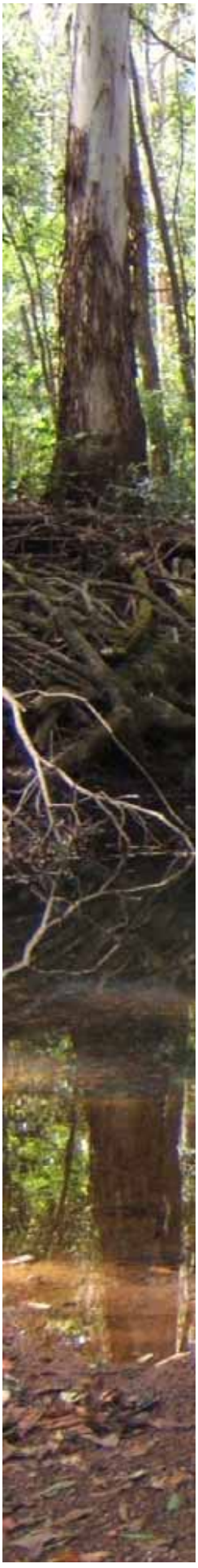

Kedron Brook Catchment Remnant Vegetation Prioritisation and Weed Mapping Project

Final Report

Dedicated to a better Brisbane

Prepared by

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Executive Summary

The catchment of Kedron Brook occupies an area of approximately 110km^2 and is the third largest creek catchment in Brisbane. The majority of the catchment is highly urbanised. Only around 28% of the catchment remains as bushland or wetland, the majority of which is found in the steep, upper reaches in Brisbane Forest Park and adjoining private properties.

Kedron Brook is a significant ecological corridor and is classified as being of State Significance in Brisbane City Council's Ecological Corridor mapping. Management of remnant vegetation in the catchment is fundamental to the maintenance of this corridor and associated ecological values. Remnant vegetation, particularly riparian vegetation, also plays an unquestionable role in the protection of water quality values and associated aquatic habitat.

Weeds species are one of, if not the primary, threatening process impacting on these areas.

There are over 400 weed species present in Brisbane, and many of these are found in the catchment of Kedron Brook. A number have a significant impact on bushland, parks and waterways in the Kedron Brook catchment. Their ongoing control, often with limited resources, is a challenge that all involved with the management of these areas face.

This report prioritises areas of remnant vegetation on public land within the catchment in order to assist with the direction of these limited resources for weed control.

These high priority areas were determined to be

- Arbor St Parkland, Ferny Grove
- Mercer Park, Kedron
- Redgum Place Park, Mitchelton
- Wahminda Grove, Ferny Grove
- Grange Forest Park, Grange and
- Brook Park, Ferny Hills.

Sites were prioritised by scoring each site against a set of weighted criteria. These criteria were

- Vegetation Condition
- Biodiversity Significance
- Feasibility
- Level of Threat
- Presence of Existing Group
- Visibility / Education Value

The priority setting method is transparent and could be re-applied to the raw data with changes in criteria and weighting should changes occur, for example, if new weed control technologies become available.

A rapid field survey technique, in conjunction with aerial photo interpretation, was developed to accurately identify and map weed infestations in areas of remnant vegetation. Much of this mapping was undertaken with volunteer community labour.

Many of the people involved were members of bushcare groups and the Kedron Brook Catchment Branch of WPSQ.

Detailed management actions have been recommended for those areas of vegetation that were considered high priority. In general these actions aim to address the causes of weed invasion by taking an ecosystem restoration approach, as opposed to simply controlling weeds.

The report also identifies small, isolated infestations of highly invasive weed species that should be targeted for control on a single species basis. The infestations that have been identified are not well established (often only a few individual plants) and can be controlled with minimal effort and expenditure. The isolated nature of these infestations means that the risk of reinfestation is low.

Isolated infestations of the following species have been identified.

- Madeira Vine,
- Dutchman's Pipe,
- Cats Claw Creeper
- Balloon Vine
- Broad Leaved Pepper,
- Camphor Laurel
- Groundsel and
- Salvinia

Precise infestation locations are listed in Table 6..

Responsibility for implementation of the management actions is identified and includes the Brisbane City Council, Pine Rivers Shire Council and community groups.

At a site level, the report will assist those involved in managing remnant vegetation by documenting those weeds present and listing their priorities in relation to the respective local government pest management plan.

Acknowledgments

This report is the culmination of 18 months of work by the Kedron Brook Catchment Branch of the Wildlife Preservation Society of Queensland and Brisbane City Council.

The project has been a major undertaking and would not have been possible without the dedication and hard work of the members and executive of the Kedron Brook Catchment Branch of the Wildlife Preservation Society of Queensland.

Volunteers from the Wahminda Park, Ferny Grove, Brook Park, Sparkes Hill and Benelong Bushcare groups and the Greenbrook Association, participated in the field surveys at their respective sites. These groups, and other community bushcare groups in the catchment, play a crucial role in the ongoing management of remnant vegetation in the catchment through their dedicated involvement in on ground weed control and revegetation.

Over 200 hours of volunteer time was contributed to the project via participation in field surveys and ongoing project management.

Various Brisbane City and Pine Rivers Shire Council staff were involved in designing the initial project concept and methodologies, in the undertaking field surveys and in commenting and collating the final project report and recommendations. Their input is acknowledged and thanked.

Contents

Figures and Tables

1.0 Introduction

Weeds are a common issue across all areas of natural bushland within Brisbane. Their ongoing control, often with limited resources, is a challenge faced by all those involved with the management of these areas.

The need for a strategic plan to guide on ground weed management is documented as a high priority action in the *Kedron Brook Landscape Concept Plan and Public Arts Strategy* (Brisbane City Council, 1999).

The idea was further discussed at a Habitat Brisbane capacity building workshop in early 2005 and from here the initial project framework developed.

From here, the Kedron Brook Catchment Branch of the Wildlife Preservation Society of Queensland, in conjunction with Brisbane City Council assumed responsibility for managing the projects implementation.

1.1 Catchment Description.

Kedron Brook is the third largest catchment in Brisbane City, covering an area of approximately 110 square kilometres or 9% of the total area of the City.

The catchment is highly developed, with only around 28% of the catchment remaining as bushland or wetland, the majority of which is found in the steep, upper reaches in Brisbane Forest Park and adjoining private properties. (Brisbane City Council (a), undated)

The major headwater streams of the catchment, Cedar Creek and Kedron Brook itself, leave these protected areas and traverse the upper suburban areas of the catchment. In this area, remnant vegetation is primarily restricted to along the streams themselves and is generally continuos, although it can be highly disturbed in places.

Through the middle reaches of the catchment, most of the natural vegetation has been removed from along the creekbanks. In this part of the catchment remnant areas adjacent to the Brook, such as Sparkes Hill, Grange Forest Park and Mercer Park provide stepping stones for the protection and movement of wildlife across the landscape.

At the mouth of the catchment, Kedron Brook enters Moreton Bay immediately to the south of Boondall Wetlands, one of the largest and most significant wetland habitat areas in Brisbane (Brisbane City Council (b), undated).

1.2 Project Aim and Objectives.

Project Aim:

To collect and collate information on the significance of and management issues impacting on, remnant vegetation in the Kedron Brook Catchment.

Project Objectives

1. Map the distribution and abundance of priority weed species within these remnants.
2. Prioritise areas for investment in on-ground management.

1.3 Current Management Context

The management of remnant vegetation in the Kedron Brook Catchment falls under the responsibility of

- Private landholders – some parts of the riparian corridor, hill-slopes.
- State Government – Brisbane Forest Park and other state land.
- Local Government – Brisbane City Council and Pine Rivers Shire Council.

For the purposes of this project only remnant vegetation under the management of local governments was considered.

Brisbane City Council

Within Brisbane City Council management of remnant vegetation land is primarily under taken by Local Asset Services under the following programs.

- Habitat Brisbane Program – Revegetation, regeneration, weed control in areas where Habitat Brisbane groups exists.
- Open Space / Parks Operations – responses to work requests / rubbish removal, weed control in open space parks.
- Roads and Drainage - control of vegetation along road reserves, control of vegetation (including weeds) in waterways to reduce the risks of flooding and Schedule 80 (Waterway enhancement projects)
- Natural Areas Team –Vegetation management (including weeds), recreation management, feral animal management and Fire Management in designated natural areas and conservation reserves.
- Wipe Out Weeds Priority Projects – project management of on ground works on sites recognised as a citywide priority.

One area of remnant vegetation with Brisbane City, namely Sparkes Hill Reserve, falls outside of above management arrangement. The majority of the Sparkes Hill Reserve falls under the management of Brisbane Water due to the presence of the water reservoir. Brisbane Water do not currently receive operational funding for bushland management and consequently the primarily management is conducted via the Habitat Brisbane group that operates on this site.

Pine Rivers Shire Council

The northern bank of Kedron Brook in the suburbs of Arana Hills and Ferny Grove falls within Pine Rivers Shire. Within Pine Rivers Shire Council the on-ground management of remnant vegetation in the responsibility of the Parks and Reserves Department.

Community Volunteer Programs

Both Brisbane City Council and Pine Rivers Shire Council actively support and encourage the involvement of community volunteers in the management and restoration of vegetation. Within the catchment there are currently 14 groups, supported via the Habitat Brisbane or Pine Rivers Bushcare program. A listing of the groups involved in the management of each site and in this project is provided in Table 1.

2.0 Methodology

2.1 Site Selection

Due to limited resources, size of the catchment and the detailed nature of the assessment, it was necessary to limit the study area to a select number of sites. It is envisaged that the methodology will be progressively applied to other sites within the catchment as the need and resources arise.

Sites that met the following criteria were selected for assessment.

- Mapped Remnant Vegetation using the Brisbane City Council and Pine Rivers Shire Council remnant vegetation mapping. This mapping was done at a 1:25000 scale with a minimum mapping area of 0.5ha.
- Adjacent to the Kedron Brook Waterway Corridor.
- Located on local government managed land.

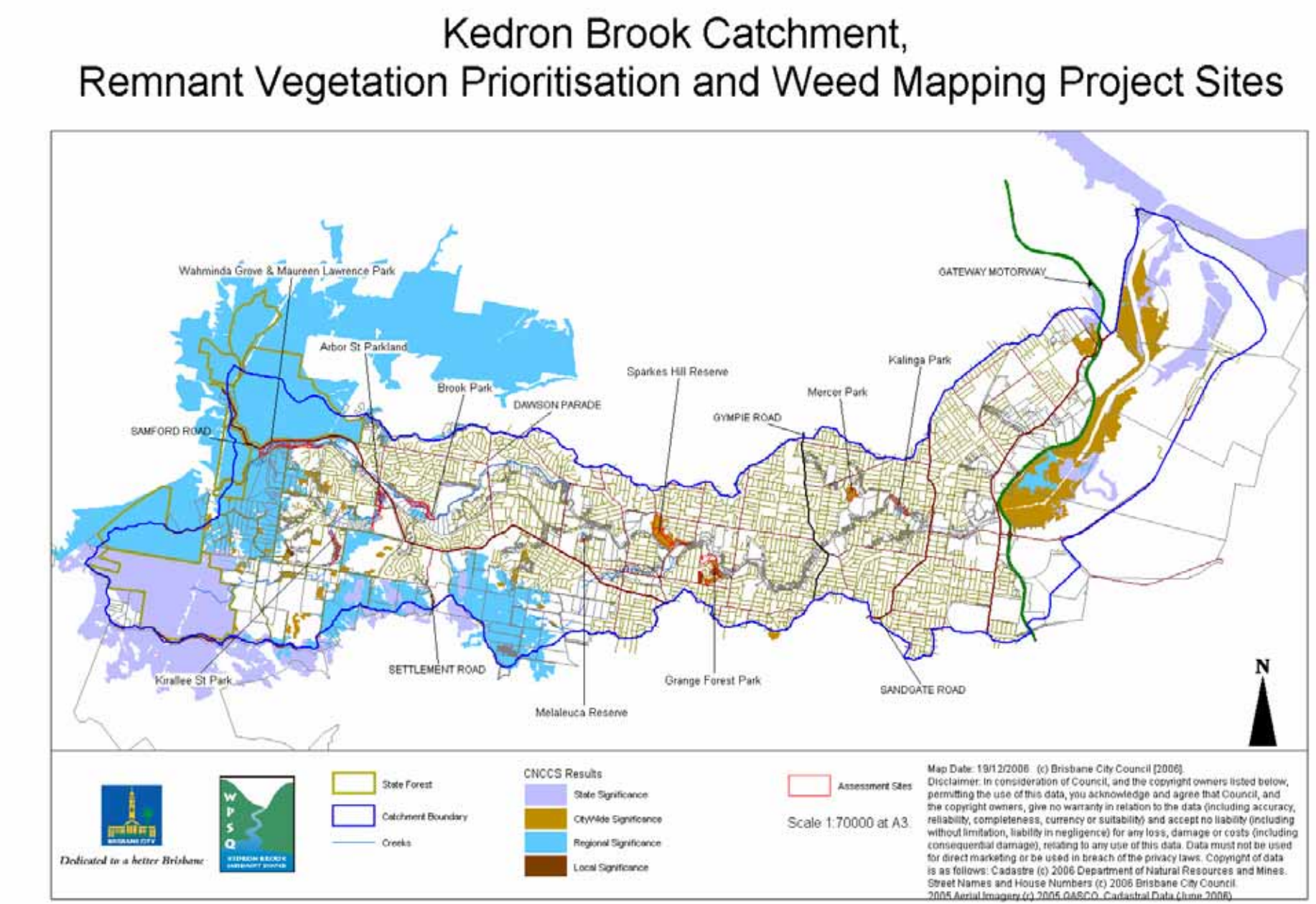
The aim of using these criteria were to select sites that were likely to have biodiversity significance and an influence on waterway health, and to which the project results and recommendations would have direct application and ability to influence.

The assessed sites are listed in Table 1. A map showing their locations and boundaries is presented in Figure 1.

Table 1: Project Sites

Site Name	Address	Bushcare Group Names	Local Government Area
Arbor St Parkland	Cnr Arbor and Tramway St Ferny Grove	Ferny Grove Bushcare Group	BCC
Brook Park	Kuringal Drive, Ferny Hills	Brook Park Bushcare Group	PRSC
Grange Forest Park	Blandford St, Grange	Greenbrook Association and Alderley / Grange Bushies and Friends	BCC
Kalinga Park	Carew St Nundah	None	BCC
Kirralee St Parkland	Kirralee St, Upper Kedron	None	BCC
Redgum Place Park	Red Gum Place, Mitchelton	None	BCC
Mercer Park,	Benelong St, Kedron	Benelong Park Bushcare	BCC
Sparkes Hill Reserve,	Longland St, Stafford	Sparkes Hill Bushcare Group	BCC
Wahminda Grove and Maureen Lawrence Park	Samford Rd, Ferny Grove	Wahminda Grove Bushcare Group	BCC / PRSC

Figure 1: Project Sites



2.2 Defining Priority Weed Species.

In order to map the distribution and abundance of priority weed species (objective 1), it was necessary to develop a list of priority weed species for the catchment.

The Brisbane City Council and Pine Rivers Shire Council define priority weed species in their Local Government Area Pest Management Plans based upon the environmental, economic and environmental impact associated with each species.

The categorisation used in these plans was used as a basis to develop an initial list of priority weeds for the catchment. Several species varied in their priority, depending upon which local government area they fell within. Hence it was necessary to further refine this initial list to ensure consistency throughout the catchment.

A panel of council officers and community members involved in managing remnant vegetation in the catchment screened the initial list to develop a list of priority weed species for the catchment.

The list is shown in Appendix 1.

2.3 Prioritisation Criteria

In order to prioritise areas for investment, a set of assessment criteria were developed.

These criteria were developed as part of a workshop session held as part of the October 2006 Kedron Brook Catchment Network meeting, involving representatives from across the catchment and council officers.

The criteria used were

- Condition
- Biodiversity Significance
- Feasibility
- Level of Threat
- Presence of Existing Group
- Visibility / Education Value

Criterion 1: Condition

This criterion looks at the current condition or quality of vegetation, based on the level of human induced disturbance.

Vegetation condition is an important consideration when prioritising areas for investment as current condition has a major influence on the level of resources required to improve or restore the quality of that vegetation.

The Common Nature Conservation Classification System assessment applied to remnant vegetation by Brisbane City Council assigns each area of remnant vegetation a Condition score.

Due to the absence of a consistent assessment of vegetation condition across the city when this assessment was undertaken, this score was based upon an area's status under the *Vegetation Management Act.* Vegetation mapped as

remnant was assumed to have a condition score of very high, while non-remnant vegetation scored very low. (EPA, 2002).

For the purposes of prioritising areas of remnant vegetation within a catchment, this condition rating was not suitable as it did not differentiate between the condition of this remnant vegetation. Hence field data was collected in order to determine condition of each remnant.

Three existing methodologies for assessing vegetation condition were reviewed. These were the Habitat Hectares approach (Parkes et al, 2003), the Queensland Government Bio-Condition Methodology (Eyre et al, 2006) and the Urban Bushland Assessment and Monitoring Kit (Gold Coast City Council, 2000).

The former two methodologies assess current vegetation condition against reference values for an intact version of the same ecosystem type. They provide a comprehensive assessment of current condition based on detailed measurement of ecosystem attributes.

The third methodology provides a rapid, qualitative approach to assessing vegetation condition. The attributes used are similar to the other two methodologies, but involve subjective assessment rather then measurement.

The third methodology was adapted for this project due to the involvement of non-technical community volunteers in the assessment and the lack of available time and resources to undertake a more detailed assessment.

In addition, reference values for the ecosystem types represented in the Kedron Brook catchment have not yet been developed.

A copy of the vegetation condition assessment form for the project is attached in Appendix 4.

Criterion 2: Biodiversity Significance

For remnant vegetation within Brisbane City, the Biodiversity significance score was assigned using the Common Nature Conservation Classification System rating assigned to it. Through the application of the CNCCS, remnants are assigned four levels of conservation values: State Significance, Regional Significance, City Wide and Local Significance.

An overview of the CNCCS methodology is provided in Appendix 5.

For remnant vegetation within Pine Rivers Shire Council no CNCCS assessment had been undertaken. For these remnants a rating was extrapolated from the value assigned to adjoining areas of the same regional ecosystem type within Brisbane City.

Criterion 3: Feasibility

A feasibility criteria was included in the prioritisation process in order to take into account the variation in accessibility to individual sites and the inherent characteristics of individual species which make them more difficult to control. These factors are likely to impact on the level of resources required to successfully undertake vegetation restoration within a site.

The feasibility score was derived from the following 2 sub criteria. Each sub-criterion was equally weighted.

1. Accessibility

   This criterion refers to how easy it is to access the site for undertaking weed control and other management activities. Influencing factors include the steepness of the site and the presence or absence of access tracks. Sites that are difficult to access will attract a high labour cost when undertaking works. A panel of council officers and members of the Kedron Brook Catchment Branch scored this criterion using the categories below.

Score	Description
3	Easily accessible with a vehicle
2	Reasonable accessibility
1	Poor vehicle accessibility

2. Difficulty of controlling individual weed species that are present (Control Difficulty Score)

   Individual weed species will vary considerably in their difficulty of control. A set of criteria was developed in order to quantify the difficulty of controlling each species and capture this variance. The criteria used were

   - Control Effort
   - Control Cost
   - Control Method Effectiveness
   - Longevity of seeds and propagules

   (Adapted from Harrison & Congdon, 2002)

   Each of these criteria was equally weighted.

   Each priority weed species was scored against these criteria using the categories set out in Table 2.

   The final difficulty of control scores for each priority species are included in Appendix 6.

   The total Control Difficulty score was derived by summing the scores of each individual priority weed species present. As difficulty increases, feasibility of controlling the weeds decreases.

   The final feasibility score for an individual management unit was derived by subtracting the Control Difficulty Score from the Accessibility Score.

Table 2: Control Difficulty Scoring Categories

Control effort scoring categories		
Score	**Category**	**Description**
3	Very High	Multiple applications of multiple control measures
2	High	One application of multiple control measures
1	Med	Multiple applications of single control
0	Low	One application of one control measure
Control Costs scoring categories		
Score	**Category**	**Description**
2	High	Control measures require licensed availability, high level technical training in application and/or are difficult to distribute to target populations.
1	Moderate	Control measures have limited availability, require specific application training and/or are difficult to distribute against large target populations.
0	Low	Control measures are freely available, with little training required and are easily disbursed against large populations of the target species.
Control method effectiveness scoring categories		
Score	**Category**	**Description**
1	High	Control measures potentially effect a very high percentage (>85%) of the population controlled.
2	Moderate	Control measures potentially effect a majority (>50%) of the population or are highly effective against a specific life stage of a species.
3	Low	Control measure is limited to acting on a specific life stage of a species with only moderate effectiveness (potentially <50%)
Longevity of seeds / propagules scoring categories		
Score	**Category**	**Description**
3	High	Seeds / propagules are viable for >2yrs
2	Med	Seeds / propagules are viable for 1-2yrs
1	Low	Seeds / propagules are viable for 6mths to 1yr
0	Very Low	Seeds / propagules are viable for <6mths

(Adapted from Harrison & Congdon, 2002)

Criterion 4: Level of Threat

This criterion gives an indication of the level of threat from weeds to the ongoing survival and condition of the vegetation.

The number of priority weeds present was used to measure this criterion.

Criterion 5: Presence of Existing Volunteer Group

The presence of existing volunteers groups that are already skilled and committed to the restoration and ongoing management of a particular site was considered an important criterion as it provides a resource base from which to build and provide further support.

Management units that currently had a registered Habitat Brisbane (Brisbane) or Bushcare (Pine Rivers) group present received a score of 1, sites without a group received a score of 0.

Criterion 6: Visibility and Education Value

The criteria recognises the importance of building an appreciation of natural areas within the general community, the value of these areas for recreation and the negative impact that weeds can have on amenity. A panel of council officers and members of the Kedron Brook Catchment Branch assessed this criterion. Each management unit received a score based on the categories in Table 3 below.

Table 3: Visibility and Education Value Scoring Categories.

Score	Category	Description
3	High	Site is highly visible from a major road, or is located in a very heavily used park
2	Med	Site is visible from a major suburban road or is in a well used park
1	Low	Site has limited visibility, receives minor visitation
0	Very Low	Site is not visible or accessible to the general public

2.4 Criteria Weighting and Rescaling

Each criterion was given a weight to reflect its importance towards determining the overall priority of an area.

Initially the Level of Threat criteria had been assigned a low (10%) weighting and the Feasibility Criteria was weighted quite highly (30%). This resulted in sites that had few weeds (ie had a low level of threat and high feasibility scores) as coming out as high priority.

Subsequently the Level of Threat Criteria was given higher weighting (22%) equal to the Condition, Biodiversity and Feasibility weights.

In order to correctly apply the weighting to each of the criterion, the measurement scales used to score each criterion were standardised (Hajkowicz, 2002).

This was done by rescaling scores to fall within a scale from 1 to 0 using the following formulae.

$$X = \frac{S}{S_{max}}$$

Where x = rescaled score

S = criteria score

S_{max} = max score possible for criteria.

Criteria weights were then applied to the rescaled scores to derive the final scores for each management unit.

The weights applied in the final analysis were

- Condition 22%
- Biodiversity Significance 22%
- Level of Threat 22%
- Feasibility 22%
- Existing Group Presence 6%
- Visibility 6%

2.5 Data Collection

Desktop assessment and initial site inspection.

An initial desktop assessment and site inspection was undertaken to collate background information on the site prior to collection of field data.

Each site was subdivided into smaller assessment units, referred to as *management units*.

The boundaries of each management unit were delineated by field inspection, using the Brisbane City Council, 2003 regional ecosystem mapping as a base.

Due to the finer scale of this assessment, mapped regional ecosystem boundaries often varied to that recorded in the field.

A MapInfo TAB file was created to show the boundaries of each management unit. Boundaries for each site are shown in Appendix 8.

Each management unit was selected to represent an area of

- the same regional ecosystem type and
- consistent vegetation condition.

Where two areas were of the same regional ecosystem type, but varied noticeably in condition, these areas were subdivided into separate management units.

Likewise, if a firebreak, access track or some other easily accessible geographical feature subdivided a regional ecosystem, this area was subdivided into smaller management units. This was done, as it is likely that on ground management will treated these areas as distinct management units when implementing works on the site.

A list of weed species present in each management unit was collected during the initial field inspection. This data was then input into an Access database, and a report generated listing priority species for each management unit in order to allow these species to be targeted for mapping purposes.

Field Surveys

Field data was collected via a series of surveys held in conjunction with volunteers from community groups associated with each site and the Kedron Brook Catchment Network.

Priority weed species were surveyed at each site with information on density and other attributes recorded via the field record sheets shown in Appendix 2.

Infestation location was collected by

- recording infestation centroid (via non differential GPS) and infestation radius on field record sheet.
- transcribing infestation location onto 1:3000 hardcopy aerial photo / map.

Infestation locations were digitised into a MapInfo TAB file. Associated attribute information was entered into a linked Access database.

An additional dataset was created based upon the initial survey lists for each management unit. This dataset records the weeds present in the management unit and their density across the entire management unit. Each weed was given a point location, corresponding to the centroid of the management unit in which it falls. A MapInfo TAB file was created from this data.

The latter data collection method, although at a coarser scale, proved a much more efficient method of collecting and inputting the weed data.

The vegetation condition assessment (criterion 1) was undertaken for each management unit within each site. Where more then 2 people were involved in the assessment, people worked in pairs to independently complete the assessment.

The final score for a management unit was taken as the average of these independent scores. This data was entered into an Access database developed for the project.

2.6 Identification of Isolated Infestations of Highly invasive species.

Highly invasive weed species were identified by referring to their invasiveness rank in “Assessment of Invasive Naturalised Plants in South East Queensland” (Batianoff, G and Butler, D, 2002).

The field data on weed species distribution was interrogated to identify infestations of individual weed species

- with an invasiveness rank from 1 –40
- with an area < 150m^2
- without any adjoining infestations > 150m^2 within the same vegetation remnant.

From this analysis a list of infestations of highly invasive, high impact species in the early phase of establishment, was collated.

3.0 Results

3.1 Prioritisation Results Catchment.

The results of the prioritisation process for the 34 management units are shown in **Table 4.** Management units have been grouped into categories of high, medium, low and very low priority.

Maps for each site showing the boundary of each management unit are included in Appendix 3.

A table listing the final scores for individual management unit against each criteria is included in Appendix 7.

Table 4: Priority sites and management units for weed management.

Priority	Site	Management Units
High	Arbor St Parkland.	Arb001, Arb003, Arb002 and Arb004
	Mercer Park	Entire site (scored as one management unit)
	Redgum Place Park	Entire site (scored as one management unit)
	Wahminda Grove	Wah002, Wah004
	Grange Forest Park	GFP002
	Brook Park	Bro002
Medium	Maureen Lawrence Park	Mau001
	Grange Forest Park	GFP003
	Wahminda Grove	Wah001
	Sparkes Hill Reserve	Spa005, Spa006, Spa003
	Arbor St Parkland.	Arb006, Arb005
	Brook Park	Bro004
Low	Kirralee St	Entire Site: Kir001, Kir002
	Maureen Lawrence Park	Mau003, Mau002
	Grange Forest Park	GFP001, GFP005, GFP004, GFP006
	Wahminda Grove	Wah003
	Sparkes Hill Reserve	Spa001, Spa002, Spa004
	Brook Park	Bro001, Bro003
Very Low	Kalinga Park	Entire site (scored as one management unit)

3.2 Prioritisation Results, Site

For each site, a list of management units, in descending order of priority, based on the overall score for that management unit, is presented in Table 5.

Table 5: Management units in descending order of priority for each site.

Mgmt Unit No	OVERALL SCORE	CONDITION	BIO-DIVERSITY	FEASIBILITY	EXISTING GROUP	LEVEL OF THREAT	VISIBILITY
	Weighting	*22*	*22*	*22*	*6*	*22*	*6*
Site Name	Arbor St Parkland						
Arb001	**76.33**	14.30	22.00	19.56	6	10.48	4.00
Arb004	**61.88**	11.00	16.50	22.00	0	8.38	4.00
Arb002	**60.22**	7.70	16.50	24.69	0	7.33	4.00
Arb003	**60.13**	8.80	16.50	8.07	6	16.76	4.00
Arb006	**52.19**	14.30	16.50	5.87	0	11.52	4.00
Arb005	**51.28**	7.70	16.50	6.60	6	10.48	4.00
Site Name	Brook Park						
Bro002	**61.37**	13.53	22.00	3.18	6	14.67	2.00
Bro004	**46.54**	5.50	22.00	3.42	0	13.62	2.00
Bro003	**42.30**	13.20	22.00	-5.38	0	10.48	2.00
Bro001	**41.68**	7.70	11.00	-0.73	6	15.71	2.00
Site Name	Grange Forest Park						
GFP002	**58.82**	17.60	11.00	13.93	6	6.29	4.00
GFP003	**55.76**	14.30	11.00	14.18	6	6.29	4.00
GFP004	**45.23**	13.20	0.00	17.84	6	4.19	4.00
GFP006	**44.27**	15.40	5.50	4.89	6	10.48	2.00
GFP005	**39.98**	12.10	0.00	6.36	6	11.52	4.00
GFP001	**37.67**	10.18	11.00	-1.22	0	15.71	2.00
Site Name	Kalinga Park						
Kal001	**20.06**	5.50	11.00	-24.44	0	22.00	6.00
Site Name	Kirallee St Park						
Kir001	**45.43**	9.90	11.00	13.20	0	7.33	4.00
Kir002	**39.62**	8.80	11.00	2.20	0	13.62	4.00
Site Name	Mercer Park						
Ben001	**57.03**	12.98	11.00	7.33	6	15.71	4.00
Site Name	Redgum Place Park						
Mel001	**60.52**	11.00	16.50	15.40	0	13.62	4.00
Site Name	Sparkes Hill Reserve						

Mgmt Unit No	OVERALL SCORE	CONDITION	BIO-DIVERSITY	FEASIBILITY	EXISTING GROUP	LEVEL OF THREAT	VISIBILITY
	Weighting	*22*	*22*	*22*	*6*	*22*	*6*
Spa005	**55.68**	10.18	16.50	7.58	6	9.43	6.00
Spa006	**50.60**	11.00	16.50	-3.67	6	16.76	4.00
Spa003	**46.62**	11.44	11.00	-0.49	6	14.67	4.00
Spa004	**38.94**	10.59	11.00	-5.13	6	10.48	6.00
Spa001	**36.78**	11.00	11.00	-4.64	6	9.43	4.00
Spa002	**34.87**	8.80	11.00	-13.69	6	16.76	6.00
Site Name	Wahminda Grove & Maureen Lawrence Park						
Wah004	**61.33**	14.30	16.50	13.20	6	7.33	4.00
Wah002	**59.82**	9.46	16.50	16.62	6	5.24	6.00
Mau001	**53.52**	13.53	16.50	13.20	0	6.29	4.00
Wah001	**52.24**	9.02	16.50	9.29	6	9.43	2.00
Mau003	**48.19**	13.75	16.50	8.80	0	3.14	6.00
Wah003	**46.34**	11.00	16.50	-0.49	6	7.33	6.00
Mau002	**37.81**	12.10	16.50	-8.31	0	11.52	6.00

3.3 Weed Distribution and Density Results.

The data collected for each site is presented as

- a map and aerial photo showing the site location and management unit boundaries and
- an accompanying table, listing the weeds recorded in each management unit and their density in that management unit.

These results are presented for each site in Appendix 3.

Due to the overlapping distribution and multiple weed species recorded at individual locations, presentation of this data as a map showing the distribution of all surveyed weed species at each site was not possible.

Small, isolated infestations of highly invasive are listed in **Table 6** with a map showing their locations included in the Appendix 8.

The data is also available as a MapInfo TAB file, for viewing and querying in MapInfo.

Table 6: Isolated infestations of highly invasive species – High Priority for control.

Species	Invasive-ness Rank	Location	Mgmt Unit	Easting	Northing	Approx Area (m2)
Madeira Vine, *Anredera cordifolia*	5	Brook Park	Bro001	494936	6968330	75
			Bro004	494448	6968701	147
		Maureen Lawrence Park	Mau001	491463	6969888	3
			Mau002	491737	6969933	3
		Grange Forest Park	GFP001	501173	6966967	127
			GFP006	500833	6967068	75
			GFP002	501179#	6967231#	In gully
		Sparkes Hill	Spa005	499824	6968262	3
			Spa003	500008	6967934	12
			Spa004	500112	6967651	75
			Spa006	500323	6967838	12
			Spa002	499972#	6967898#	
Dutchmans Pipe *Aristolochia elegans*	39	Maureen Lawrence Park	Mau002	491709	6969959	75
		Sparkes Hill	Spa003	499998	6967942	3
			Spa005, Spa006	500292	6967799	48
Cats Claw Creeper, *Macfadyena unguis-cati*	4	Arbor St Parkland	Arb006	493653	6968210	20
		Grange Forest Park	GFP006	500820	6966909	12
		Mercer Park	Ben001	504150	6968751	3
		Sparkes Hill	Spa003	500137	6967838	48
		Wahminda Park	Wah003	491966	6969926	12
		Maureen Lawrence Park	Mau002	491495	6970003	3
Balloon Vine, *Cardiospermum grandiflorum*	29	Mercer Park	Ben001	504149	6968881	3

Species	Invasive-ness Rank	Location	Mgmt Unit	Easting	Northing	Approx Area (m2)
Salvinia, *Salvinia molesta*	10	Brook Park (in Kedron Brook)	Bro003	494856	6968521	May be more extensive then surveyed
Broad Leaved Pepper, *Schinus terebinthifolius*	9	Brook Park	Bro001	494918#	6968352#	
			Bro002	494838	6968496	12
		Grange Forest Park	GFP006	500820	6966909	12
			GFP005	500922#	6967424#	
		Mercer Park	Ben001	504088	6968831	3
		Wahminda Grove	Wah001	492475	6969908	27
		Maureen Lawrence Park	Mau002	491751	6969921	3
Camphor Laurel, *Cinnamomum camphora*	8	Wahminda Grove	Wah001	492460	6969910	12
Groundsel, *Baccharis halimifolia*	2	Wahminda Grove	Wah001	492371	6969870	3

 # indicates that these coordinates represent the management unit centroid coordinates, not that of the individual species infestation.

4.0 Discussion and Recommendations

Weeds pose on ongoing threat to ability of remnant vegetation areas to provide wildlife habitat and protect water quality. They compete with, kill and displace native plant species and lead to changes in the ecological processes of natural plant communities.

Resources for controlling weeds are limited and need to be applied strategically in order to be most effective.

This strategic approach involves prioritising both the location and species for management action and employing strategies that focus on addressing the causes of weed invasion, as opposed to just treating the weeds.

Early detection and treatment of weed infestations is a key principle of pest management planning. It provides the most cost-effective approach to managing weeds. As infestations become more established, the difficulty, cost and duration of treatment increases. Early treatment will help to reduce the impact of the weed in question and is essential when local eradication of a weed is to be pursued as a control objective.

4.1 Recommendations for priority remnant vegetation areas.

The sites listed as high priority (Table 4) should be targeted for further coordinated management action.

This management action should build on current partnerships that exist between community bushcare groups, local governments, corporate volunteers and the Kedron Brook Catchment Branch.

It should focus on addressing the causes of weed invasion as opposed to just controlling weeds. For most sites this will involve the restoration of native plant communities, in order to improve their resilience to further invasion.

Where no community involvement currently exists, eg Red Gum Place Park, opportunities for establishing community or corporate involvement should be pursued.

Specific actions for high priority management units are listed in Table 7 and discussed in the following section.

Table 7: Specific Actions for High Priority Management Units.

Site	Management Units	Action	Priority
Arbor St Parkland	Arb001 and Arb003	*Control Vine Weed Species in existing riparian corridor.*	**High**
	Arb002 and Arb004.	*Control weed species and encourage native plant regeneration by using fire in conjunction with targeted chemical and manual weed control.*	**High**
	Arb001 and Arb003.	*Control other (non-vine) weed species in conjunction with revegetation and regeneration of native vegetation.*	**Medium**
Mercer Park	Entire site	*Control Vine Weed Species.*	**High**
		Control other weeds species, particularly Signal and Guinea grasses, in conjunction with revegetation and regeneration of native species.	**Medium**
Redgum Place Park.	Entire Site	*Control introduced vine and regenerating (immature) weed tree species in conjunction with the adjoining landholder*	**High**
		Staged removal of mature weed tree species (Camphor Laurels and Pine Trees), other weeds and regeneration of native species	**Medium**
Wahminda Grove	Wah004	*Control all weeds within management unit.*	**High**
	Wah002	*Control weeds and restore vegetation in order to capitalise on the educational benefits associated with this area.*	**Medium**
Grange Forest Park	GFP002	*Control Madeira vine infestation in gully.*	**High**
Brook Park	Bro002	*Control weed species in conjunction with revegetation and regeneration of native vegetation.*	**High**

Description of Actions for High Priority Management Units

Arbor St Parkland, Management Units Arb001, Arb002, Arb003 and Arb004.

Management Units Arb001 and Arb003 are located along the riparian corridor of Cedar Creek and contain vegetation of state and regional biodiversity significance.

The major threat present in these management units is the presence of the vine weed species Madeira Vine, Balloon Vine, Climbing Asparagus fern and to a lesser degree Glycine and Morning Glory. These species are capable of having a significant impact on the health of existing vegetation.

The areas away from the riparian corridor are generally established Eucalyptus open forest. Exotic grasses and lantana dominate the understorey of these communities. A viable soil seed bank of native species is likely to exist. The use of fire in conjunction with follow up weed control is likely to be an effective tool for controlling weeds and encouraging regeneration in this area.

Members of the Habitat Brisbane group operating on the site have reported no fire in the areas for over 7 years.

Vegetation along the banks of the creek has been disturbed and is missing in some places. A large amount of revegetation has been undertaken by the two local Habitat Brisbane groups that work on the site. This revegetation work should continue in order to reinstate the riparian corridor along Cedar Creek.

Mercer Park, Entire Site.

Balloon Vine, Cats Claw Creeper and Moth Vine are currently present at a low density within the park. Balloon Vine and Moth Vine are predominantly on the eastern side of the remnant, which is most likely a result of wind dispersed seed being spread from Kalinga park and other infestations to the east.

Glycine, Mile a minute and Asparagus fern are also present, with glycine the most widespread vine on the site.

Signal Grass and Guinea Grass dominate large areas of the understorey. Regular fires have also occurred over recent years, probably due to the presence of increase fuel loads associated with these weed species. Guinea grass in particular regenerates well after disturbance caused by fire.

Controlling these introduced grass species and the associated changes in the fire regime, is consequently an important management action in this reserve.

Native grass species such as *Themda triandra (*Kangaroo Grass) and *Cymbopogon refractus* (Barb wire grass) and other species suited to Eucalypt woodlands, should be used to establish groundcovers in areas where exotic grasses are removed.

Redgum Place Park, Entire Site.

This reserve is primarily infested with bird and bat dispersed weed species. Weed tree species should be controlled whilst still immature as once established these species are expensive to removed. Vine species, particularly Ipomea spp. are particularly prevalent in the reserve.

Some of the vegetation within this remnant extends onto the private property to the west. In order to be successful complimentary control works will need to be undertaken on this property.

Staged removal of mature weed trees and other weed species will help encourage regeneration of native species. Reinfestation of the area from bird and bat dispersed seed is likely to be ongoing and remove of weed species will need to be considered as part of routine maintenance of this area.

Wahminda Grove, Management Units Wah002, Wah004.

The southern bank of Kedron Brook (Wah004) currently only has a limited number of weed species that are mostly low or scattered in density. It is in good condition with established canopy and understorey species. Targeted weed control on an annual basis should be sufficient to maintain the area in good condition.

Management unit (Wah002) is located adjacent to Samford Road and the access to the Wahminda Scout hut. It consequently has high value for educational signage targeting users of the park and potentially passing motorists. Signage targeting motorists need to be consistent with Department of Main Roads requirements for this class of road.

Grange Forest Park, Management Unit GFP002.

Most of management unit GFP002 is weed free with the exception of the gully area that flows from the surrounding residential subdivision to Kedron Brook. A Madeira vine infestation is present in this gully and is a priority for control works. Other weed species are also present however, due to the steep terrain, control in this area will be difficult and should initially focus on the Madeira vine infestation.

Brook Park, Management Unit Bro002.

Management unit Bro002 is currently in good condition with an established canopy of primarily native species. Chinese elm, camphor laurel and other bird dispersed weed species have invaded the area. A community bushcare group, with support from Pine Rivers Shire Council has been actively removing weed species and revegetating the area with native species. The continuation of these management actions is a high priority.

4.2 Targets for early treatment.

Small isolated infestations of highly invasive weed species such as Madeira Vine and Cats Claw Creeper, are high priority candidates for early detection and eradication. This approach, in conjunction with prevention of spread, provides the most cost-effective approach to managing these weeds.

Consequently the following recommendations are made for these species.

Recommendations:

Local governments (Brisbane City Council and Pine Rivers Shire), coordinate actions to eradicate the small infestations of highly invasive weed species identified in Table 6 and shown on the map in appendix 8.

Kedron Brook Catchment Network, in conjunction with Habitat Brisbane and Bushcare Groups, undertake surveillance activities in and surrounding areas of remnant vegetation, to locate new infestations of highly invasive and emerging weed species in the catchment.

4.3 Other Recommendations.

Recommendation:

*Review existing management arrangements within Brisbane City Council for **Sparkes Hill** reserve in order to ensure effective resourcing for the management of biodiversity values associated with the remnant vegetation on Sparkes Hill.*

Background

The western two-thirds of Sparkes Hill contains the Sparkes Hill water reservoir and consequently is under the management of Brisbane Water. This portion of Sparkes Hill contains approximately 9ha of remnant vegetation of regional and city-wide biodiversity significance.

Under the current management arrangements no annual operational funding is assigned to the management of this remnant vegetation.

Changes to the management of water resources, in particular the state government water reform and associate transfer of assets to the state are also likely to impact on the management of this area.

Consequently there is a need for the management arrangements for this land to be reviewed within council and in relation to the Queensland water reform, in order to ensure this area receives annual operational funding for management in line with other similar council managed remnant vegetation in the city.

5.0 Data Management and Future Assessments

A Microsoft Access 97 database, titled *Kedron Brook Weed Manager,* has been developed for the project and stores the data on individual sites and management units.

This database provides a framework for future assessments using a consistent methodology.

The database allows the user to generate reports on an individual site's biodiversity values and weed lists. It provides an ideal location for storing future information collected on the weeds and biodiversity values associated with each existing site or new sites that may be assessed in the future.

Priority lists are generated from the information entered into the database. A form allows users to adjust the weights of assessment criteria.

A CD ROM copy of this database is available upon request.

6.0 References

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Appendix 1: Priority Species, Kedron Brook Catchment.

Species Name	**Common Name**	**Kedron Brook Priority**	**BCC Status**	**PRSC Status**	**State Status**
Anredera cordifolia	madeira vine	p	C	E	C3
Aristolochia elegans	Dutchman's pipe	p	C	E	C3
Asparagus aethiopicus 'Sprengeri',	basket asparagus fern	p	C	E	C3
Asparagus africanus	ornamental asparagus, asparagus fern	p	C	E	C3
Asparagus spp	asparagus ferns all	p	C		
Baccharis halimifolia	groundsel bush	p	C2	E	C2
Bryophyllum delagoense	mother of millions	p	C2		
Bryophyllum pinnatum	resurrection plant	p	C		
Bryophyllum spp	mother of millions	p	C2	E	
Callisia fragrans	purple succulent	p	R		
Cardiospermum grandiflorum	balloon vine	p	C	E	C3
Celtis sinensis	Chinese celtis	p	C	E	C3
Cestrum parqui	green cestrum	p	C	E	
Cinnamomum camphora	camphor laurel	p	C	E	C3
Duranta erecta syn. D. repens, D. plumeri	duranta	p	I	E	
Dyschoriste depressa	dyschoriste	p	I		
Ipomoea cairica	mile-a-minute	p	R		
Ipomoea indica	blue morning glory	p	C	E	
Lantana camara var. camara	lantana	p	C	E	C3
Lantana montevidensis	creeping lantana	p	C	E	C3
Leucaena leucocephala (all ssp.)	leucaena	p	C	E	
Ligustrum lucidum	tree privet	p	C	E	C3
Ligustrum sinense	Chinese privet	p	C	E	C3
Macfadyena unguis-cati	cat's claw creeper	p	C	E	C3
Melinis minutiflora	molasses grass	p	R		
Neonotonia wightii	glycine	p	C	E	
Ochna serrulata	ochna	p	C		
Optunia spp	prickly pear	p	C2	C	C2
Panicum maximum	green panic and guinea grass	p	C	E	
Passiflora suberosa	cork passionflower	p	R	E	
Ricinus communis	castor oil plant	p	C		
Salvinia molesta	salvinia	p	C2	C2	

Sansevieria trifasciata	sansevieria	p	C		
Schinus terebinthifolius	broad-leaf pepper tree	p	C	E	C3
Sphagneticola trilobata	Singapore daisy	p	C	E	C3
Syagrus romanzoffiana	queen palm	p	R	E	
Symphoricarpos orbiculatus	coralberry	p	I		
Tecoma stans	yellow bells	p	C	E	C3

Priority Codes.

P = Priority in Kedron Brook Catchment; C=High Priority for Containment and Reduction;

E=Early detection and eradication; R=Reduce via routine maintenance; I = Further Investigation;

C1 = potential weed, introduction prohibited, landholders required to keep land free of these species;

C2= Declared (State); all landholders must try to keep their land free of Class 2 pests and it is an offence to keep or sell these pests without a permit.

C3=Declared Environmental Weed; Landholders can be required to control these pests if they live next to 'environmentally significant areas', such as national parks or reserves, but only if the reserve is still free of the pest. Class 3 pests cannot be sold.

Brisbane LGA Pest Management Plan, 2005. Pine Rivers Shire Council Local Government Pest Management Plan, 2005.

Appendix 2: Weed Survey Form

KEDRON BROOK CATCHMENT BRANCH

Weed Survey Form

Recorder:……..

Date:……..

Names:……..

……
….

Group:……

LOCATION

Description:……..……

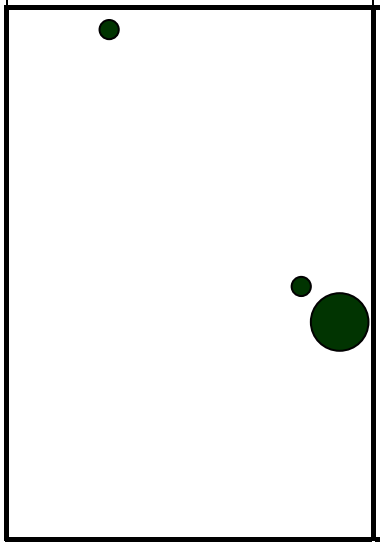
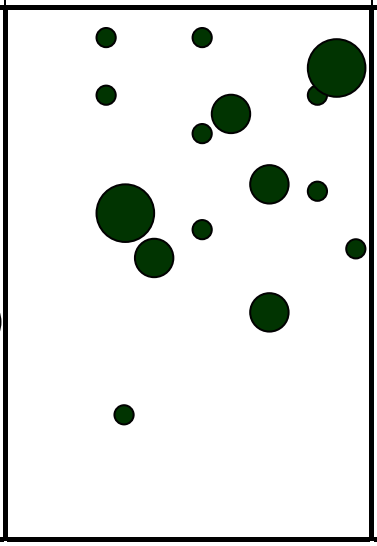
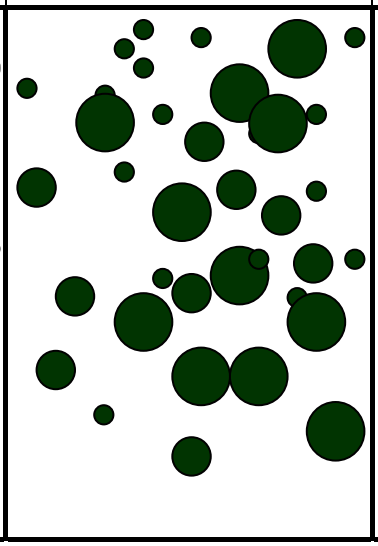
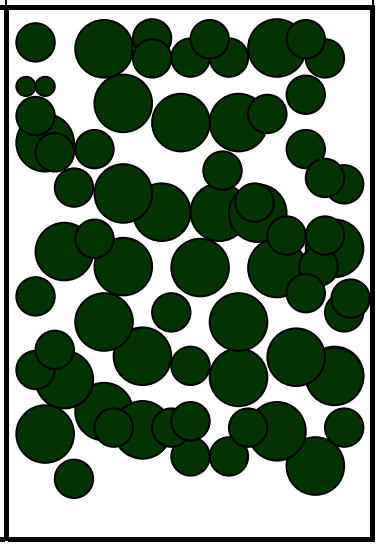
Address……

UBD reference:……..

DEFINITION OF DENSITIES

Grasses & Groundcovers – select five 1m x 1m square areas and assess the distribution of the plant across this area. Average out the density from each square to give an overall density rating.

Trees, Shrubs & Vines – Walk through a representative area of the site being surveyed and assess the distribution of the plant across this area to give a density rating.

SCATTERED	**LOW**	**MEDIUM**	**HIGH**
1% -10% One to very few scattered weed plants are present in the area being surveyed.	>10% to 25% A few plants or patches are present.	>25% to 75% Ranging from quite a few scattered plants or patches to a lot of plants and/or large patches throughout the area.	>75% to 100% If most to almost all of the area is covered by the weed species with little or no other vegetation present.
			

Infestation Number	**Management Unit**	**Waypoint No**	**Infestation Radius for waypoints**	**Density (Scattered / Solitary,Low, Med, High)**				**Infestation Note:** Damage/Loss caused, Habitat type, Age of infestation, Infestation source, other
1			**M**	S	L	M	H	
2			**M**	S	L	M	H	
3			**M**	S	L	M	H	
4			**M**	S	L	M	H	
5			**M**	S	L	M	H	
6			**M**	S	L	M	H	
7			**M**	S	L	M	H	

SPECIES: ……

Appendix 3: Site Maps, Weeds Lists and Final Scores

Arbor St Parkland

Street Address: Cnr Arbor St and Tramway St Ferny Grove

Management Units in descending order of final score.

Management Unit	SCORE	CONDITION	BIO-DIVERSITY	FEASIBILITY	EXISTING GROUP	LEVEL OF THREAT	VISIBILITY
Criteria Weighting		*22*	*22*	*22*	*6*	*22*	*6*
Arb001	**76.33**	14.30	22.00	19.56	6	10.48	4.00
Arb004	**61.88**	11.00	16.50	22.00	0	8.38	4.00
Arb002	**60.22**	7.70	16.50	24.69	0	7.33	4.00
Arb003	**60.13**	8.80	16.50	8.07	6	16.76	4.00
Arb006	**52.19**	14.30	16.50	5.87	0	11.52	4.00
Arb005	**51.28**	7.70	16.50	6.60	6	10.48	4.00

Management Units Weed Lists.

Management Unit	**Arb001**
Biodiversity Significance	State Significance
Dominant Regional Ecosystem	12.3.1
Description	Gallery rainforest (notophyll vine forest) on alluvial plains

Species name	Common Name	Density
Anredera cordifolia	madeira vine	Med
Asparagus africanus	Climbing Asparagus fern	Scattered
Cardiospermum grandiflorum	balloon vine	Scattered
Celtis sinensis	Chinese elm	Scattered
Dyschoriste depressa	dyschoriste	Low
Ipomoea indica	morning glory	Scattered
Ligustrum sinense	Small Leaved Privet	Scattered
Ochna serrulata	ochna	Scattered
Panicum maximum	guinea grass	Med
Ruellia malacosperma	Ruellia	Low
Schinus terebinthifolius	Broad-leaved pepper tree	Scattered

Management Unit	**Arb002**
Biodiversity Significance	Regional
Dominant Regional Ecosystem	12.3.11
Description	Eucalyptus siderophloia, E. tereticornis, Corymbia intermedia open forest on alluvial plains usually near coast

Species name	**Common Name**	**Density**
Asparagus spp	asparagus ferns all	Low
Celtis sinensis	Chinese elm	Scattered
Cinnamomum camphora	camphor laurel	Scattered
Dyschoriste depressa	dyschoriste	Med
Lantana camara var. camara	lantana	Scattered
Ochna serrulata	ochna	Scattered
Panicum maximum	guinea grass	Med

Management Unit	**Arb003**
Biodiversity Significance	Regional
Dominant Regional Ecosystem	12.3.7
Description	Eucalyptus tereticornis, Callistemon viminalis, Casuarina cunninghamiana fringing forest

Species name	**Common Name**	**Density**
Anredera cordifolia	madeira vine	Med
Asparagus spp	asparagus ferns all	Med
Bryophyllum pinnatum	live leaf	Low
Cardiospermum grandiflorum	balloon vine	Low
Celtis sinensis	Chinese elm	Scattered
Cinnamomum camphora	camphor laurel	Scattered
Dyschoriste depressa	dyschoriste	Low
Ipomoea cairica	mile a minute	Low
Lantana camara var. camara	lantana	Med
Leucaena leucocephala (all ssp.)	leucaena	Low
Ligustrum sinense	Small Leaved Privet	Scattered
Murraya paniculata, M. exotica, M. koenigii	mock orange	Low
Neonotonia wightii	glycine	Scattered
Ochna serrulata	ochna	Scattered
Panicum maximum	guinea grass	Low
Ruellia malacosperma	Ruellia	Low
Schinus terebinthifolius	Broad-leaved pepper tree	Scattered
Sphagneticola trilobata	singapore daisy	Med

Management Unit	**Arb004**
Biodiversity Significance	Regional
Dominant Regional Ecosystem	12.3.11
Description	Eucalyptus siderophloia, E. tereticornis, Corymbia intermedia open forest on alluvial plains usually near coast

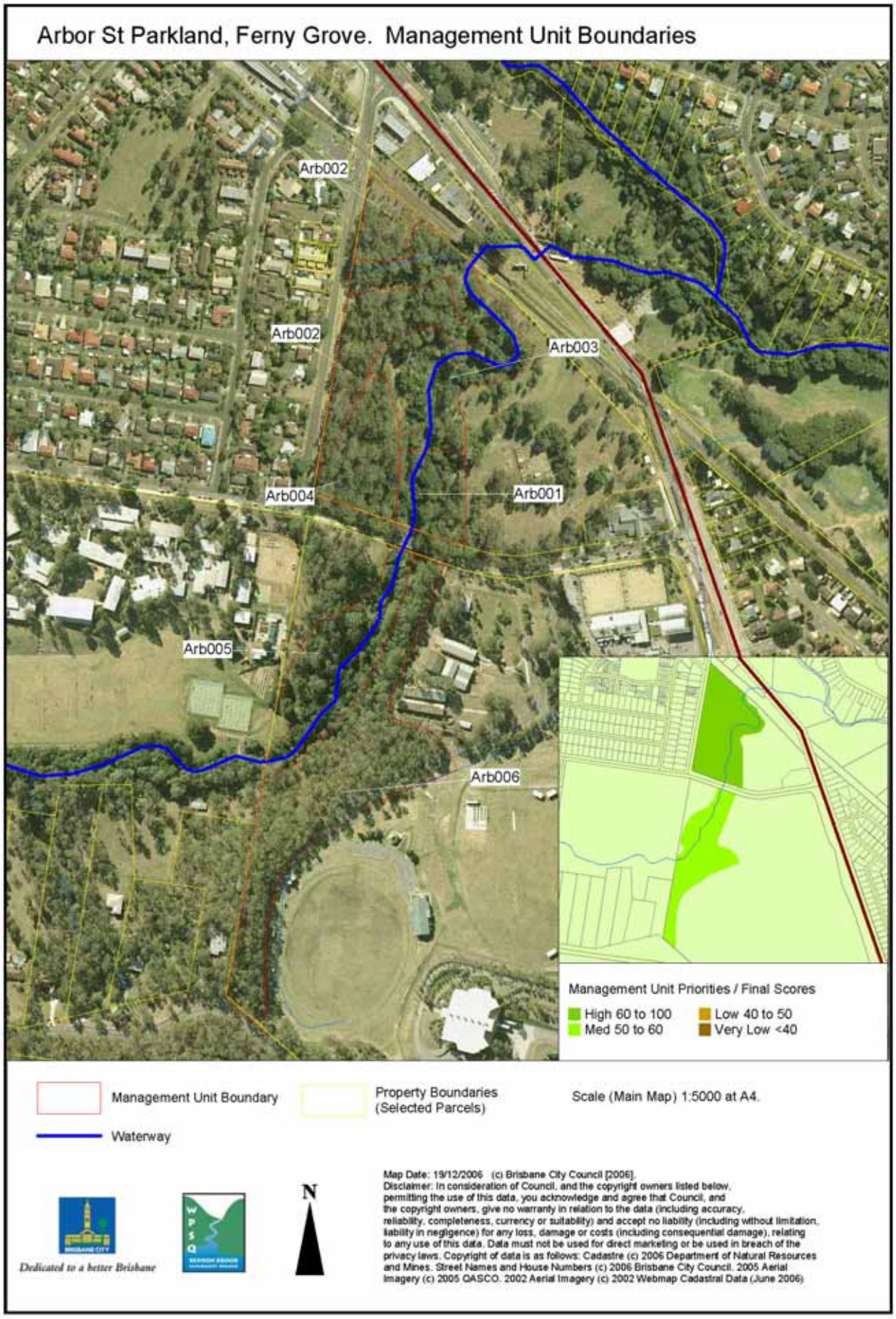
Species name	Common Name	Density
Anredera cordifolia	madeira vine	Low
Asparagus spp	asparagus ferns all	Scattered
Celtis sinensis	Chinese elm	Low
Cinnamomum camphora	camphor laurel	Scattered
Lantana camara var. camara	lantana	Med
Neonotonia wightii	glycine	Scattered
Panicum maximum	guinea grass	Med
Schinus terebinthifolius	Broad-leaved pepper tree	Scattered

Management Unit	**Arb005**
Biodiversity Significance	Regional
Dominant Regional Ecosystem	12.3.1
Description	Gallery rainforest (notophyll vine forest) on alluvial plains

Species name	Common Name	Density
Anredera cordifolia	madeira vine	low
Celtis sinensis	Chinese elm	low
Cestrum parqui	green cestrum	Low
Dyschoriste depressa	dyschoriste	Low
Ipomoea indica	morning glory	low
Ligustrum sinense	Small Leaved Privet	low
Neonotonia wightii	glycine	low
Ochna serrulata	ochna	low
Panicum maximum	guinea grass	low
Schinus terebinthifolius	Broad-leaved pepper tree	Low

Management Unit	**Arb006**
Biodiversity Significance	Regional
Dominant Regional Ecosystem	12.3.11
Description	Eucalyptus siderophloia, E. tereticornis, Corymbia intermedia open forest on alluvial plains usually near coast

Species name	**Common Name**	**Density**
Asparagus spp	asparagus ferns all	Low
Bryophyllum delagoense	mother of millions	Med
Callisia fragrans	purple succulent	Low
Ipomoea cairica	mile a minute	Low
Lantana camara var. camara	lantana	Low
Lantana montevidensis	creeping lantana	Med
Macfadyena unguis-cati	cat's claw creeper	Scattered
Melinis minutiflora	molasses grass	Low
Neonotonia wightii	glycine	Low
Ochna serrulata	ochna	Low
Panicum maximum	guinea grass	Med


Arbor St Parkland, Ferny Grove. Management Unit Boundaries
Arb002
Arb002
Arb003
Arb004
Arb001
Arb005
Arb006
Management Unit Priorities / Final Scores
High 60 to 100
Med 50 to 60
Low 40 to 50
Very Low <40
Management Unit Boundary
Property Boundaries (Selected Parcels)
Scale (Main Map) 1:5000 at A4.
Waterway
Dedicated to a better Brisbane
N
Map Date: 19/12/2006 (c) Brisbane City Council [2006].
Disclaimer: In consideration of Council, and the copyright owners listed below, permitting the use of this data, you acknowledge and agree that Council, and the copyright owners, give no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accept no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage), relating to any use of this data. Data must not be used for direct marketing or be used in breach of the privacy laws. Copyright of data is as follows: Cadastre (c) 2006 Department of Natural Resources and Mines. Street Names and House Numbers (c) 2006 Brisbane City Council. 2005 Aerial Imagery (c) 2005 QASCO. 2002 Aerial Imagery (c) 2002 Webmap Cadastral Data (June 2006)

Brook Park

Street Address: Kuringal Drive, Ferny Hills

Management Units in descending order of final score.

Management Unit	SCORE	CONDITION	BIO-DIVERSITY	FEASIBILITY	EXISTING GROUP	LEVEL OF THREAT	VISIBILITY
Criteria Weighting		*22*	*22*	*22*	*6*	*22*	*6*
Bro002	**61.37**	13.53	22.00	3.18	6	14.67	2.00
Bro004	**46.54**	5.50	22.00	3.42	0	13.62	2.00
Bro003	**42.30**	13.20	22.00	-5.38	0	10.48	2.00
Bro001	**41.68**	7.70	11.00	-0.73	6	15.71	2.00

Management Units Weed Lists.

Management Unit	**Bro001**
Biodiversity Significance	City Wide
Dominant Regional Ecosystem	Non remnant
Subdominant Regional Ecosystem	12.3.1
Description	Gallery rainforest (notophyll vine forest) on alluvial plains intermedia open forest on alluvial plains usually near coast

Species name	Common Name	Density
Ageratina riparia	mist flower	Low
Ageratum houstonianum	blue billygoat weed	Low
Anredera cordifolia	madeira vine	Low
Asparagus africanus	Climbing Asparagus fern	Med
Bryophyllum pinnatum	live leaf	Low
Callisia fragrans	purple succulent	Low
Celtis sinensis	Chinese elm	Med
Cinnamomum camphora	camphor laurel	Med
Dyschoriste depressa	dyschoriste	Low
Hypoestes phyllostachya	polka-dot plant	Low
Jacaranda mimosifolia	Jacaranda	Low
Lantana camara var. camara	lantana	Med
Ligustrum sinense	Small Leaved Privet	Low
Morus alba	Mulberry	Low

Murraya paniculata, M. exotica, M. koenigii	mock orange	Low
Neonotonia wightii	glycine	Low
Nephrolepis cordifolia	fishbone fern	Low
Ochna serrulata	ochna	Low
Panicum maximum	guinea grass	Med
Passiflora foetida	Stinking Passionfruit	Low
Phyllostachys aurea & P. nigra	bamboo	Med
Rhaphiolepis indica	common Indian hawthorn	Low
Ruellia malacosperma	Ruellia	Low
Sansevieria trifasciata	mother in law's tongue	Low
Schefflera actinophylla	umbrella tree	Low
Schinus terebinthifolius	Broad-leaved pepper tree	Low
Senna pendula var. glabrata	Easter cassia	Low
Syagrus romanzoffiana	cocos palm	Low
Tradescantia albiflora	Wandering Jew	Low

Management Unit	**Bro002**
Biodiversity Significance	State
Dominant Regional Ecosystem	12.3.1
Description	Gallery rainforest (notophyll vine forest) on alluvial plains intermedia open forest on alluvial plains usually near coast

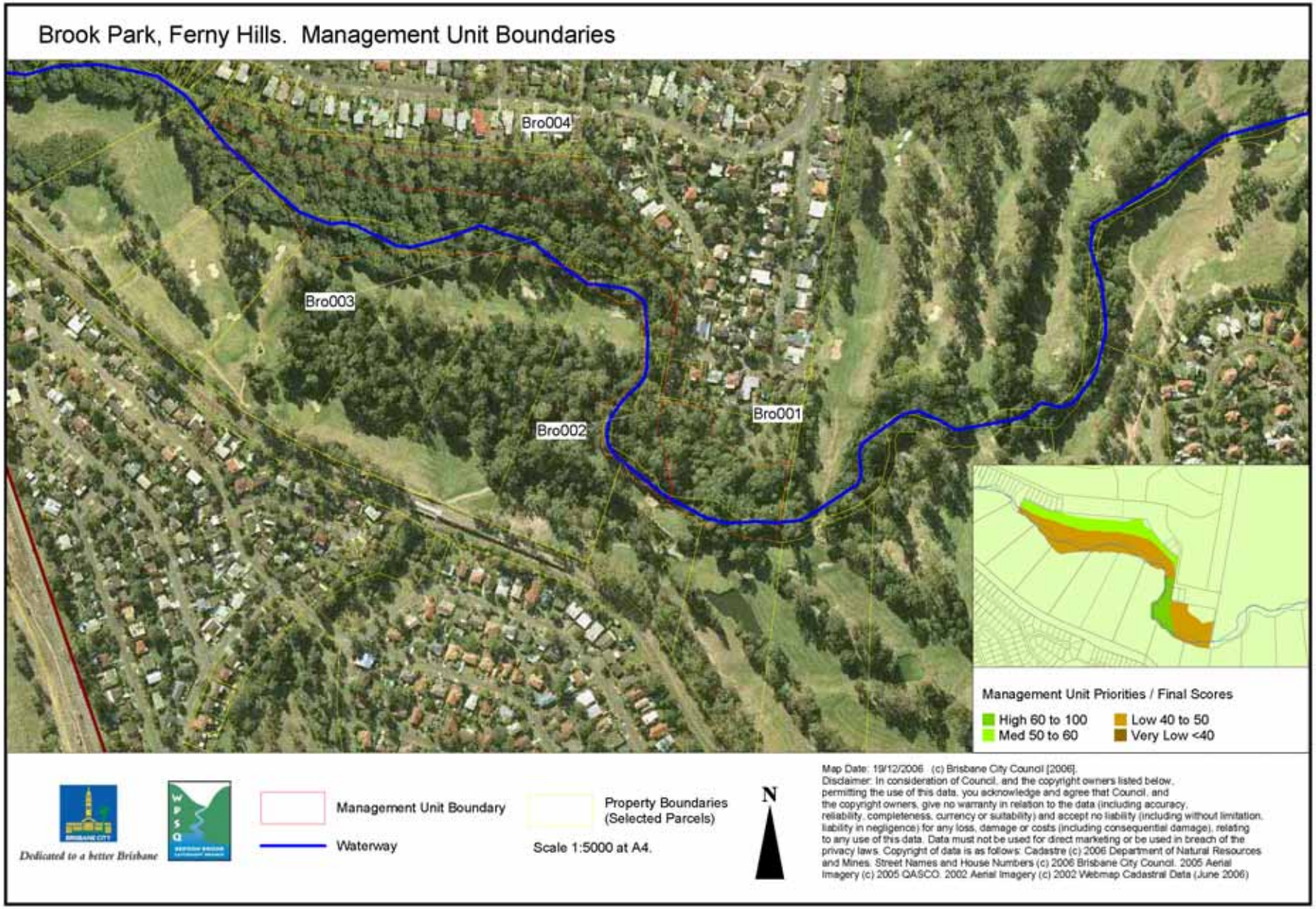
Species name	**Common Name**	**Density**
Asparagus spp	asparagus ferns all	Low
Bryophyllum pinnatum	live leaf	Scatered
Celtis sinensis	Chinese elm	Low
Cinnamomum camphora	camphor laurel	Low
Dyschoriste depressa	dyschoriste	Scattered
Lantana camara var. camara	lantana	Med
Ligustrum lucidum	Large Leaved privet	Med
Murraya paniculata, M. exotica, M. koenigii	mock orange	Low
Neonotonia wightii	glycine	Low
Ochna serrulata	ochna	Low
Panicum maximum	guinea grass	Low
Ruellia malacosperma	Ruellia	Med
Sansevieria trifasciata	mother in law's tongue	Scattered
Schinus terebinthifolius	Broad-leaved pepper tree	Scattered
Syagrus romanzoffiana	cocos palm	Scattered

Management Unit	**Bro003**
Biodiversity Significance	State
Dominant Regional Ecosystem	12.3.1
Description	Gallery rainforest (notophyll vine forest) on alluvial plains intermedia open forest on alluvial plains usually near coast

Species name	**Common Name**	**Density**
Asparagus spp	asparagus ferns all	Scattered
Bryophyllum pinnatum	live leaf	Scattered
Celtis sinensis	Chinese elm	Scattered
Cinnamomum camphora	camphor laurel	Scattered
Coffea arabica	coffee	Med
Dyschoriste depressa	dyschoriste	Low
Lantana camara var. camara	lantana	Scattered
Ligustrum sinense	Small Leaved Privet	Med
Murraya paniculata, M. exotica, M. koenigii	mock orange	Low
Ochna serrulata	ochna	Low
Panicum maximum	guinea grass	Scattered
Ruellia malacosperma	Ruellia	Med
Salvinia molesta	salvinia	Low
Spathodea campamulata	African Tulip	Scattered
Tradescantia zebrina	zebrina	Scattered

Management Unit	**Bro004**
Biodiversity Significance	State
Dominant Regional Ecosystem	12.3.1
Description	Gallery rainforest (notophyll vine forest) on alluvial plains intermedia open forest on alluvial plains usually near coast

Species name	**Common Name**	**Density**
Anredera cordifolia	madeira vine	Scattered
Asparagus spp	asparagus ferns all	Scattered
Bryophyllum pinnatum	live leaf	Low
Celtis sinensis	Chinese elm	Low
Coffea arabica	coffee	Med
Dyschoriste depressa	dyschoriste	Med
Ipomoea cairica	mile a minute	Med
Koelreuteria elegans	golden rain tree	Scattered
Lantana camara var. camara	lantana	Med
Ligustrum lucidum	Large Leaved privet	Scattered
Ligustrum sinense	Small Leaved Privet	Scattered
Ochna serrulata	ochna	Scattered
Panicum maximum	guinea grass	Low
Sansevieria trifasciata	mother in law's tongue	Scattered
Syagrus romanzoffiana	cocos palm	Scattered
Tecoma capensis	Cape honeysuckle	Scattered
Tradescantia zebrina	zebrina	Low


Brook Park, Ferny Hills. Management Unit Boundaries
Bro004
Bro003
Bro002
Bro001
Management Unit Priorities / Final Scores
High 60 to 100
Med 50 to 60
Low 40 to 50
Very Low <40
Dedicated to a better Brisbane
Management Unit Boundary
Waterway
Property Boundaries (Selected Parcels)
Scale 1:5000 at A4.
N
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Grange Forest Park

Street Address: Blandford St, Grange

Management Units in descending order of final score.

Management Unit	SCORE	CONDITION	BIO-DIVERSITY	FEASIBILITY	EXISTING GROUP	LEVEL OF THREAT	VISIBILITY
Criteria Weighting		*22*	*22*	*22*	*6*	*22*	*6*
GFP002	58.82	17.60	11.00	13.93	6	6.29	4.00
GFP003	55.76	14.30	11.00	14.18	6	6.29	4.00
GFP004	45.23	13.20	0.00	17.84	6	4.19	4.00
GFP006	44.27	15.40	5.50	4.89	6	10.48	2.00
GFP005	39.98	12.10	0.00	6.36	6	11.52	4.00
GFP001	37.67	10.18	11.00	-1.22	0	15.71	2.00

Management Units Weed Lists.

Management Unit	**GFP001**	
Biodiversity Significance	City Wide	
Dominant Regional Ecosystem	12.11.5	
Description	Open forest complex with Corymbia citriodora, Eucalyptus siderophloia, E. major on metamorphics ± interbedded volcanics	
Species name	**Common Name**	**Density**
Anredera cordifolia	madeira vine	Med
Asparagus spp	asparagus ferns all	Med
Bryophyllum spp	mother of millions	Low
Callisia fragrans	purple succulent	Med
Celtis sinensis	Chinese elm	Scattered
Cestrum parqui	green cestrum	Scattered
Cinnamomum camphora	camphor laurel	Scattered
Dyschoriste depressa	dyschoriste	Low
Impatiens spp.	balsam, busy lizzie	Scattered
Ipomoea cairica	mile a minute	Low
Lantana camara var. camara	lantana	Low
Ochna serrulata	ochna	Med
Optunia spp	prickly pear	Scattered
Panicum maximum	guinea grass	Med
Phyllostachys aurea & P. nigra	bamboo	High
Sansevieria trifasciata	mother in law's tongue	Low
Tecoma stans	yellow bells	Low
Tradescantia zebrina	zebrina	Low

Management Unit	**GFP002**
Biodiversity Significance	City Wide
Dominant Regional Ecosystem	12.11.5
Description	Open forest complex with Corymbia citriodora, Eucalyptus siderophloia, E. major on metamorphics ± interbedded volcanics
Subdominant Regional Ecosystem	12.11.3
Description	Open forest generally with Eucalyptus siderophloia, E. propinqua on metamorphics ± interbedded volcanics

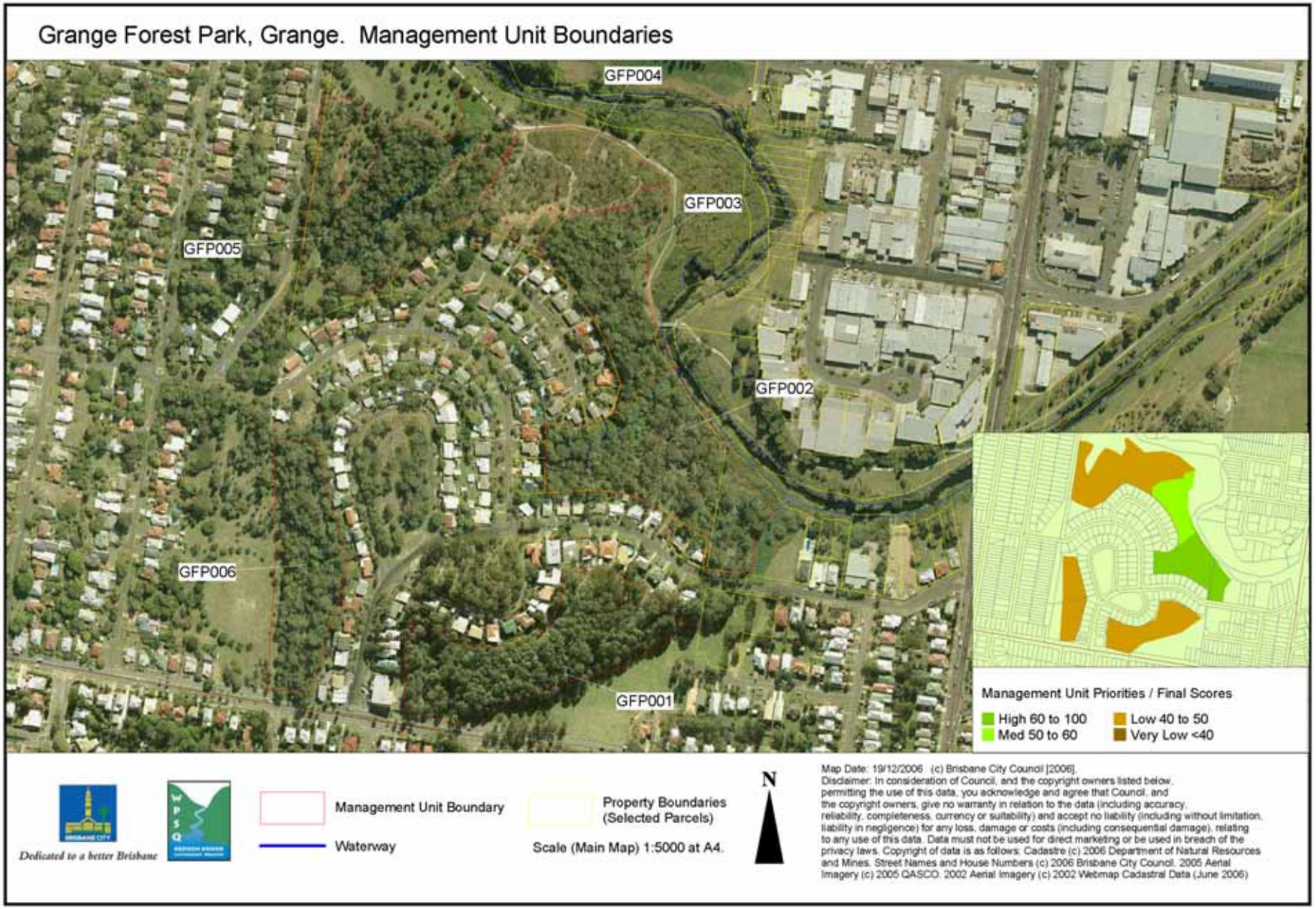
Species name	**Common Name**	**Density**
Anredera cordifolia	madeira vine	Low
Hypoestes phyllostachya	polka-dot plant	Low
Ipomoea cairica	mile a minute	Low
Morus alba	Mulberry	Scattered
Murraya paniculata, M. exotica, M. koenigii	mock orange	Scattered
Ochna serrulata	ochna	Low
Panicum maximum	guinea grass	Low
Phyllostachys aurea & P. nigra	bamboo	Low
Pinus elliottii	slash pine	Scattered
Psidium guajava and P. guineense	yellow guava and West Indes guava)	Scattered
Rhaphiolepis indica	common Indian hawthorn	Scattered
Senna pendula var. glabrata	Easter cassia	Scattered
Symphoricarpos orbiculatus	coralberry	Low
Tecoma stans	yellow bells	Scattered
Thevetia peruviana	Captain Cook tree	Scattered
Tithonia diversifolia	Japanese sunflower	Low
Tradescantia zebrina	zebrina	Low

Management Unit	GFP003	
Biodiversity Significance	City Wide	
Dominant Regional Ecosystem	12.11.5	
Description	Open forest complex with Corymbia citriodora, Eucalyptus siderophloia, E. major on metamorphics ± interbedded volcanics	
Species name	**Common Name**	**Density**
Bryophyllum delagoense	mother of millions	Low
Caesalpinia ferrea	Leopard Tree	Scattered
Eriobotrya japonica	loquat	Low
Hylocereus undatus	Night Flowering Cactus	Scattered
Jacaranda mimosifolia	Jacaranda	Scattered
Lantana camara var. camara	lantana	Scattered
Mangifera indica	Mango	Scattered
Melinus repens	Red Natal Grass	Med
Morus alba	Mulberry	Scattered
Murraya paniculata, M. exotica, M. koenigii	mock orange	Low
Neonotonia wightii	glycine	Low
Ochna serrulata	ochna	Scattered
Optunia spp	prickly pear	Scattered
Panicum maximum	guinea grass	Med
Prunus persica	Peach	Scattered
Tradescantia albiflora	Wandering Jew	Low

Management Unit	GFP004	
Biodiversity Significance	Non remnant	
Dominant Regional Ecosystem	Non remnant	
Species name	**Common Name**	**Density**
Asparagus spp	asparagus ferns all	Low
Bryophyllum delagoense	mother of millions	Low
Melinus repens	Red Natal Grass	Low
Optunia spp	prickly pear	Scattered
Panicum maximum	guinea grass	Low
Psidium guajava	Guava	Scattered

Management Unit	GFP005	
Biodiversity Significance	Non remnant	
Dominant Regional Ecosystem	Non remnant	
Species name	**Common Name**	**Density**
Anredera cordifolia	madeira vine	Med
Asparagus spp	asparagus ferns all	Scattered
Bryophyllum delagoense	mother of millions	Scattered
Dyschoriste depressa	dyschoriste	Low
Ipomoea cairica	mile a minute	Scattered
Morus alba	Mulberry	Scattered
Murraya paniculata, M. exotica, M. koenigii	mock orange	Scattered
Neonotonia wightii	glycine	Low
Optunia spp	prickly pear	Scattered
Panicum maximum	guinea grass	Low
Rhaphiolepis indica	common Indian hawthorn	Scattered
Schefflera actinophylla	umbrella tree	Scattered
Schinus terebinthifolius	Broad-leaved pepper tree	Scattered
Senna pendula var. glabrata	Easter cassia	Scattered
Solanum seaforthianum	Brazilian nightshade	Scattered
Syagrus romanzoffiana	cocos palm	Scattered
Tecoma stans	yellow bells	Scattered

Management Unit	**GFP006**	
Biodiversity Significance	Local Significance	
Dominant Regional Ecosystem	12.11.3	
Description	Open forest generally with Eucalyptus siderophloia, E. propinqua on metamorphics ± interbedded volcanics	
Species name	**Common Name**	**Density**
Anredera cordifolia	madeira vine	Low
Bryophyllum spp	mother of millions	Low
Duranta erecta syn. D. repens, D. plumeri	duranta	Scattered
Dyschoriste depressa	dyschoriste	Low
Euphorbia cyathophora	painted spuge	Low
Leucaena leucocephala (all ssp.)	leucaena	Scattered
Macfadyena unguis-cati	cat's claw creeper	Scattered
Murraya paniculata, M. exotica, M. koenigii	mock orange	Med
Ochna serrulata	ochna	Scattered
Panicum maximum	guinea grass	Low
Schinus terebinthifolius	Broad-leaved pepper tree	Scattered
Spathodea campanulata	African tulip tree	Scattered
Sphagneticola trilobata	singapore daisy	Low
Tecoma stans	yellow bells	Scattered


Grange Forest Park, Grange. Management Unit Boundaries
GFP004
GFP003
GFP005
GFP002
GFP006
GFP001
Management Unit Priorities / Final Scores
High 60 to 100
Med 50 to 60
Low 40 to 50
Very Low <40
Dedicated to a better Brisbane
Management Unit Boundary
Waterway
Property Boundaries (Selected Parcels)
Scale (Main Map) 1:5000 at A4.
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Kalinga Park

Street Address: Carew St, Nundah

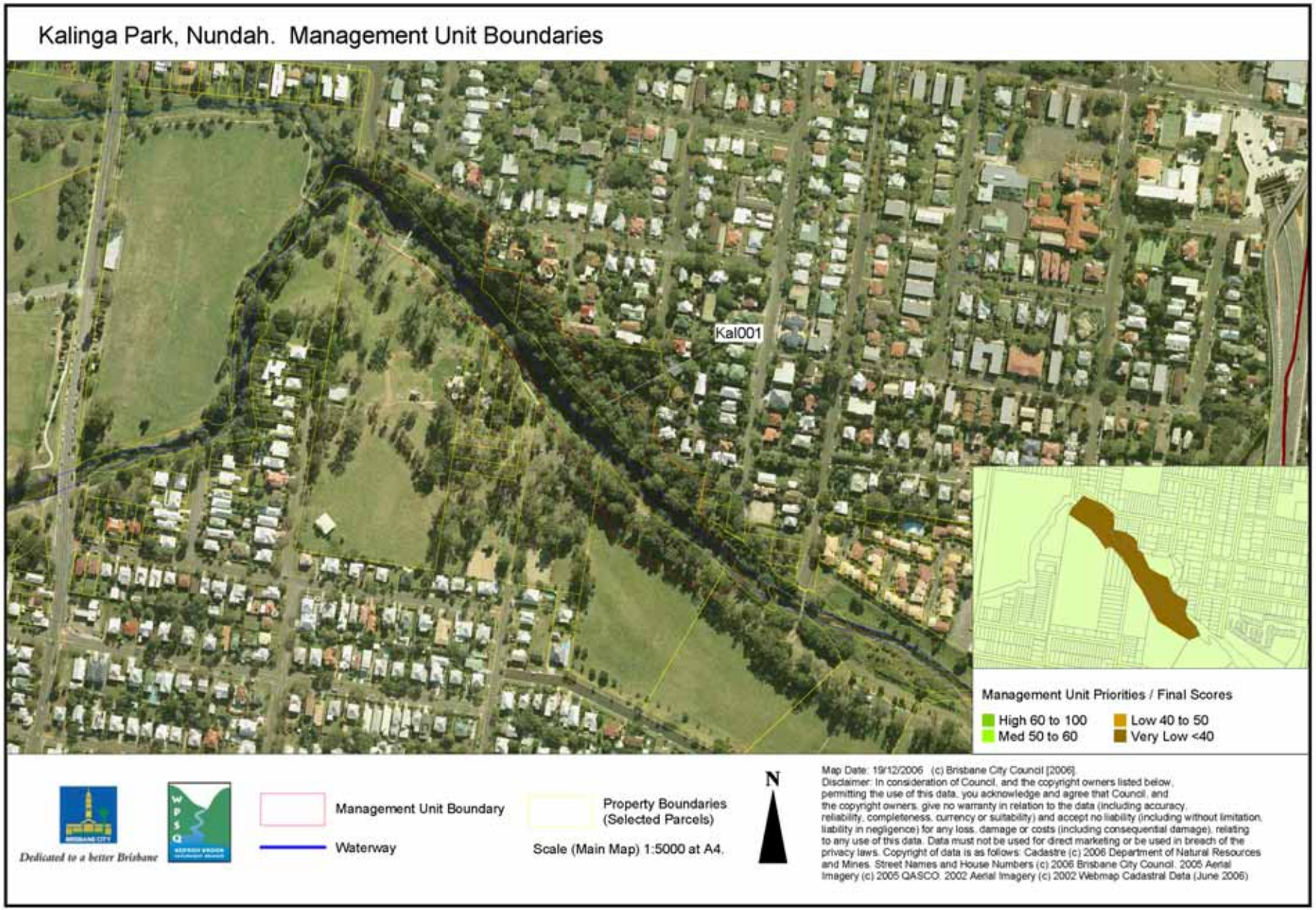
Management Unit final score.

Management Unit	SCORE	CONDITION	BIO-DIVERSITY	FEASIBILITY	EXISTING GROUP	LEVEL OF THREAT	VISIBILITY
Criteria Weighting		*22*	*22*	*22*	*6*	*22*	*6*
Kal001	20.06	5.50	11.00	-24.44	0	22.00	6.00

Management Unit	**Kal001**
Biodiversity Significance	City Wide
Dominant Regional Ecosystem	12.3.11
Description	Eucalyptus siderophloia, E. tereticornis, Corymbia intermedia open forest on alluvial plains usually near coast
Subdominant Regional Ecosystem	12.3.7
Description	Eucalyptus tereticornis, Callistemon viminalis, Casuarina cunninghamiana fringing forest

Species name	Common Name	Density
Anredera cordifolia	madeira vine	Low
Bryophyllum pinnatum	live leaf	Scattered
Callisia fragrans	purple succulent	Low
Cardiospermum grandiflorum	balloon vine	Med
Celtis sinensis	Chinese elm	Med
Cinnamomum camphora	camphor laurel	Low
Desmodium uncinatum	silver leaf Desmodium	Scattered
Dyschoriste depressa	dyschoriste	Low
Eriobotrya japonica	loquat	Scattered
Erythrina crista-galli	cockspur coral tree	Scattered
Eugenia uniflora	Brazillian Cherry	Scattered
Hypoestes phyllostachya	polka-dot plant	Low
Ipomoea cairica	mile a minute	Low
Ipomoea indica	morning glory	Low
Lantana camara var. camara	lantana	Low
Leucaena leucocephala (all ssp.)	leucaena	Scattered
Ligustrum sinense	Small Leaved Privet	Scattered
Macfadyena unguis-cati	cat’s claw creeper	Med

Murraya paniculata, M. exotica, M. koenigii	mock orange	Scattered
Neonotonia wightii	glycine	Low
Nephrolepis cordifolia	fishbone fern	Scattered
Ochna serrulata	ochna	Med
Panicum maximum	guinea grass	Med
Pennisetum purpureum	elephant grass	Low
Ruellia malacosperma	Ruellia	Med
Sansevieria trifasciata	mother in law’s tongue	Scattered
Schefflera actinophylla	umbrella tree	Scattered
Senna pendula var. glabrata	Easter cassia	Low
Sphagneticola trilobata	singapore daisy	Low
Syagrus romanzoffiana	cocos palm	Low
Symphoricarpos orbiculatus	coralberry	Scattered
Tecoma stans	yellow bells	Low
Tradescantia albiflora	Wandering Jew	Low
Tradescantia zebrina	zebrina	Low


Kalinga Park, Nundah. Management Unit Boundaries
Kal001
Management Unit Priorities / Final Scores
High 60 to 100
Med 50 to 60
Low 40 to 50
Very Low <40
Dedicated to a better Brisbane
Management Unit Boundary
Waterway
Property Boundaries (Selected Parcels)
Scale (Main Map) 1:5000 at A4.
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Kirallee St Park

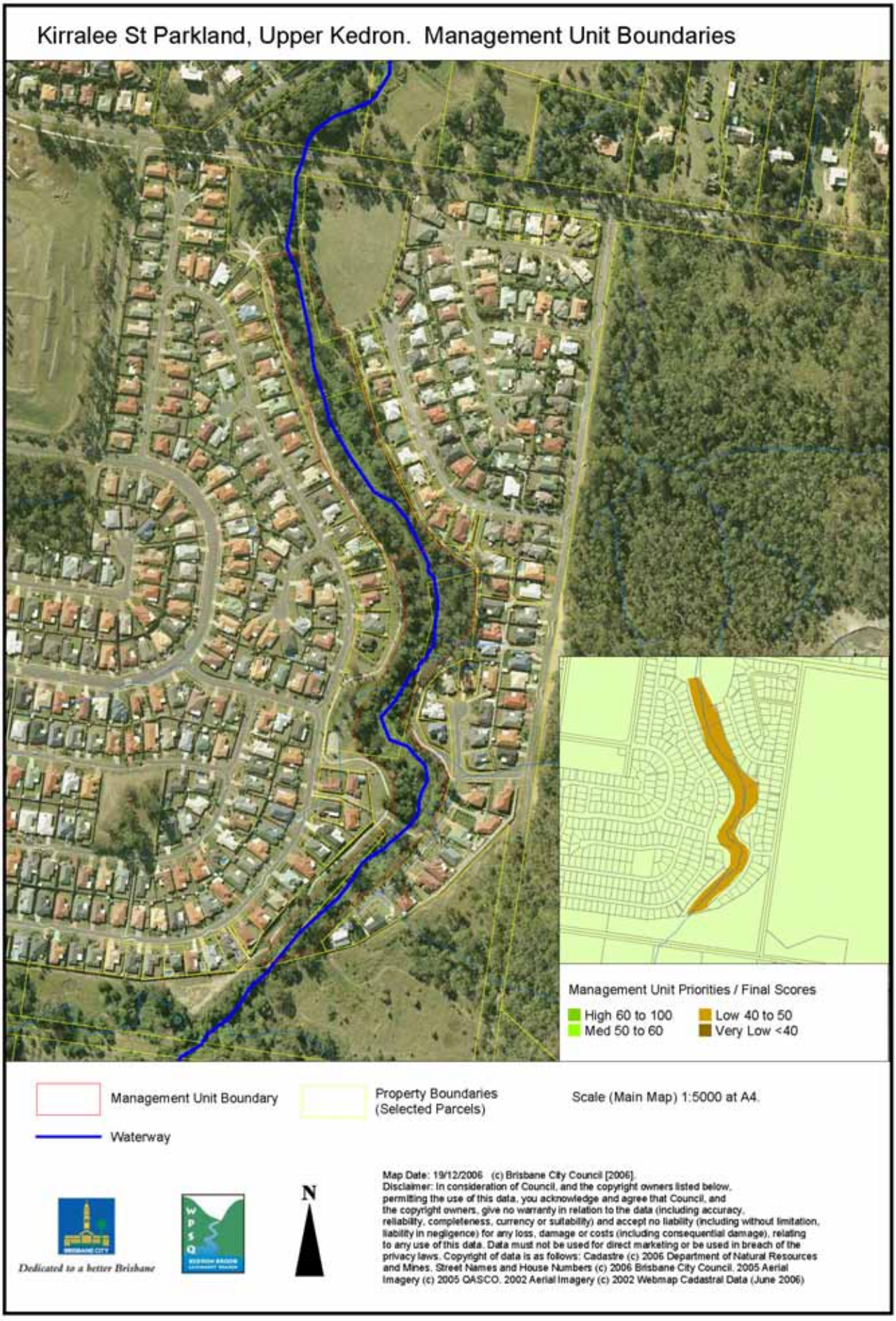
Street Address: Kirallee St, Upper Kedron

Management Units final score.

Management Unit	SCORE	CONDITION	BIO-DIVERSITY	FEASIBILITY	EXISTING GROUP	LEVEL OF THREAT	VISIBILITY
Criteria Weighting		*22*	*22*	*22*	*6*	*22*	*6*
Kir001	45.43	9.90	11.00	13.20	0	7.33	4.00
Kir002	39.62	8.80	11.00	2.20	0	13.62	4.00

Management Unit	**Kir001**	
Biodiversity Significance	City Wide	
Dominant Regional Ecosystem	12.3.2	
Description	Eucalyptus grandis tall open forest on alluvial plains	
Species name	**Common Name**	**Density**
Asparagus africanus	Climbing Asparagus fern	Med
Brachiaria mutica	para grass	High
Cinnamomum camphora	camphor laurel	Scattered
Dyschoriste depressa	dyschoriste	Low
Jacaranda mimosifolia	Jacaranda	Scattered
Lantana camara var. camara	lantana	High
Ligustrum sinense	Small Leaved Privet	Low
Macroptilium atropurpureum	siratro	Low
Ochna serrulata	ochna	Low
Panicum maximum	guinea grass	Med
Passiflora foetida	Stinking Passionfruit	Low
Senna pendula var. glabrata	Easter cassia	Low

Management Unit	Kir002	
Biodiversity Significance	City Wide	
Dominant Regional Ecosystem	12.3.2	
Description	Eucalyptus grandis tall open forest on alluvial plains	
Species name	**Common Name**	**Density**
Ageratina adenophora	crofton weed	Low
Ageratina riparia	mist flower	Low
Anredera cordifolia	madeira vine	Scattered
Baccharis halimifolia	groundsel	Scattered
Brachiaria mutica	para grass	High
Bryophyllum pinnatum	live leaf	Scattered
Callisia fragrans	purple succulent	Scattered
Cinnamomum camphora	camphor laurel	Scattered
Ipomoea cairica	mile a minute	Scattered
Lantana camara var. camara	lantana	Med
Ligustrum sinense	Small Leaved Privet	Scattered
Melinis minutiflora	molasses grass	Scattered
Morus alba	Mulberry	Scattered
Neonotonia wightii	glycine	Scattered
Panicum maximum	guinea grass	Med
Passiflora foetida	Stinking Passionfruit	Scattered
Passiflora suberosa	corky passion vine	Scattered
Salix bablonica	Weeping Willow	Scattered
Schinus terebinthifolius	Broad-leaved pepper tree	Scattered
Senna pendula var. glabrata	Easter cassia	Low
Solanum hispidum	giant devil's fig	Scattered
Thunbergia alata	Black Eyed Susan	Scattered
Tradescantia albiflora	Wandering Jew	Scattered


Kirralee St Parkland, Upper Kedron. Management Unit Boundaries
Management Unit Priorities / Final Scores
High 60 to 100
Med 50 to 60
Low 40 to 50
Very Low <40
Management Unit Boundary
Property Boundaries (Selected Parcels)
Scale (Main Map) 1:5000 at A4.
Waterway
N
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Redgum Place Park

Street Address Red Gum Place, Mitchelton

Management Unit final score.

Management Unit	SCORE	CONDITION	BIO-DIVERSITY	FEASIBILITY	EXISTING GROUP	LEVEL OF THREAT	VISIBILITY
Criteria Weighting		*22*	*22*	*22*	*6*	*22*	*6*
Mel001	60.52	11.00	16.50	15.40	0	13.62	4.00

Management Unit Weed List

Management Unit	**Mel001**
Biodiversity Significance	Regional
Dominant Regional Ecosystem	12.11.18
Description	Eucalyptus moluccana open forest on metamorphics ± interbedded volcanics
Subdominant Regional Ecosystem	12.11.14
Description	Eucalyptus crebra, E. tereticornis woodland on metamorphics ± interbedded volcanics

Species name	Common Name	Density
Ardisia crenata	Coral Berry	Scattered
Asparagus spp	asparagus ferns all	Scattered
Baccharis halimifolia	groundsel	Scattered
Celtis sinensis	Chinese elm	Low
Cinnamomum camphora	camphor laurel	Med
Corymbia torelliana	cadaghi	Scattered
Desmodium uncinatum	silver leaf Desmodium	Scattered
Eriobotrya japonica	loquat	Scattered
Ipomoea cairica	mile a minute	Med
Ipomoea indica	morning glory	Low
Lantana camara var. camara	lantana	Low
Ligustrum sinense	Small Leaved Privet	Scattered
Morus alba	Mulberry	Scattered
Neonotonia wightii	glycine	Scattered
Ochna serrulata	ochna	Low
Panicum maximum	guinea grass	Low
Pinus elliottii	slash pine	Scattered
Psidium guajava	Guava	Scattered
Rhaphiolepis indica	common Indian hawthorn	Scattered
Schefflera actinophylla	umbrella tree	Low
Schinus terebinthifolius	Broad-leaved pepper tree	Scattered
Senna pendula var. glabrata	Easter cassia	Scattered
Spathodea campamulata	African Tulip	Scattered
Syagrus romanzoffiana	cocos palm	Scattered


Melaleuca Reserve, Redgum Place, Mitchelton. Management Unit Boundaries
Mel001
Management Unit Priorities / Final Scores
High 60 to 100
Med 50 to 60
Low 40 to 50
Very Low <40
Dedicated to a better Brisbane
Management Unit Boundary
Waterway
Property Boundaries (Selected Parcels)
Scale (Main Map) 1:2500 at A4.
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Mercer Park

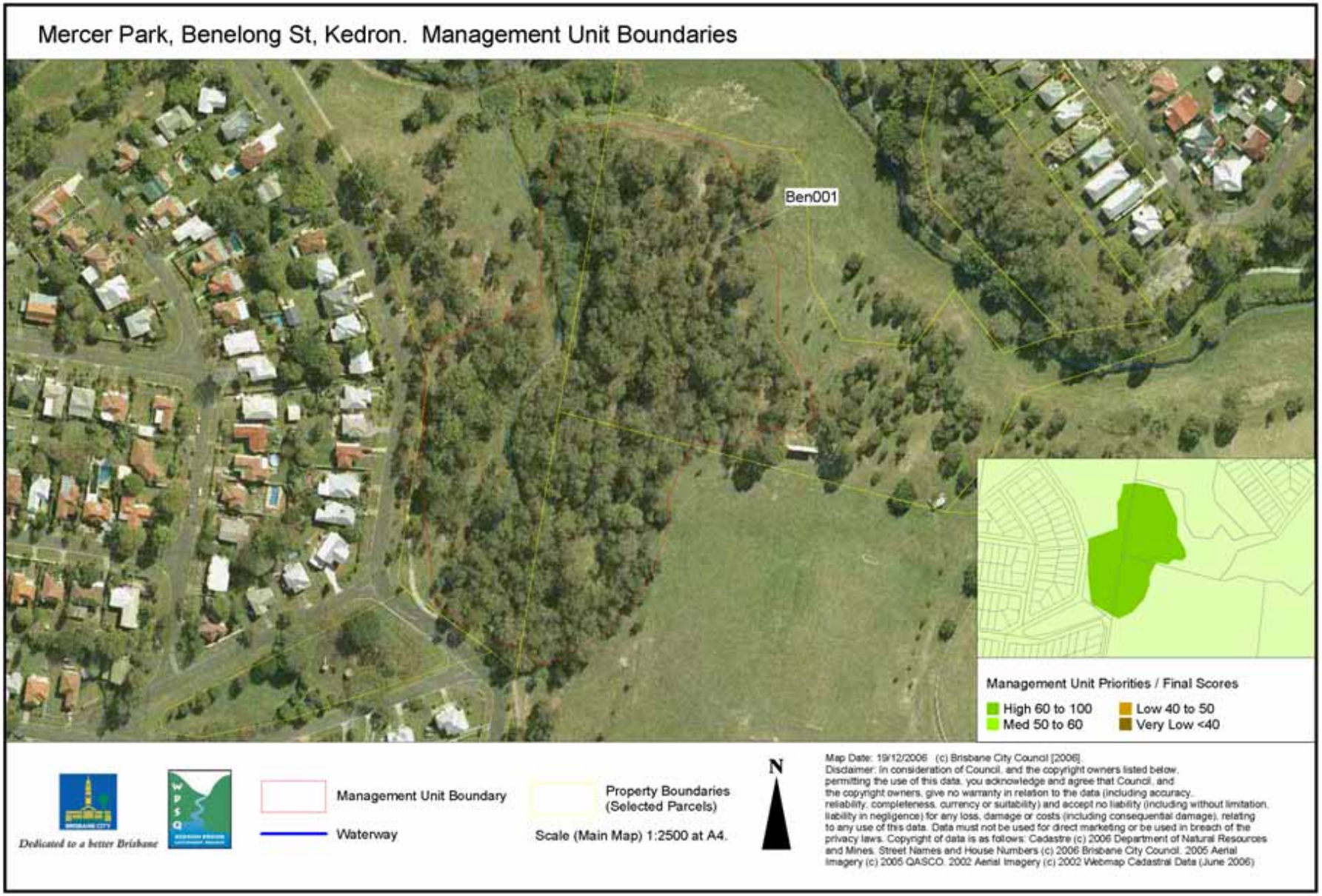
Street Address: Benelong St, Kedron

Management Unit	SCORE	CONDITION	BIO-DIVERSITY	FEASIBILITY	EXISTING GROUP	LEVEL OF THREAT	VISIBILITY
Criteria Weighting		*22*	*22*	*22*	*6*	*22*	*6*
Ben001	57.03	12.98	11.00	7.33	6	15.71	4.00

Management Unit Weed List

Management Unit	**Ben001**
Biodiversity Significance	Regional
Dominant Regional Ecosystem	12.3.6
Description	Melaleuca quinquenervia, Eucalyptus tereticornis, Lophostemon suaveolens woodland on coastal alluvial plains

Species name	Common Name	Density
Araujia sericifera	Mothvine	Low
Asparagus spp	asparagus ferns all	Low
Baccharis halimifolia	groundsel	Low
Brachiaria decumbens	Signal Grass	Low
Bryophyllum spp	mother of millions	Low
Cardiospermum grandiflorum	balloon vine	Low
Celtis sinensis	Chinese elm	Med
Ipomoea cairica	mile a minute	Low
Justicia betonica	squirreltail	Scattered
Lantana camara var. camara	lantana	Low
Lantana montevidensis	creeping lantana	Med
Leucaena leucocephala (all ssp.)	leucaena	Low
Macfadyena unguis-cati	cat’s claw creeper	Low
Neonotonia wightii	glycine	Med
Ochna serrulata	ochna	Scattered
Panicum maximum	guinea grass	Med
Schinus terebinthifolius	Broad-leaved pepper tree	Scattered
Senna pendula var. glabrata	Easter cassia	Scattered
Sphagneticola trilobata	singapore daisy	Low
Symphoricarpos orbiculatus	coralberry	Low
Tecoma stans	yellow bells	Scattered


Mercer Park, Benelong St, Kedron. Management Unit Boundaries
Ben001
Management Unit Priorities / Final Scores
High 60 to 100
Med 50 to 60
Low 40 to 50
Very Low <40
Dedicated to a better Brisbane
Management Unit Boundary
Waterway
Property Boundaries (Selected Parcels)
Scale (Main Map) 1:2500 at A4.
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Sparkes Hill Reserve

Street Address Longland St, Stafford

Management Units, in order of descending final score.

Management Unit	SCORE	CONDITION	BIO-DIVERSITY	FEASIBILITY	EXISTING GROUP	LEVEL OF THREAT	VISIBILITY
Criteria Weighting		*22*	*22*	*22*	*6*	*22*	*6*
Spa005	55.68	10.18	16.50	7.58	6	9.43	6.00
Spa006	50.60	11.00	16.50	-3.67	6	16.76	4.00
Spa003	46.62	11.44	11.00	-0.49	6	14.67	4.00
Spa004	38.94	10.59	11.00	-5.13	6	10.48	6.00
Spa001	36.78	11.00	11.00	-4.64	6	9.43	4.00
Spa002	34.87	8.80	11.00	-13.69	6	16.76	6.00

Management Units Weed List.

Management Unit	**Spa001**
Biodiversity Significance	City Wide
Dominant Regional Ecosystem	12.11.5
Description	Open forest complex with Corymbia citriodora, Eucalyptus siderophloia, E. major on metamorphics ± interbedded volcanics
Subdominant Regional Ecosystem	12.11.3
Description	Open forest generally with Eucalyptus siderophloia, E. propinqua on metamorphics ± interbedded volcanics

Species name	Common Name	Density
Anredera cordifolia	madeira vine	Scattered
Asparagus spp	asparagus ferns all	Low
Bryophyllum delagoense	mother of millions	Low
Celtis sinensis	Chinese elm	Low
Lantana camara var. camara	lantana	Low
Leucaena leucocephala (all ssp.)	leucaena	Low
Ochna serrulata	ochna	Low
Panicum maximum	guinea grass	Low
Ricinus communis	castor oil plant	Scattered

Management Unit	**Spa002**
Biodiversity Significance	City Wide
Dominant Regional Ecosystem	12.11.5
Description	Open forest complex with Corymbia citriodora, Eucalyptus siderophloia, E. major on metamorphics ± interbedded volcanics

Species name	**Common Name**	**Density**
Anredera cordifolia	madeira vine	Low
Asparagus aethiopicus 'Sprengeri',	basket asparagus fern	Low
Asparagus africanus	Climbing Asparagus fern	High
Celtis sinensis	Chinese elm	Med
Cinnamomum camphora	camphor laurel	Low
Corymbia torelliana	cadaghi	Scattered
Desmodium uncinatum	silver leaf Desmodium	Low
Dyschoriste depressa	dyschoriste	Scattered
Eugenia uniflora	Brazillian Cherry	Low
Ipomoea cairica	mile a minute	Low
Lantana camara var. camara	lantana	High
Ligustrum sinense	Small Leaved Privet	Low
Morus alba	Mulberry	Low
Neonotonia wightii	glycine	Low
Nephrolepis cordifolia	fishbone fern	Scattered
Ochna serrulata	ochna	Med
Panicum maximum	guinea grass	Med
Passiflora foetida	Stinking Passionfruit	Scattered
Pennisetum purpureum	elephant grass	Low
Sansevieria trifasciata	mother in law's tongue	Scattered
Schinus terebinthifolius	Broad-leaved pepper tree	Low
Senna pendula var. glabrata	Easter cassia	Low
Solanum seaforthianum	Brazilian nightshade	Scattered
Syagrus romanzoffiana	cocos palm	Med
Symphoricarpos orbiculatus	coralberry	Low
Tithonia diversifolia	Japanese sunflower	Low

Management Unit	**Spa003**
Biodiversity Significance	City Wide
Dominant Regional Ecosystem	12.11.3
Description	Open forest generally with Eucalyptus siderophloia, E. propinqua on metamorphics ± interbedded volcanics
Subdominant Regional Ecosystem	12.11.5
Description	Open forest complex with Corymbia citriodora, Eucalyptus siderophloia, E. major on metamorphics ± interbedded volcanics

Species name	**Common Name**	**Density**
Anredera cordifolia	madeira vine	Low
Aristolochia elegans	Dutchman's pipe	Scattered
Asparagus spp	asparagus ferns all	Med
Bryophyllum delagoense	mother of millions	Scattered
Cardiospermum grandiflorum	balloon vine	Low
Celtis sinensis	Chinese elm	Med
Dyschoriste depressa	dyschoriste	Low
Lantana camara var. camara	lantana	Low
Ligustrum sinense	Small Leaved Privet	Scattered
Macfadyena unguis-cati	cat's claw creeper	Low
Ochna serrulata	ochna	Low
Panicum maximum	guinea grass	Med
Schinus terebinthifolius	Broad-leaved pepper tree	Scattered
Symphoricarpos orbiculatus	coralberry	Low

Management Unit	**Spa004**
Biodiversity Significance	City Wide
Dominant Regional Ecosystem	12.11.5
Description	Open forest complex with Corymbia citriodora, Eucalyptus siderophloia, E. major on metamorphics ± interbedded volcanics

Species name	Common Name	Density
Anredera cordifolia	madeira vine	Med
Asparagus spp	asparagus ferns all	Med
Cardiospermum grandiflorum	balloon vine	Scattered
Celtis sinensis	Chinese elm	Scattered
Corymbia torelliana	cadaghi	Low
Dyschoriste depressa	dyschoriste	Med
Lantana camara var. camara	lantana	Med
Ligustrum sinense	Small Leaved Privet	Scattered
Ochna serrulata	ochna	Med
Panicum maximum	guinea grass	Med
Symphoricarpos orbiculatus	coralberry	Scattered

Management Unit	**Spa005**
Biodiversity Significance	Regional
Dominant Regional Ecosystem	12.3.11
Description	Eucalyptus siderophloia, E. tereticornis, Corymbia intermedia open forest on alluvial plains usually near coast
Subdominant Regional Ecosystem	12.11.5
Description	Open forest complex with Corymbia citriodora, Eucalyptus siderophloia, E. major on metamorphics ± interbedded volcanics

Species name	Common Name	Density
Aristolochia elegans	Dutchman's pipe	Low
Asparagus spp	asparagus ferns all	Med
Bryophyllum spp	mother of millions	Low
Cardiospermum grandiflorum	balloon vine	Scattered
Celtis sinensis	Chinese elm	Scattered
Cinnamomum camphora	camphor laurel	Scattered
Lantana camara var. camara	lantana	Med
Murraya paniculata, M. exotica, M. koenigii	mock orange	Scattered
Ochna serrulata	ochna	Med
Panicum maximum	guinea grass	Med
Sansevieria trifasciata	mother in law's tongue	Med
Tradescantia zebrina	zebrina	Low

Management Unit	**Spa006**
Biodiversity Significance	Regional
Dominant Regional Ecosystem	12.11.3
Description	Open forest generally with Eucalyptus siderophloia, E. propinqua on metamorphics ± interbedded volcanics
Subdominant Regional Ecosystem	12.11.5
Description	Open forest complex with Corymbia citriodora, Eucalyptus siderophloia, E. major on metamorphics ± interbedded volcanics

Species name	**Common Name**	**Density**
Anredera cordifolia	madeira vine	Scattered
Aristolochia elegans	Dutchman's pipe	Scattered
Asparagus spp	asparagus ferns all	Med
Bryophyllum pinnatum	live leaf	Low
Cardiospermum grandiflorum	balloon vine	Scattered
Celtis sinensis	Chinese elm	Scattered
Cinnamomum camphora	camphor laurel	Scattered
Dyschoriste depressa	dyschoriste	Low
Indigo sufferuticosa	Indigo	Low
Lantana camara var. camara	lantana	med
Lantana montevidensis	creeping lantana	Low
Ligustrum lucidum	Large Leaved privet	Med
Murraya paniculata, M. exotica, M. koenigii	mock orange	Scattered
Ochna serrulata	ochna	Low
Optunia spp	prickly pear	Low
Panicum maximum	guinea grass	Med
Sansevieria trifasciata	mother in law's tongue	Low
Symphoricarpos orbiculatus	coralberry	Scattered

Sparkes Hill, Stafford. Management Unit Boundaries

Management Unit Boundary

Property Boundaries (Selected Parcels)

Scale (Main Map) 1:5000 at A4

Waterway

Dedicated to a better Brisbane

N

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Wahminda Grove & Maureen Lawrence Park

Street Address: Samford Road, Ferny Grove

Management Units, in order of descending final score.

Management Unit	SCORE	CONDITION	BIO-DIVERSITY	FEASIBILITY	EXISTING GROUP	LEVEL OF THREAT	VISIBILITY
Criteria Weighting		*22*	*22*	*22*	*6*	*22*	*6*
Wah004	61.33	14.30	16.50	13.20	6	7.33	4.00
Wah002	59.82	9.46	16.50	16.62	6	5.24	6.00
Mau001	53.52	13.53	16.50	13.20	0	6.29	4.00
Wah001	52.24	9.02	16.50	9.29	6	9.43	2.00
Mau003	48.19	13.75	16.50	8.80	0	3.14	6.00
Wah003	46.34	11.00	16.50	-0.49	6	7.33	6.00
Mau002	37.81	12.10	16.50	-8.31	0	11.52	6.00

Management Units Weed List

Management Unit	**Mau001**
Biodiversity Significance	Regional
Dominant Regional Ecosystem	12.11.5
Description	Open forest complex with Corymbia citriodora, Eucalyptus siderophloia, E. major on metamorphics ± interbedded volcanics

Species name	Common Name	Density
Anredera cordifolia	madeira vine	Scattered
Asparagus spp	asparagus ferns all	Scattered
Bryophyllum pinnatum	live leaf	Low
Lantana camara var. camara	lantana	Low
Leucaena leucocephala (all ssp.)	leucaena	Scattered
Melinus repens	Red Natal Grass	Low
Panicum maximum	guinea grass	Low
Senna pendula var. glabrata	Easter cassia	Low
Tradescantia zebrina	zebrina	Scattered

Management Unit	**Mau002**
Biodiversity Significance	Regional
Dominant Regional Ecosystem	12.11.5
Description	Open forest complex with Corymbia citriodora, Eucalyptus siderophloia, E. major on metamorphics ± interbedded volcanics

Species name	**Common Name**	**Density**
Anredera cordifolia	madeira vine	Scattered
Aristolochia elegans	Dutchman's pipe	Scattered
Asparagus spp	asparagus ferns all	Scattered
Bryophyllum pinnatum	live leaf	Low
Celtis sinensis	Chinese elm	Scattered
Hylocereus undatus	Night Flowering Cactus	Low
Lantana camara var. camara	lantana	High
Macfadyena unguis-cati	cat's claw creeper	Low
Murraya paniculata, M. exotica, M. koenigii	mock orange	Scattered
Ochna serrulata	ochna	Med
Optunia spp	prickly pear	Low
Panicum maximum	guinea grass	Low
Rhynchelytrum repens	red natal grass	Low
Sansevieria trifasciata	mother in law's tongue	Low
Schinus terebinthifolius	Broad-leaved pepper tree	Scattered
Senna pendula var. glabrata	Easter cassia	Low
Tradescantia zebrina	zebrina	Med

Management Unit	**Mau003**
Biodiversity Significance	Regional
Dominant Regional Ecosystem	12.11.5
Description	Open forest complex with Corymbia citriodora, Eucalyptus siderophloia, E. major on metamorphics ± interbedded volcanics

Species name	Common Name	Density
Asparagus spp	asparagus ferns all	Scattered
Lantana camara var. camara	lantana	High
Sansevieria trifasciata	mother in law's tongue	Med
Senna pendula var. glabrata	Easter cassia	Low

Management Unit	**Wah001**
Biodiversity Significance	Regional
Dominant Regional Ecosystem	12.11.5
Description	Open forest complex with Corymbia citriodora, Eucalyptus siderophloia, E. major on metamorphics ± interbedded volcanics

Species name	Common Name	Density
Asparagus aethiopicus 'Sprengeri',	basket asparagus fern	Scattered
Asparagus spp	asparagus ferns all	Scattered
Baccharis halimifolia	groundsel	Low
Bryophyllum pinnatum	live leaf	Scattered
Celtis sinensis	Chinese elm	Scattered
Cinnamomum camphora	camphor laurel	Scattered
Lantana camara var. camara	lantana	Med
Macroptilium atropurpureum	siratro	Low
Panicum maximum	guinea grass	Low
Rhynchelytrum repens	red natal grass	Low
Schinus terebinthifolius	Broad-leaved pepper tree	Scattered
Senna pendula var. glabrata	Easter cassia	Low

Management Unit	**Wah002**
Biodiversity Significance	Regional
Dominant Regional Ecosystem	12.11.5
Description	Open forest complex with Corymbia citriodora, Eucalyptus siderophloia, E. major on metamorphics ± interbedded volcanics

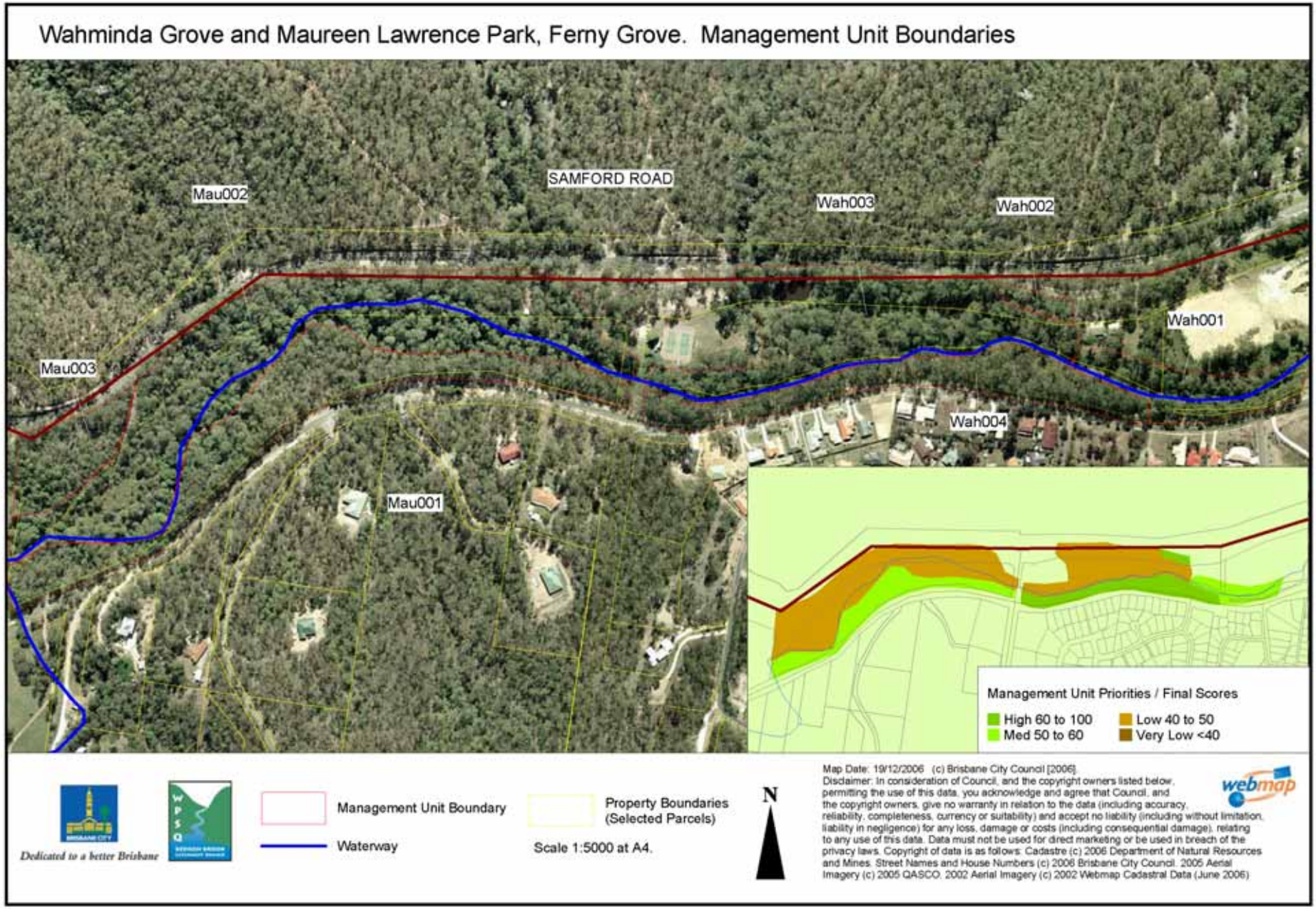
Species name	Common Name	Density
Asparagus spp	asparagus ferns all	Low
Lantana camara var. camara	lantana	Med
Ochna serrulata	ochna	Low
Panicum maximum	guinea grass	Med
Senna pendula var. glabrata	Easter cassia	Med
Sphagneticola trilobata	singapore daisy	Scattered

Management Unit	**Wah003**
Biodiversity Significance	Regional
Dominant Regional Ecosystem	12.11.5
Description	Open forest complex with Corymbia citriodora, Eucalyptus siderophloia, E. major on metamorphics ± interbedded volcanics

Species name	Common Name	Density
Asparagus spp	asparagus ferns all	Scattered
Celtis sinensis	Chinese elm	Scattered
Lantana camara var. camara	lantana	Low
Leucaena leucocephala (all ssp.)	leucaena	Scattered
Macfadyena unguis-cati	cat's claw creeper	Scattered
Macroptilium atropurpureum	siratro	Low
Murraya paniculata, M. exotica, M. koenigii	mock orange	Scattered
Ochna serrulata	ochna	Scattered
Panicum maximum	guinea grass	Med
Phyllostachys aurea & P. nigra	bamboo	High
Rhynchelytrum repens	red natal grass	Scattered
Senna pendula var. glabrata	Easter cassia	Med
Tradescantia zebrina	zebrina	Low

Management Unit	**Wah004**
Biodiversity Significance	Regional
Dominant Regional Ecosystem	12.11.5
Description	Open forest complex with Corymbia citriodora, Eucalyptus siderophloia, E. major on metamorphics ± interbedded volcanics

Species name	**Common Name**	**Density**
Asparagus spp	asparagus ferns all	Scattered
Celtis sinensis	Chinese elm	Scattered
Lantana camara var. camara	lantana	Med
Leucaena leucocephala (all ssp.)	leucaena	Scattered
Macroptilium atropurpureum	siratro	Low
Melinus repens	Red Natal Grass	Scattered
Ochna serrulata	ochna	Scattered
Panicum maximum	guinea grass	Low
Rhynchelytrum repens	red natal grass	Low
Sansevieria trifasciata	mother in law's tongue	Scattered
Senna pendula var. glabrata	Easter cassia	Low
Tradescantia zebrina	zebrina	Low


Wahminda Grove and Maureen Lawrence Park, Ferny Grove. Management Unit Boundaries
SAMFORD ROAD
Mau002
Wah003
Wah002
Wah001
Mau003
Wah004
Mau001
Management Unit Priorities / Final Scores
High 60 to 100
Low 40 to 50
Med 50 to 60
Very Low <40
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Management Unit Boundary
Property Boundaries (Selected Parcels)
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webmap

Appendix 4: Remnant Vegetation Condition Assessment Form

Remnant Vegetation

Condition Assessment

Site Name: Date:

Management Unit: Assessor:

Guidelines: In order to answer the questions below, compare the area being assessed to an undisturbed example of the same vegetation type.

Positive Attributes	None (Score 0)	Few/ Bit (Score 1)	Many/ Lots (Score 2)
Range of sizes (heights) of canopy species with evidence of regeneration of new trees			
Number of trees with hollows (including dead trees)			
Variety & Number of understorey / shrub plants (not including canopy species)			
Native Vegetation Growing near ground (vines, grasses, ferns etc)			
Amount of fallen branches, logs and rocks on the ground			
Negative Attributes	None (Score 0)	Few/ Bit (Score -1)	Many/ Lots (Score -2)
Number of different weed species present			
Area covered by weed species			
Area of reduced canopy cover			
Level of human impact (ie tracks, rubbish, vegetation trampling)			
Evidence of soil erosion or disturbance.			

Total Score	

Adapted from: *The Bushland Assessment Kit*, Gold Coast City Council, 2000.

Appendix 5:Common Nature Conservation Classification System Fact Sheet

BACKGROUND.

The Common Nature Conservation Classification System (CNCCS) system was developed by Chenoweth EPLA.

The purpose of the CNCCS was to develop a system of defining areas of high conservation value at a regional level as a sound basis for planning, development control, environmental protection and rehabilitation which was:

- reliable, transparent, accountable, achievable, legible, robust and flexible;
- open to community consultation; and
- independent of current levels of protection and threat. (Chenoweth, 2000)

Through the application of the CNCCS, remnants are assigned three levels of conservation values: State Significance, Regional Significance, and Local Significance.

Brisbane currently identifies its valuable features in it's City Plan, which includes:

- areas of 'scenic and environmental constraint';
- ecological, environmental and waterway corridors;
- ecological features; and
- significant vegetation communities, fauna and flora species.

These features were recognised through previous studies and research. A review of these studies, identified that these studies were dated, not repeatable and not comparable to the region. Given these factors, Council decided to apply the CNCCS, allowing for a more rigorous assessment of the results in a regional context that could be repeatable over time.

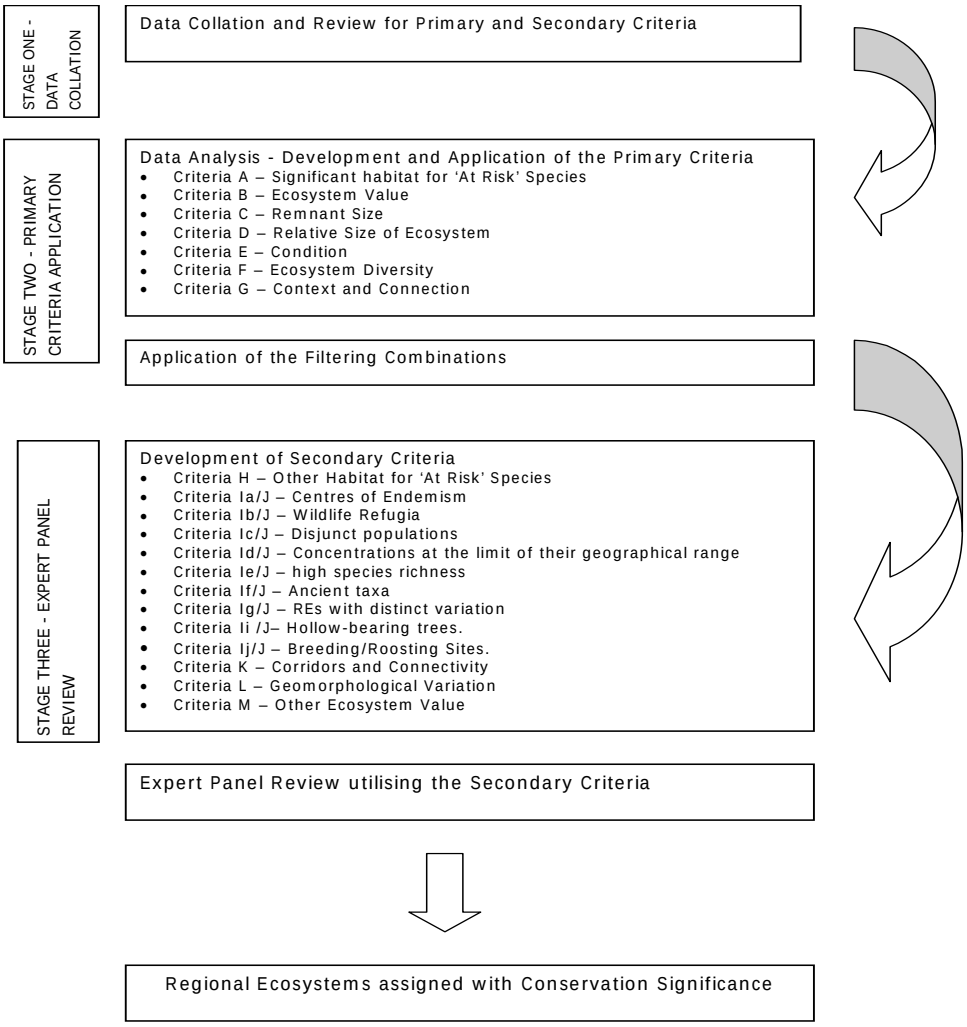
ELEMENTS

These areas are defined as regional ecosystems that contain ecological features that are of sufficient importance to the long term future of Brisbane's, the region's or the State's biodiversity values as to be specifically identified and protected in the planning scheme.

METHODOLOGY

The CNCCS was applied in three stages using Regional Ecosystems V1 as the base layer. The context of these stages is outlined in Figure One below.

Figure 1: CNCCS Assessment stages



Appendix 6: Difficulty of Control – Priority Species Scores

Higher Score = Higher Difficulty of Control

Common name	*Species name*	Feasibility Score	Control Costs	Control Effectiveness	Control Effort required	Seed or Propagule Longevity
madeira vine	*Anredera cordifolia*	10	3	2	2	3
leucaena	*Leucaena leucocephala (all ssp.)*	10	3	2	2	3
Dutchman's pipe	*Aristolochia elegans*	9	3	1	3	2
purple succulent	*Callisia fragrans*	9	3	2	2	2
Chinese elm	*Celtis sinensis*	9	2	2	3	2
camphor laurel	*Cinnamomum camphora*	9	2	2	3	2
Large Leaved privet	*Ligustrum lucidum*	9	3	2	2	2
salvinia	*Salvinia molesta*	9	3	1	2	3
mother of millions	*Bryophyllum delagoense*	8	1	2	2	3
live leaf	*Bryophyllum pinnatum*	8	3	2	1	2
mother of millions	*Bryophyllum spp*	8	1	2	2	3
green cestrum	*Cestrum parqui*	8	2	1	3	2
cat's claw creeper	*Macfadyena unguis-cati*	8	3	1	2	2
glycine	*Neonotonia wightii*	8	2	2	2	2
coralberry	*Symphoricarpos orbiculatus*	8	3	1	2	2
balloon vine	*Cardiospermum grandiflorum*	7	1	2	2	2
morning glory	*Ipomoea indica*	7	1	2	2	2
ochna	*Ochna serrulata*	7	1	2	2	2
prickly pear	*Optunia spp*	7	1	2	2	2
castor oil plant	*Ricinus communis*	7	1	1	2	3
singapore daisy	*Sphagneticola trilobata*	7	1	2	2	2
basket asparagus fern	*Asparagus aethiopicus 'Sprengeri',*	6	1	1	2	2
Climbing Asparagus fern	*Asparagus africanus*	6	1	1	2	2
asparagus ferns all	*Asparagus spp*	6	1	1	2	2
groundsel	*Baccharis halimifolia*	6	1	1	2	2
duranta	*Duranta erecta syn. D. repens, D. plumeri*	6	1	1	2	2
dyschoriste	*Dyschoriste depressa*	6	1	1	2	2
mile a minute	*Ipomoea cairica*	6	1	2	1	2
lantana	*Lantana camara var. camara*	6	1	1	2	2
Creeping lantana	*Lantana montevidensis*	6	1	1	2	2
Small Leaved Privet	*Ligustrum sinense*	6	1	1	2	2
molasses grass	*Melinis minutiflora*	6	1	1	2	2
guinea grass	*Panicum maximum*	6	1	1	2	2
Broad-leaved pepper tree	*Schinus terebinthifolius*	6	1	1	2	2
Yellow bells	*Tecoma stans*	6	1	1	2	2
corky passion vine	*Passiflora suberosa*	5	1	1	2	1
cocos palm	*Syagrus romanzoffiana*	5	0	1	3	1
mother in law's tongue	*Sansevieria trifasciata*	2	0	1	1	0

Appendix 7: Management Units, detailed criteria scores.

Table 8: Final Scores, Kedron Brook Remnant Vegetation Prioritisation Assessment

Site Name	Management Unit	TOTAL SCORE	CONDITION	BIODIVERSITY	FEASIBILITY	EXISTING GROUP	LEVEL OF THREAT	VISIBILITY
Weighting			*22*	*22*	*22*	*6*	*22*	*6*
Arbor St Parkland	Arb001	**80.52**	14.30	22.00	19.56	6	14.67	4.00
Brook Park	Bro002	**67.24**	13.53	22.00	3.18	6	20.53	2.00
Arbor St Parkland	Arb003	**66.83**	8.80	16.50	8.07	6	23.47	4.00
Redgum Place Park	Mel001	**65.97**	11.00	16.50	15.40	0	19.07	4.00
Arbor St Parkland	Arb004	**65.23**	11.00	16.50	22.00	0	11.73	4.00
Mercer Park	Ben001	**64.78**	12.98	11.00	8.80	6	22.00	4.00
Wahminda Grove & Maureen Lawrence	Wah004	**64.27**	14.30	16.50	13.20	6	10.27	4.00
Arbor St Parkland	Arb002	**63.16**	7.70	16.50	24.69	0	10.27	4.00
Wahminda Grove & Maureen Lawrence	Wah002	**61.92**	9.46	16.50	16.62	6	7.33	6.00
Grange Forest Park	GFP002	**61.33**	17.60	11.00	13.93	6	8.80	4.00
Sparkes Hill Reserve	Spa005	**59.45**	10.18	16.50	7.58	6	13.20	6.00
Grange Forest Park	GFP003	**58.28**	14.30	11.00	14.18	6	8.80	4.00
Sparkes Hill Reserve	Spa006	**57.30**	11.00	16.50	-3.67	6	23.47	4.00
Arbor St Parkland	Arb006	**56.80**	14.30	16.50	5.87	0	16.13	4.00
Wahminda Grove & Maureen Lawrence	Mau001	**56.03**	13.53	16.50	13.20	0	8.80	4.00
Wahminda Grove & Maureen Lawrence	Wah001	**56.01**	9.02	16.50	9.29	6	13.20	2.00
Arbor St Parkland	Arb005	**55.47**	7.70	16.50	6.60	6	14.67	4.00

Table 7 Continued

Site Name	Management Unit	TOTAL SCORE	CONDITION	BIODIVERSITY	FEASIBILITY	EXISTING GROUP	LEVEL OF THREAT	VISIBILITY
Weighting			*22*	*22*	*22*	*6*	*22*	*6*
Sparkes Hill Reserve	Spa003	**53.95**	11.44	11.00	0.98	6	20.53	4.00
Brook Park	Bro004	**51.99**	5.50	22.00	3.42	0	19.07	2.00
Wahminda Grove & Maureen Lawrence	Mau003	**49.45**	13.75	16.50	8.80	0	4.40	6.00
Wahminda Grove & Maureen Lawrence	Wah003	**49.28**	11.00	16.50	-0.49	6	10.27	6.00
Grange Forest Park	GFP006	**48.46**	15.40	5.50	4.89	6	14.67	2.00
Kirallee St Park	Kir001	**48.37**	9.90	11.00	13.20	0	10.27	4.00
Brook Park	Bro001	**47.97**	7.70	11.00	-0.73	6	22.00	2.00
Grange Forest Park	GFP004	**46.91**	13.20	0.00	17.84	6	5.87	4.00
Brook Park	Bro003	**46.49**	13.20	22.00	-5.38	0	14.67	2.00
Kirallee St Park	Kir002	**45.07**	8.80	11.00	2.20	0	19.07	4.00
Grange Forest Park	GFP005	**44.59**	12.10	0.00	6.36	6	16.13	4.00
Grange Forest Park	GFP001	**43.95**	10.18	11.00	-1.22	0	22.00	2.00
Wahminda Grove & Maureen Lawrence	Mau002	**43.89**	12.10	16.50	-6.84	0	16.13	6.00
Sparkes Hill Reserve	Spa004	**43.13**	10.59	11.00	-5.13	6	14.67	6.00
Sparkes Hill Reserve	Spa002	**41.58**	8.80	11.00	-13.69	6	23.47	6.00
Sparkes Hill Reserve	Spa001	**40.56**	11.00	11.00	-4.64	6	13.20	4.00
Kalinga Park	Kal001	**28.86**	5.50	11.00	-24.44	0	30.80	6.00

Appendix 8: Infestations of Isolated Highly Invasive Species for Control.

Figure 2: Infestations of Isolated Highly Invasive Species for Control.