminalis
Gonocarpus teucriodes
Goodenia lanata
Lagenophora stipitata
Lomandra longifolia
Hymenathera dentata (tree form)
Pimelea humilis
Poa labillardierei
Themeda triandra
Viola hederaceae</td></tr>
</table>

Zone 5 – Eastern paddocks at 'Quercus Park' (16 Ha)

This area encompasses the paddocks to the west of the of the Leven River, and consists largely of introduced pasture. This section also contains the property dam.

Aims

To protect remnant native vegetation, and improve general health of the area, through the creation of shelterbelts and habitat areas to increase biodiversity values, and the removal gorse from the area. To showcase best practice environmental rehabilitation techniques to the general public.

Objectives

- Remove gorse in paddocks and along lane ways.
- Plant areas cleared of gorse along fence lines with native species.
- Install interpretation signage detailing methods of gorse control utilized in the area.
- Plant native species around the dam to provide habitat for native fauna.
- Plant around isolated trees.
- Plant the northeast corner of this zone as a shelter area, or possibly use this area a demonstration agro-forestry site.

Management recommendations for Zone 5 – High Priority		
Location	Eastern paddocks of 'Quercus Park"	
Area (approx)	2 Ha	
Threatening processes and related management issues	A significant gorse population exists within this management zone which should be removed before any other environmental works commence. The large infestation along the southernmost fence would be best removed all at once, by bulldozing the entire fenceline and following this with a planting of native species.	
Actions	**Activity**	**Timing**
	Control any gorse found in zone	Spring 1/Summer 1/Autumn 1
	Follow up weed control	Spring/Summer 2&3

<table>
<tr><th colspan="3">Management recommendations for Zone 5 – Medium Priority</th></tr>
<tr><td>Location</td><td colspan="2">North eastern paddock at 'Quercus Park'</td></tr>
<tr><td>Area (approx)</td><td colspan="2">5 Ha</td></tr>
<tr><td>Threatening processes and related management issues</td><td colspan="2">This area contains some mature remnant trees, which under the current management regime, will not be naturally replaced. This area is already fenced, and would be a strategic site for revegetation. If stock could be excluded from this area, strategic planting would allow native vegetation to become established, and would link other sections of native vegetation on the property.</td></tr>
<tr><td rowspan="4">Actions</td><td>Activity</td><td>Timing</td></tr>
<tr><td>Site preparation for planting/direct seeding</td><td>Autumn 1/Autumn 2</td></tr>
<tr><td>Plant seedlings/direct seed</td><td>Winter 2</td></tr>
<tr><td>Follow up weed control</td><td>Spring/Summer 2&3</td></tr>
<tr><td>Species List</td><td colspan="2">Plants suitable for revegetation for purposes of habitat replacement in this area may include:

Acacia mearnsii
Astroloma humifusum
Bossaia prostrata
Chrysocephalum apiculatum
Eucalyptus amygdalina
Eucalyptus viminalis
Gonocarpus teucriodes
Goodenia lanata
Lagenophora stipitata
Lomandra longifolia
Hymenathera dentata (tree form)
Pimelea humilis
Poa labillardierei
Themeda triandra
Viola hederaceae</td></tr>
</table>

<table>
<tr><th colspan="3">Management recommendations for Zone 5 – Medium Priority</th></tr>
<tr><td>Location</td><td colspan="2">Shelter area around dam</td></tr>
<tr><td>Area (approx)</td><td colspan="2">3 Ha</td></tr>
<tr><td>Threatening processes and related management issues</td><td colspan="2">Once the area is clear of gorse, the planting of native species in some sections would greatly increase the health of the area. Works done within these areas could then be interpreted for visitors with a series of signs.</td></tr>
<tr><td rowspan="4">Actions</td><td>Activity</td><td>Timing</td></tr>
<tr><td>Site preparation (including fencing) for planting/direct seeding. Areas to be planted may include
• areas cleared of gorse along fenceline,
• the area surrounding the dam site,
• areas around isolated mature trees.</td><td>Autumn 1/Autumn 2</td></tr>
<tr><td>Plant seedlings/direct seed</td><td>Winter 2</td></tr>
<tr><td>Install interpretation signs</td><td>At completion of on-ground works</td></tr>
<tr><td>Species List</td><td colspan="2">Plants suitable for revegetation around the dam could include:

Acacia mearnsii
Eucalyptus amygdalina
Eucalyptus viminalis
Juncus pallidus
Juncus procerus
Leptospermum lanigerum
Leptospermum scoparium
Luzula densiflora</td></tr>
</table>

Zone 6 – Riparian strip and floodplain (5 Ha)

Zone 6 includes the riparian strip and floodplain adjacent to the Liffey River.

Aims

To improve environmental health through the removal of weed species, and improve water quality by intercepting grey water before it reaches the river.

Objectives

- Remove weedy species from riparian strip (willows, gorse, Californian thistles, hawthorns, blackberries), and replace them with native species.
- Consider construction of an artificial wetland in the floodplain to treat wastewater on site
- Consider constructing a duckboard walk to provide access and interpretation for visitors to the site.

Management recommendations for Zone 6 – High Priority		
Location	Riparian strip and floodplain adjacent to the Liffey River, 'Quercus Park'.	
Area (approx)	5 Ha	
Threatening processes and related management issues	The riparian section of the property is choked with weeds, which would ideally be removed and replaced with native species. The most appropriate forms of weed removal within this area will vary according to the species to be removed.	
Actions	**Activity**	**Timing**
	Control any weeds found in zone	Spring 1/Summer 1/Autumn 1
	Site preparation for planting/direct seeding	Autumn 1/Autumn 2
	Plant seedlings/direct seed	Winter 2
	Follow up weed control	Spring/Summer 2&3
Species List	Species which may be useful for revegetation along the riparian strip include: *Acacia mearnsii* *Acacia dealbata* *Eucalyptus viminalis* *Juncus pallidus* *Juncus procerus* *Leptospermum lanigerum* *Leptospermum scoparium* *Luzula densiflora*	

Management recommendations for Zone 6 – Medium Priority		
Location	Riparian strip and floodplain adjacent to the Liffey River, 'Quercus Park'.	
Area (approx)	5 Ha	
Threatening processes and related management issues	Grey water from the site flows essentially untreated from the dam into the river. Intercepting this water in a constructed wetland would improve the quality of water flowing to the river, directly improving riverine health. Consider construction of an artificial wetland in the floodplain to treat wastewater on site Consider constructing a duckboard walk to provide access and interpretation for visitors to the site.	
Actions	**Activity**	**Timing**
	Employ a contractor to prepare a site plan for wetland construction	Winter 2005
	Fence area required for wetland construction off from stock.	To be advised
	Conduct on-ground works for construction of wetland	To be advised
	Plant local native wetland species around constructed wetland	To be advised
	Construct a duckboard walk with interpretation signage.	At completion of on-ground works.

References

DPIWE, 2002a. *GT Spot Digital Data (Arc View Shape files, Attributes, Lookup tables).* TASVEG project and the GIS Section of DPIWE, Hobart

Lazarus, E., N. Lawrence and W. Potts, 2003. *Threatened Flora of Tasmania.* Note sheets published by the Threatened Species Unit, Department of Primary Industries, Water and Environment, Tasmania.

Parks and Wildlife, 2003. Natural Values Reports Webpage.
http://www.gisparks.tas.gov.au/explorer/ValueReports/ValueRequest.html
22nd November 2003.

Appendices

Threatened species note sheets for the chocolate lily (*Arthropodium strictum*) and the blue pincushion (*Brunonia australis*) (Lazarus et. al., 2003).