MOUNTAINS TO MANGROVES CORRIDOR STRATEGY PLAN

Project Details

The Mountains to Mangroves Corridor Strategy Plan was prepared by the following people.

Susanne Cooper	*Mary Maher & Associates*
Trevor Page	*Mary Maher & Associates*
Rob Friend	*Rob Friend & Associates*
with Lin Martin	*Econnect*

This study was commissioned by the Mountains to Mangroves Steering Committee, compromising:

Ross Cope (Project Coordinator) Brisbane City Council,
Councillor Craig McConnell, Pine Rivers Shire Council,
David Walker, Brisbane City Council,
Cam Mackenzie, Bunyaville Environmental Education Centre,
Peter Armstrong, Downfall Creek Bushland Centre

MARY MAHER
AND ASSOCIATES

32 Thomas Street
West End Brisbane
Queensland Australia 4101

Telephone: 07 3844 9183
Facsimile : 07 3844 3357
email: mmaher@squirrel.com.au

Table Of Contents

Executive Summary

The Mountains to Mangroves Corridor had its origins as a concept to link two local natural areas to allow the movement of native animals between them. The idea has grown to now incorporate a linkage of natural and social features along a corridor some 20 kilometres in length, incorporating both recreational and environmental values, supported by a wide variety of community groups and organisations.

As the project gathered momentum, the Mountains to Mangroves Corridor became more widely recognised and gained legitimacy within the community and agencies along the Corridor. The Corridor also became more varied in its diversity of concepts and promotions. The Mountains to Mangroves Committee recognised this growth and diversity and the need to incorporate these ideas into a Strategy Plan for the Corridor.

As such, the Mountains to Mangroves Strategy Plan seeks to establish a vision, focus management direction and provide a framework for consolidating future actions along the Corridor. The Strategy Plan in itself largely represents the consolidation of ideas and concepts that had already been formulated. The Plan does however detail specific constraints and values associated with various management units and sub-units along the Corridor, along with appropriate measures to address them. It also details an Action Plan of specific tasks that should be undertaken to ensure the Mountains to Mangroves Corridor continues to develop as an example of best practice in urban wildlife corridor protection and management.

Perhaps the Mountains to Mangrove Corridor's most important role is in promoting the importance of coordinated community and government action between existing fragmented communities to achieve a common environmental goal. For this reason a strategy for the promotion and marketing of the Corridor to the local community remains a strategic focus of the Corridor.

1.0 Mountains to Mangroves Concept

1.1 Vision

EXISTING CORRIDOR

The Mountains to Mangroves Corridor ("the Corridor") is a linear connection of individual reserves and state forests based upon extensive natural areas and parklands which connect the mountainous terrain of the D'Aguilar Range to the mangrove dominated ecosystems of the coastal mudflats. It is narrow in configuration and closely aligned to Downfall Creek in the east, whilst to the west, it has a focus on traversing large natural areas.

The linkage has as its foundation a number of extensive protected areas in a relatively undisturbed state, including Brisbane Forest Park, Bunyaville State Forest and Boondall Wetlands. These form core elements of the Corridor, and the points of commencement and finish.

Although the bulk of the Corridor is in public ownership, a number of sites crucial to the continuity of the linkage are privately owned. The Corridor must be located upon secure and appropriately managed land parcels. This may necessitate seeking the support of landholders through appropriate rezoning, Voluntary Conservation Agreement or some other tenure and management arrangement.

The large natural areas are supported by a network of smaller parkland and open space parcels – some vegetated with an essentially 'natural' feel, with others having a cultivated, landscaped appearance. These urban reserves are important to the Corridor, as they provide a major focus for community contact and interaction.

CORRIDOR DIVERSITY

The Mountains to Mangroves Corridor is essentially a mix of landuses, landscape settings and ecosystems. The Corridor is one which reflects the diversity of ecosystems, landscapes and settings within Greater Brisbane. A summary of this diversity follows:

Characteristic	West	Central	East
Ecosystems	open eucalypt forest in the hilly west with wet sclerophyll gullies	heavily modified, some remnants of riparian habitat throughout	mangroves along the coast
Topography	hilly to mountainous in the west	flat plains to undulating hills	flat mudflats and coastal plains
Access and recreation activity	horse riding, bushwalks, challenging mountain biking	cycling, walking, active recreation in association with organised sportsgrounds	canoeing, easy bike riding, short walks
Landscapes	rural and natural areas, forested	urban form dominant	residential and rural residential, with an urban character dominant.

The Corridor supports a mix of recreational, environmental, visual, cultural and drainage values, which are increasingly recognised and appreciated in urban landscapes.

The Corridor still provides habitat, breeding grounds and pathways for foraging and dispersal of numerous animal species, although through the urbanised areas these functions have been largely diminished. The natural or open space character of the linkage contrasts with the increasingly urbanised and densely settled surrounds.

Recreational pursuits are a major use and value of the Corridor, with horse, bike and walking trails a recurring feature of its length, a canoe trail in the eastern end and other facilities (picnic and BBQ facilities) also common.

THE VISION

The Mountains to Mangroves Corridor is largely a natural strip through an increasingly urban fabric (based loosely along Downfall Creek), which offers a wide diversity of recreational and nature based activities and experiences.

The Mountains to Mangroves Corridor reflects a wide diversity of ecosystems, values, landscapes, tenures, types of access and management arrangements. It's diversity encapsulates the cross-section of natural features of Brisbane City and Pine Rivers Shire, and should stimulate greater community appreciation of these features.

The Mountains to Mangroves Corridor as an identity, also represents a significant milestone in the recognition of the importance that corridors play. As such the corridor plays an important role in promoting greater awareness, education and understanding of the corridor concept, which may assist in the development of corridors elsewhere.

KEY CHALLENGES

The vision and accompanying action plan is constructed around the Corridor's diversity. The key challenges to achieving this are:

- to protect strategic land parcels so that a continuous corridor can be established;
- to provide appropriate access along the Corridor so it can be appreciated and used for nature-based recreation;
- to recognise the range of features and opportunities of the Corridor, whilst also promoting a more general, holistic concept and identity;
- to ensure the large, protected areas are maintained in a sustainable nature and are recognised and promoted for their role in the Corridor concept, without compromising other management objectives, and
- to establish effective working arrangements for Corridor management between different agencies, community groups and landholders along the Corridor.

The Mountains to Mangroves Corridor Strategy has been developed around the following elements:

- an identification of the general values, management units and objectives for the Corridor;
- a description of each unit's values, attributes, management issues and priorities;
- an action plan for implementation which identifies priority, resourcing and responsibility; and
- actions to increase public awareness, appreciation and marketing.

1.2 Origin of the Corridor

In 1989 a study was undertaken by Dr. Carla Catterall, to locate a wildlife corridor to link Raven Street Reserve (an area which at that time had wallabies, bandicoots and various other native animals) to Bunyaville State Forest. This study was circulated within Brisbane City Council and displayed in public. However by 1993, most of the ground animals from Raven Street Reserve had disappeared, due largely to development of surrounding non-reserve bushland for residential developments. Staff from the Downfall Creek Bushland Centre recognised that if they were to keep the remaining natural diversity within the local bushland reserves, then the preservation of a vegetated corridor between bushland reserves was a major priority.

In 1994 the Downfall Creek Bushland Centre applied for Save the Bush funding which allowed the development of a community education and involvement program, recognising the need for the preservation of a corridor to link natural areas and habitats. Through the involvement of local wildlife and Landcare groups this corridor quickly grew to include a corridor which stretched from Camp Mountain State Forest (Mountains) to Boondall Wetlands (Mangroves), through two local authorities.

The Mountains to Mangroves concept was embraced by local politicians, local officers and the community who responded by assisting in local tree plantings, holding a logo

competition, preparing a display and allowing further study on the Corridor. A promotional field day (attended by some 1500 people) was held in 1995 to focus on a partnership approach to the Corridor, a festival and coordinated walks were organised as part of the field day and have gone on to become regular biannual events. The advisory committee formed in 1996, seeks to build upon this original enthusiasm by promoting “the importance of corridors in achieving sustainable natural area and open space management in urban areas” (Mountains to Mangroves Advisory Committee, Mission Statement 1996).

1.3 About the Study

In February 1998 a Steering Committee was established from the Mountains to Mangroves Committee to prepare a brief and call for submissions towards preparation of Mountains to Mangroves Corridor Strategy Plan. In March 1998, Mary Maher & Associates were engaged to prepare the Strategy Plan for the Mountains to Mangrove Corridor.

1.4 Tenure and Management

The Corridor concept is structured largely around existing natural bushland areas and creek corridors. Ownership and tenure of land within the Corridor is diverse, with some land:

- in private ownership;
- earmarked for future arterial roads;
- managed for the harvesting of timber and other uses;
- managed to provide local water supplies;
- managed to reduce flooding damage;
- owned and/or leased by local sporting organisations;
- managed by educational institutions;
- managed by State and Local Government;
- managed by various State agencies;
- managed as part of an urban parkland system; and
- managed for their natural habitat.

Due to the diversity of land ownership along the Corridor, management responsibilities and priorities along the Corridor are also diverse. At present, coordination of the Corridor is based upon cooperation and communication between the two local authorities, state departments, private institutions and individuals to ensure that objectives and outcomes are achieved.

As a consequence of such diverse land management and ownership along the Corridor, and the scope of the study, only limited consultation was undertaken with key stakeholders and community groups. As local government is largely responsible for influencing land use changes along the corridor, particular attention has been focussed on the opportunities for local government as part of the Corridor Strategy.

As the Corridor utilises parts of the existing corridors of Nundah, Downfall, Little Cabbage Tree and Cabbage Tree Creeks, much of the land within the Corridor is subjected to regular flooding. No detailed assessment has been undertaken of the impact of flood mitigation works on opportunities within the Corridor, although obviously such

considerations should be undertaken prior to any works which would affect water flows through these waterways.

The Corridor is also traversed by a number of significant human barriers (motorways, arterial roads, railways) as well as natural features (hills, changes in vegetation) which provide a major challange for the movement of wildlife, animals and people along the Corridor.

Lack of continuous ownership and management is perhaps the greatest single threat to achieving the Corridor's potential for the movement of people and wildlife. Actions to improve management and coordination are provided throughout the Action Plans within Section 5.0.

1.5 Lessons for Other Corridors

Although the focus of this Strategy Plan is largely based on the assessment of the unique values, opportunities and constraints that exist along the Mountains to Mangroves Corridor, it is important to consider how these values, opportunities and constraints can provide lessons for other situations. For this reason comments have been included in the Corridor Analysis (Appendix A) to provide a critical assessment of the positive and negative aspects of the Mountains to Mangroves Corridor, so that other corridors may be more effective.

2.0 Values of the Corridor

2.1 Historical Perspective

Prior to European settlement of the continent and the subsequent colonisation of Brisbane, Downfall Creek was one of many waterway corridors linking the upland and low hills to the coastline. The original catchment would have contained dense riparian vegetation, open forest and open woodland with occasional grassland, typical with other catchments in the area. All these vegetated areas were dependent on the firing cycles of the local Aboriginal peoples which utilised the area.

Steele (1984), quotes from the journals of Tom Petrie, who stated that this area was utilised by Aboriginal peoples of the "Turrubal" language group which extended as far south as the Logan River and north to the Pine River and as far inland to Gold Creek or Moggill. The Ninge–Ninge clan of the Kabi group inhabited the coastal areas around Sandgate and to the north. To the West, the D'Aguilar Range and its foothills around Samsonvale and Samford were inhabited by the Garumngar people, who spoke a dialect of Waka (Steele, 1984).

From the early 1800's through to the late 1800's the north western portions of the Brisbane area remained predominantly undeveloped. Since the early 1900's there has been an increase firstly in rural development then urban development and expansion. This expansion resulted in the catchment being substantially cleared of most of its vegetative cover which included, for almost its entire length, removal of the important riparian vegetation of Downfall Creek.

Young (1990) in his paper contained in the book "The Brisbane River" describes vegetation descriptions of the Brisbane River in both a historical and contemporary context. Historically, the vegetation which occurred along the main waterways draining to the west from the Taylor and D'Aguilar Range foothills would have been similar to the Brisbane River.

Young states that the lower reaches would have contained a mosaic of open and closed forests along its banks. Hoop pine *Araucaria cunninghamii* would have been an emergent tree in the closed forests while the open forest were dominated by Eucalyptus species. The middle reaches of Downfall Creek would have contained a mixture of open forest and open woodland dominated by Eucalyptus species.

2.2 Natural Values

2.2.1 Overview

The Corridor's natural values are associated with maintaining and improving the capability of the corridor system to sustain the diversity of native wildlife within the system. Particularly, the Corridor (and more particularly existing bushland areas along the Corridor) is recognised as providing habitat for many diverse native mammals, amphibians, fish and birds. The Corridor is also recognised as the natural pathway for their movement between bushland areas. Movement which is essential in order to sustain viable populations of animals. Preservation of these natural values will invariably reflect particular human values associated with the Corridor, ie. natural settings, shade, attractive birds and vegetation.

The ecological values are characterised by three levels of significance. The *highest* valued areas consist of Brisbane Forest Park (Camp Mountain and Samford) and the Bunyaville State Forest, which provide much of the ecological diversity for the Corridor. Boondall Wetlands is also recognised as a highly significant area, due to its RAMSAR recognition and role in providing habitat for migratory waterbirds and other animals within Moreton Bay.

Moderate levels of significance exist within the remaining natural area reserves within Brisbane City (Chermside Hills and Raven Street) as well as land owned by Nudgee College, which are refuge areas within the urban environment. They contribute to the sustainability of the Corridor but are not in themselves sufficiently undisturbed to provide a range of habitats for a high diversity of flora and fauna species.

The *lowest* areas of ecological significance exist within the urban environment where the Corridor is in a very disturbed state. These sections presently offer very limited ecological opportunities. However, with careful enhancements of in-stream environment and rehabilitation of the riparian corridor the ecological value of these areas can be improved.

2.2.2 Key Sites

State Forests

The western sections of the Corridor contain forested areas which have been retained for a variety of community benefits including timber production, water catchment protection, and the provision of recreation and education opportunities. These areas are managed as State Forests, however the use of these areas for timber production has now temporarily ceased.

The State Forests are known as Enoggera State Forest (incorporating Camp Mountain), Samford State Forest and the Bunya State Forest ("Bunyaville"). The Department of Natural Resources Forestry Division is responsible for the management of all State forests, recreation management within Enoggera State Forest and Samford State Forest are managed as part of the Brisbane Forest Park. All of these forests are dominated by open eucalyptus forest.

Brisbane Forest Park contains approximately 236 bird species, 58 mammals, 61 reptiles, 30 frog species (Ploughman 1985) and over 1228 plant species (Young 1992), which are contained in 12 broad vegetation communities. These vegetation communities and their location within Brisbane Forest Park provide a range of substantial to microhabitats for these species.

The upper sections of the Corridor are contained in the Pine River and Kedron Brook Catchments with the vegetation being dominated by open eucalyptus forests and woodlands with the steep moist gullies containing closed eucalyptus forest or closed forests dominated by rainforest or softwood scrub species. Northern and western aspects are drier due to longer exposure to the sun and hence have soils that are shallower and plant species which could sustain drier conditions.

Until recently, the State Forest components of the upper Corridor were set aside for their timber resource and were managed for that purpose. The development of recreational infrastructure within these areas has been a recent occurrence over the last twenty years.

Cabbage Tree Creek / Chermside Hills

The Urban Bushland portion of the Corridor is located within the upper catchment of Cabbage Tree Creek. This area contains a number of bushland reserves managed by the Brisbane City Council, ie Chermside Hills Park.

The upper sections of the Corridor link into the middle section via the Cabbage Tree Creek catchment and the headwaters of Downfall Creek. The middle section is characterised by a change from rural and rural residential land uses which surround the State Forests to areas dominated by urban/residential land uses.

The Chermside Hills Reserve covers an area of 55 hectares rising to a height of 86 metres and is situated within the upper catchment of Cabbage Tree Creek. Cabbage Tree Creek is located to the west of the reserve and Little Cabbage Tree Creek is located to the east of the reserve. Chermside Hills Reserve is the largest area of publicly owned bushland in the north western portion of Brisbane City.

The vegetation communities within Chermside Hills Reserve are predominantly open woodland with a mix of heath and grassy understorey. Parker (1991) identified six vegetation types within the reserve and the reserve along with Raven Street Reserve is one of the last remaining conserved areas that contain forest grasstrees (*Xanthorrhoea johnsonii*).

Plowman et al (1997) undertake a study of birds and mammals within the upper reaches of Cabbage Tree Creek (as part of a Save the Bush Grant). This study found 64 bird species and six mammal species within the study area. This number would provide a reasonable representation of the likely number of birds and mammals within the Chermside Hills Reserve.

Downfall Creek

Raven Street Reserve is situated in the upper catchment of Downfall Creek and covers an area of approximately 24 hectares. The vegetation communities within Raven Street Reserve are similar to those of Chermside Hills Reserve in structure and species composition.

The Downfall Creek Bushland Centre has recorded some 115 bird species and 300 plant species from within the reserve, including a number of locally rare species.

Downfall Creek forms the waterway corridor between the upper Corridor above Chermside Hills Reserve and the lower sections which terminates at Boondall Wetlands Reserve and Moreton Bay.

In the upper reaches of the creek the soils were derived from sandstone, rhyolitic tuff and Greywacke, Phyllite and shale. These soils produced vegetation which has been described as upland heaths or open woodlands with a heathy understorey.

Approximately 90 percent of the catchment has been cleared of vegetation and utilised for other purposes, which include residential, commercial and industrial development, the construction of transport and utility infrastructure and the development of recreational facilities. These other land uses have and continue to impact upon the environmental values of Downfall Creek.

The Interim Nundah/Downfall Creek Catchment Management Plan recorded the Eastern Water Dragon *Physignaphus lesueruii*, and the Eastern Water Skink *Eulamprus quayii* as very common along Downfall Creek. Eight species of amphibians have been recorded by the Frog Restoration Group within the Chermside Parklands.

Detail on aquatic life within Downfall Creek has come from a survey undertaken by the Centre for Catchment and In-stream Research (CCISR) Griffith University 1997.
The study found a total of nine fish species from six families with ninety percent of the total number of fish captured were exotic species *Gambusia holbrooki, Xiphophorus helleri* and *X. maculatus.* (CCISR 1997). Apart from eels (*Anguilla sp*) native species were restricted to the lower reaches of the catchment.

Relatively poor condition of the watercourse as well as low diversity of riparian vegetation and aquatic habitats of Downfall Creek may account in part for the predominance of exotic fishes. The fish and eel species recorded during the survey were:

Native Species: -

Anguillidae	
Anguilla australis	Short-finned eel
Anguilla reinhardtii	Long-finned eel
Chandidae	
Ambassis marianus	Estuary perchlet

Eleotridae	
Hyseleotris compressa	Empire gudgeon
Mugilidae	
Mugil cephalus	Sea mullet
Pseudomugilidae	
Pseudomugil signifer	Pacific blue eye.

Introduced species: -

Poeciliidae	
Gambusia holbrooki	Mosquito fish
Xiphophorus helleri	Sword tail
Xiphophuorus maculatus	Platy.

The report concluded that Downfall Creek and possibly also Zillman Waterholes could be rehabilitated for aquatic life by addressing three main interrelated issues;

- Riparian vegetation
- Water quality
- Exotic fish species.

There are three locations within the Downfall Creek catchment which have retained significant native vegetation - Boondall Wetlands Reserve, Nudgee College and Raven Street Reserve.

There are also several areas of public and private open space along the Corridor which have the potential to be rehabilitated to significant wildlife (predominately birds and arboreal mammals) refuge areas - Huxtable Park (replanting underway), 7th Brigade Park, Virginia Golf Course and Nudgee College grounds.

2.3 Social Values

The second value recognised in the Mountains to Mangrove Corridor Strategy, is the social values associated with the Corridor, including cultural, recreation and community development opportunities.

Social values may result from naturally occurring visual features within the Corridor which engender community recognition and ownership of localities, or they may be associated with facilities and activities provided within the Corridor.

Along the Mountains to Mangroves Corridor, social values are most commonly associated with recreation and community features within public lands and in state reserves. Along the Corridor there are some significant nodes of human activity with responding social and recreational opportunities, these include:

Brisbane Wide Nodes

- Samford State Forest has a number of visitor / picnic facilities which provides a destination for day trips and family outings for Brisbane residents. Brisbane Forest Park organises “Go Bush” activities in both Camp Mountain and Samford State Forest.

- Boondall Entertainment Centre provides a commercial venue for city-wide cultural and entertainment events and is recognised as a landmark within the melaleuca forest for travellers along the Gateway Motorway.
- Boondall Wetlands which has become a major focus for recreational opportunities (canoeing, cycling, walking, bird watching), community education programs and interpretation.

Northern Brisbane Region Nodes

- Camp Mountain (Enoggera State Forest) provides a number of recreational and picnic facilities for park visitors.

- Bunyaville State Forest provides a variety of recreation facilities for visitors, and the government run nursery could provide a focus for park visitors. The Bunyaville Environmental Education Centre is also located within Bunyaville State Forest and conducts environmental education programs for schools and the community. The Centre has had some 134,000 students visit, since it was established in 1977.

- Raven Street Reserve (and the Downfall Creek Bushland Centre within the reserve) provides a focus for educational, recreation and interpretation associated with natural places. Various extension programs associated with the centre also seek to create a community focus to various environmental activities.

- 7th Brigade Park and Marchant Park are already recognised as important sporting and recreation venues associated with Chermside Commercial Centre, the importance of these areas with increasing community and social opportunities and activities (ie festivals) will increase with the planned improvements for these reserves (as detailed in Chermside Parklands Master Plan).

- Virginia Golf Course provides a venue for organised formal recreation, although these values are limited at present to golfing activities only.

- Nudgee Beach has also been a traditional focus for social values with foreshore recreation, fishing and school education programs associated with the Nudgee Beach Environmental Education Centre.

Local Nodes

- Chermside Hills Reserve has the potential to become another focal point for the local community, with the potential for the reserve to develop basic recreation / visitor facilities.

- Nudgee College is a significant educational institution and land-holder within a segment of the Mountains to Mangroves Corridor where public parklands is very limited. The college has recognised the social and environmental values associated with the creek through educational components within their students curriculum (Voluntary Conservation Agreement in place to jointly protect environmental values).

The Action Plan in Section 4.0, indicates actions that may further enhance the range of social values that can be associated with the Mountains to Mangroves Corridor.

2.4 Driving the Strategy

The momentum for much of the activity along the Corridor can be contributed to existing groups along the Corridor. These groups can be loosely categorised as either Big Players such as Boondall Wetlands, Downfall Creek Bushland Centre, Brisbane Forest Park, etc., or active community groups.

This range of community groups includes many which have become directly involved in the management of certain aspects of the Corridor. Active groups along the Mountains to Mangroves Corridor include:

- Kedron-Wavell Services Club.
- Wheeler Garden Settlement;
- Samford Branch of Wildlife Preservation Society of Queensland;
- Bunya Lions Club;
- Brisbane Frog Society (Chermside Branch);
- North West Brisbane Branch of Wildlife Preservation Society of Queensland;
- Neighbours of Huxtable Park Inc.;
- Downfall Creek Bushland Centre Volunteers;
- Boondall Wetlands Management Committee;
- Boondall Wetlands Steering Committee;
- Boondall Wetlands Community Group;
- The Boondall Wetlands Committee;

3.0 The Strategy Framework

3.1 Introduction to the Units

The Corridor has been divided into four management units which reflect variations in:

- landscape;
- terrain;
- ecosystems;
- tenure and management; and
- access and landuse.

Although areas within each unit are not necessarily homogeneous, the differences between units are considerably greater than any variations found within unit boundaries.

The located of the units are illustrated on Figure 1.

A summary overview of the units follows.

Unit Title	Brief Description
Forested Hills	Continuous forested cover of steeper terrain. Extends from Camp Mountain State Forest to Bunyaville State Forest.
Urban Bushland	Gently rolling hills. Largely treed, although cleared patches and degraded areas are present. Extends from Bunyaville Forest to Raven Street Reserve.
Urban Creeks and Parks	A series of linear parks located along Downfall Creek, and located within an urban setting. Extends from Raven Street Reserve to Sandgate Road.
Coastal Plains	Mangrove dominated coastal flats from Sandgate Road downstream to Boondall.

This chapter provides an overview of the features, objectives and opportunities for each of the units. More detailed assessment of the issues impacting on each unit and locations within each unit is detailed in Appendix A Corridor Analysis.

3.2 Unit Summary

3.2.1 Forested Hills

Unit	Forested Hills
Description	This unit is dominated by vegetated hills and trails largely within existing firebreaks and access roads. The retention of significant natural areas within State Forests accounts for the high ecological values of the unit. Extensive existing linkages are threatened by lack of appropriate planning protection. State Forests are separated by private holdings where inappropriate usage would dramatically reduce wildlife values. The testing terrain makes this unit suitable for more energetic recreational pursuits (hiking, mountain biking, horse riding).
Vision	Corridor development will focus on natural values of the unit and connection with other features of the Corridor.
Objectives	• to secure sustainable wildlife linkages between State Forests • to promote coordinated management of natural values in preservation of the qualities of the Corridor. • to maximise the natural qualities of the forests through appropriate recreational opportunities.
Constraints & Opportunities	*Constraints* • existing zoning does not support linkages • pedestrian linkages are reliant on existing road networks, which may not prove to be suitable or safe for extra users • remoteness from public transport • scale of unit makes any infrastructure improvements (signs, trails, etc) expensive • Successful management reliant upon cooperation between state departments and two local authorities *Opportunities* • extensive natural areas with significant natural values • separation from built environment, can provide a semi-wild experience • strong educational and interpretive focus at BFP and Bunyaville Environmental Education Centre • regional visitor programs are already conducted within State Forests
Key Actions / Recommendations-	*Secure / acquire wildlife corridor between Samford State Forest and Bunyaville Forest.* *Develop wildlife refuge in existing rural residential parkland.* *Utilise Brisbane Forest Park and Bunyaville State Forest as regional visitor nodes for Corridor.* *Locate pedestrian trail along safe alignments particularly between Camp Mountain and Samford Forest.* *Ensure properties between Camp Mountain and Samford are managed to maintain natural values.*

3.2.2 Urban Bushland

Unit	Urban Bushland
Description	This unit represents a transition from a bush corridor to a creek based corridor. The Corridor traverses a variety of landforms and locations of differing natural values. Environmental values along this unit have declined significantly in the last decade through the impact of urban developments. The Corridor retains significant natural vegetation in a number of major urban reserves(Chermside Hills and Raven Street). The diversity of terrain and landscapes represents significant changes in recreational use of Corridor reserves.
Vision	The Corridor will maximise remaining opportunities for ecological and recreational utilisation. Retention of existing natural values shall be a feature of the Corridor.
Objectives	• to link walking and cycle paths along the Corridor to provide greater recreational use • to retain a continuous vegetated linkage along the Corridor to promote native animal movements • to utilise remaining natural values as the focus for promotion
Constraints & Opportunities	*Constraints* • poor connection between existing reserves and pathways • Old Northern Road presents a major safety barrier to pedestrian / cycle movement along the Corridor • terrain limits some forms of recreation • proposed Western Arterial Transport Corridor represents a major threat to Corridor • diversity of landforms is not conducive to maintaining Corridor identity • poor definition/identity of existing public areas *Opportunities* • Natural landform diversity creates opportunities for new recreational and interpretive opportunities (ie lookouts) • existing vegetative links provide some movement opportunities for native animals • strong educational and interpretive focus at Downfall Creek Bushland Centre
Key Actions / Recommendations-	*Manage Milne Hill Reservoir bushland to ensure natural values are preserved.* *Upgrade pathways to define dominant Corridor trail.* *Heavy promotion of Corridor signage and logos.* *Utilise Raven Street Reserve and Chermside Hills Reserves as local visitor nodes for Corridor.* *Actively define and rehabilitate bushland areas.* *Incorporate Cabbage Tree Creek as a major ecological corridor linking the Mountains to Mangroves Corridor.*

3.2.3 Urban Creeks and Parks

Unit	Urban Creeks and Parks
Description	This unit is defined largely by the urban development that confines the Corridor. The Corridor is a creek based system along Downfall Creek. The Corridor is almost continuous and is characterised by typical urban parkscapes (bikeways, seating, scattered playgrounds). Access to public transport creates a number of important local visitation nodes within the Corridor.
Vision	The Corridor will serve to illustrate the linkages between different components along the Corridor, through development of a clear identity and recognition of the value of cooperative efforts. The Corridor will seek to reinforce awareness of this linkage through frequent exposure to the community. The Corridor will become an interface between the built environment and aesthetically appealing "natural" areas.
Objectives	• utilise recreation opportunities to promote Corridor identity • utilise close proximity of community to Corridor to increase recreational usage • to improve riparian habitat along the Corridor
Constraints & Opportunities	*Constraints* • Width of Corridor limited by existing developments • Major road crossings present a hazard to pedestrian movement • Private lands between Webster and Gympie Roads restrict recreation linkages • Flood requirements may limit some in stream improvements. *Opportunities* • Existing bikeways along most reserves • Public access is easy to most locations along Corridor • Existing community infrastructure can be utilised to promote Corridor • Watercourse remains largely natural in appearance and function
Key Actions / Recommendations-	*Construct safe pedestrian/cycle crossings at all major roads.* *Heavy promotion of Corridor signage and logos.* *Utilise existing groups and activities to promote Corridor.* *Negotiate protection of properties to link existing reserve network between Gympie and Webster Roads..* *Implement key features of Chermside Parklands Master Plan.* *Utilise Chermside Regional Centre as regional visitor node.* *Utilise Virginia Railway Station as a local visitor node.*

3.2.4 Coastal Plains

Unit	Coastal Plains
	This unit has a distinct estuarine character, dominated by mudflats, the meandering Downfall / Nundah Creek and mangrove species. The most prominent feature is the Boondall Wetlands – a protected area which is RAMSAR listed. A mix of landuses from golf courses to schools (Nudgee College) with extensive playing fields and some natural areas are located immediately upstream of this. The flat coastal terrain provides numerous recreation opportunities and facilities, including boardwalks, paths and bikeways. Public access is difficult to achieve in areas outside Boondall due to lack of public ownership of land.
Vision	Waterway (canoe) access will compliment other uses of the Corridor, and reflects the difficulties of achieving land based routes. The large, unfragmented natural area of Boondall is an important natural feature and an appropriate start/end point for the Corridor.
Objectives	• to develop an emphasis on access via waterways (canoeing) to complete the accessible Corridor • to protect important natural values through appropriate tenure or management agreements • to link in with Boondall interpretation programs
Constraints & Opportunities	*Constraints* • lack of public access west of Boondall restricts recreational opportunities • Gateway arterial is an impediment to pedestrian movement • Flood prone nature of many of these lands reduces viability of subdivision which could see dedication of public open space. *Opportunities* • regional interpretive and recreation facilities at Boondall • waterway access • strong educational focus at Boondall Visitor Centre and Nudgee Beach Environmental Education Centre
Key Actions / Recommendations-	*Construct and promote a canoe launching ramp at Elliott Road Reserve.* *Promote the canoe trail as part of the Mountains to Mangroves Corridor.* *Incorporate Corridor promotion within Boondall activities.* *Utilise Boondall as regional visitor node for Corridor.*

CORRIDOR SUMMARY	
Vision	The Mountains to Mangroves Corridor is largely a natural strip through an increasingly urban fabric (based loosely along Downfall Creek), which offers a wide diversity of recreational and nature based activities and experiences. The Mountains to Mangroves Corridor reflects a wide diversity of ecosystems, values, landscapes, tenures, types of access and management arrangements. It's diversity encapsulates the cross-section of natural features of Brisbane City and Pine Rivers Shire, and should stimulate greater community appreciation of these features. The Mountains to Mangroves Corridor as an identity, also represents a significant milestone in the recognition of the importance that corridors play. As such the corridor plays an important role in promoting greater awareness, education and understanding of the corridor concept, which may assist in the development of corridors elsewhere.
Key Actions	1. Utilise existing visitation features and transport centres as visitor nodes for the Corridor. 2. Upgrade pathways and signage to define dominant Corridor trail. 3. Negotiate sustainable wildlife corridor between Camp Mountain State Forest and Bunyaville Forest. 4. Develop integrated recreation trails throughout the Corridor. 5. Construct safe pedestrian/cycle crossings at all major roads. 6. Utilise existing community groups and interpretation activities to promote Corridor. 7. Actively define and rehabilitate bushland areas along the Corridor. 8. Incorporate Cabbage Tree Creek and other links as extensions to the functions of Mountains to Mangroves Corridor. 9. Implement Master Plans and Management Plans for all major open space areas.

4.0 Action Plan

4.1 Structure

This action plan is a summary of the recommendations made within the analysis of management units within the Mountains to Mangroves Corridor (Appendix A). It has been structured to provide a brief overview of recommended actions, their priorities and costs to assist in coordinating tasks within the Corridor. The action plan only provides rough cost estimates which will need to be reviewed prior to implementation.

Only promotional actions/recommendations which relate to specific sites have been included in this Action Plan, the majority of promotional actions/recommendations are found within Section 5.2 Recommended Promotion Strategy.

A number of recommendations within the action plan relate to the possible incorporation of Cabbage Tree Creek as a major component of the Corridor. This issue is discussed further in Section 4.5 Corridor Expansion.

The action plan has been divided into two components:

Part A - Actions across the Corridor, (4.3)

Part B - Targeted Action Plan (0-5 year timeframe for implementation) (4.4)

4.2 Terminology

Responsibilities

Within the Action Plan responsibilities have been assigned to specific State and Council departments and a variety of external agencies. The following indicates the agency for the abbreviations used within the document.

Local Government Departments (Brisbane City and Pine Rivers Shire Councils)	
Parks	Parks Maintenance Department / Local Asset Services
Environment	Natural Environment / Environmental Planning Section
Planning	Development and Environment / City Planning
Space	Open Space Planning / Environmental Planning Section
Waterways	Waterways Unit / Works and Services

State and other agencies	
DNR	Department of Natural Resources
DEH	Department of Environment and Heritage
DPI	Department of Primary Industries - Forestry
Councillors	Requires active support of local councillors
BFP	Brisbane Forest Park

Key implementation measures:

influencing land use adjacent and along Corridor,

budgetary contributions to Corridor improvements,

Promotional activities, and

Integration of Corridor strategy into current work practices.

Costs

In order to appreciate the implications of initiating any of the proposed actions it is necessary to consider the costs. Costs may be purely financial or they may also include time and effort to undertake those actions. For the purposes of the action plan Cost has been defined as:

Large	representing over $1m or extensive and coordinated political and executive support, time or effort required to implement actions
Medium	Between $1m - $100,000 or substantial support, time or effort required by officers with strong political support,
Small	Less than $100,000 or requiring only moderate support, time or effort by officers with political endorsement.

Priorities

The priorities indicated in the Action Plan indicate the perceived need for these actions by the consultants to assist in achieving the Corridor. They do not represent priorities of Council departments / agencies and may not reflect priorities within other reports or studies.

Obviously, commitment to any of the actions within the plan will require careful detailed assessment to determine actual costs and implications of undertaking specific actions.

For the purpose of this strategy,

- High Priority Actions should be considered within a 0-2 year timeframe,
- Moderate Priority Actions should be considered within a 2-5 year timeframe, and
- Low Priority Actions should be considered in a 5-10 year timeframe.

4.3 Part A - Actions across the Corridor

Action	Responsibility	Cost	Priority
Ecological/Rehabilitation			
1a Identify all properties that are critical for wildlife movement corridors and seek to define as "protected corridors" through local planning policy or similar.	Environment	Medium	High
1b Ensure properties within "protected corridors" are covered by Vegetation Protection Local Laws.	Environment and Councillors	Medium	High
1c Seek to introduce animal control measures (ie domestic animal curfews) for properties within "protected corridors".	Environment and Councillors	Large	High
1d Introduce appropriate measures (ie bushland levy) to fund acquisition of key properties within "protected corridors".	Environment and Councillors	Large	High
1e Assist landowners within "protected corridors" through free trees, management advice, fencing rebates to improve properties for wildlife movement.	Environment and Councillors	Medium	Moderate
1f Any properties within "protected corridors" which are constrained (ie flood affected) should be actively targeted for voluntary management agreements to maintain wildlife movement.	Environment and Councillors	Medium	Moderate
1g Roads through "protected corridors" should be managed to preserve and enhance movement of wildlife safely across roads, new roads should not be built in "protected corridors".	M to M, Councillors, Environment	Large	High
1h Properties adjacent and within identified wildlife corridors be targeted for an awareness campaign to illustrate the important role of these properties in maintaining viable wildlife corridors.	M to M, Waterways, Environment	Small	Low
2a Management of ecological areas should focus on protection of natural values whilst providing for nature based recreational pursuits.	Parks, Space, DNR, DEH, DPI, BFP	Small	High
2b Management plans for each ecologically significant area should consider the feasibility and impact of re-introducing species that have become locally extinct or endangered.	Environment, Parks, DEH, DNR, BFP	Medium	Low

4.3 Part A - Actions across the Corridor

Action	Responsibility	Cost	Priority
2c Ensure the natural vegetation of natural areas is maintained in good health through appropriate weed control, prescribed burning.	Parks, BFP, DNR, DPI	Medium	High
3 Water quality sampling be undertaken along all creeks to determine changes and impacts of such quality, results being available to all stakeholders.	Waterways, DEH	Medium	High
4 In urbanised reserves an attractive and shady canopy of appropriate local native trees be established to facilitate bird and arboreal mammal movements.	Parks, M to M, Env. Centres	Small	High
5a Properties adjacent the Corridor be encouraged to plant appropriate local native trees to further enhance wildlife opportunities.	Parks, Waterways, M to M, Env. Centres	Small	Moderate
5b Nearby areas of remnant vegetation (ie Beneke's Bush) be preserved as refuge areas along the Corridor for local flora and fauna.	Parks, Space, M to M, DEH	Medium	High
6a Wildlife movements be enhanced by seeking to preserve and enhance linkages to other natural corridors where feasible.	Planning, Space, Waterways	Medium	High
6b Cabbage Tree Creek has retained many of its natural values and should be incorporated into the Mountains to Mangrove Corridor as the primary ecological corridor.	Environment, Parks, Space, M to M, Env. Centres	Small	High
Recreation and Access			
Identified nodes should be developed as major trail commencement and termination points with high levels of signage, parking, activity bases.	Parks, Space, M to M, Env. Centres	Low	High
Trail and path linkages be developed to surrounding areas where appropriate.	Parks	Medium	Moderate
Safe road crossings be developed at all major roads to ensure pedestrian, cycle safety.	Parks, Councillors	Large	High
Securing the Corridor			
Review management of all reserves, forests, parks to ensure Corridor improvements do not introduce new management problems.	Parks, DNR, DPI, BFP	Low	Moderate

4.3 Part A - Actions across the Corridor

Action	Responsibility	Cost	Priority
Actively lobby politicians to dispose of land held for future arterial roads and where appropriate consolidate into natural reserves.	M to M, Env. Centres, Councillors, Environment, Space	Large	Moderate
Where adjacent properties are controlled by same agency, they should be consolidated into public reserves wherever feasible.	Parks, BFP, DNR, Councillors	Small	High
Review zoning and tenure of all existing ecologically significant areas to ensure no risk of any inappropriate development.	Planning and Space, Parks	Small	Moderate
Promotion/Awareness			
Assist schools and clubs along the Corridor to promote the Corridor by assisting in fetes, posters, displays.	M to M, Env. Centres.	Small	Moderate
Identified visitor nodes should be targeted as major interpretation centres, signage locations and start/finish points for Corridor activities.	M to M, Parks, Space, Env. Centres.	Medium	High

4.4 Part B - Targeted Actions

Management Unit	Action	Responsibility	Cost	Priority
	Ecological/Rehabilitation			
Coastal Plains	Rehabilitate understorey vegetation within Boondall Wetlands.	Parks	Medium	High
Coastal Plains	Rehabilitate riparian vegetation through properties along Nundah Creek/ Zillman Waterholes to improve fish habitat.	Environment, M to M	Medium	Low
Urban Creeks and Parks	Extensive Tree Planting be undertaken throughout Chermside Parklands where not restricted by flooding constraints.	Parks, Env. Centres	Medium	Moderate
Urban Creeks and Parks	Rehabilitate areas of "interpretive/educational bush" within locations of Huxtable and Chermside Parks.	Parks, Waterways, M to M, Env. Centres	Small	Moderate
Urban Creeks and Parks	Remodel Downfall creek at Melaleuca Green, as a demonstration project.	Waterways, M to M	High	Low
Urban Bushland	Assist property owners along Hamilton Road to plant canopy trees to assist wildlife movements.	M to M, Env. Centres, Environment	Small	Low
Urban Bushland	Establish dense understorey refuges within Cabbage Tree Creek reserves, Chermside Hills Reserve, Milne Hill and future Quarry Sports Field (Hamilton Road) as refuges for forest avi-fauna.	M to M, Parks, Env. Centres	Medium	High
Forested Hills	Define "core corridor" through Bunyaville Forest and increase density of understorey species as major forest avi-fauna movements.	DPI, DNR, Env. Centres	Low	Low
	Recreation and Access			
Coastal Plains	Canoe launching facility be provided at Elliott St Reserve	Parks	Small	High
Coastal Plains	Investigate opportunity for cycle trails along existing roads to Boondall Visitor Centre.	M to M	Medium	Moderate
Coastal Plains	Negotiate public access agreements with Nudgee College and Virginia Golf Course along Nundah and Downfall Creeks.	M to M, Councillors	Medium	Moderate

4.4 Part B - Targeted Actions

Management Unit	Action	Responsibility	Cost	Priority
Coastal Plains	Construct cycle paths through public access agreement properties.	Parks	Large	Low
Urban Creeks and Parks and Urban Bushlands	Coordinate landscaping along reserves to achieve attractive, shady and integrated creek corridor.	Parks, Space	Medium	High
Urban Creeks and Parks	Safe pedestrian crossing at Gympie Road.	Councillors, Waterways, M to M	Medium	High
Urban Creeks and Parks	Safe pedestrian crossing at Webster / Hamilton Roads.	Councillors, Waterways, M to M	Small / Medium	High
Urban Bushland	Safe pedestrian crossing at Old Northern Road	Councillors, M to M	Small / Medium	High
Forested Hills	Safe pedestrian crossing at Samford Road.	Councillors, M to M	Small / Medium	High
Forested Hills	Safe pedestrian crossing Sutton Court / Lochinvar Roads.	Councillors, M to M	Small / Medium	High
Urban Creeks and Parks	Safe pedestrian crossing over Maundrell Terrace.	Councillors, M to M	Small / Medium	Moderate
Urban Bushland	Safe pedestrian crossing over Hamilton Road.	Councillors, M to M	Small / Medium	Moderate
Forested Hills	Walking trails be developed adjacent roads between Bunyaville and Samford Forest Parks.	M to M, BFP, Parks, Councillors	Medium	High
Forested Hills	Trail markers promoting Corridor be placed along major trail linkages through Brisbane Forest Park.	M to M, BFP	Small	High
Coastal Plains	Utilise Boondall Wetlands and Virginia Railway Station as Regional Visitor Nodes.	Councillors, M to M	Small	High
Urban Creeks and	Utilise Chermside Parks as Regional Visitor Node.	Councillors, M to M	Small	High

4.4 Part B - Targeted Actions

Management Unit	Action	Responsibility	Cost	Priority
Parks				
Urban Bushland	Utilise Raven Street Reserve and Chermside Hills Reserve as Local Visitor Nodes.	Councillors, M to M	Small	High
Forested Hills	Utilise Bunyaville, Samford and Camp Mountain Forests as Regional Visitor Nodes.	Councillors, M to M, DPI, DNR	Small	High
	Securing the Corridor			
Coastal Plains	Feasibility Study be prepared for Boondall Entertainment Centre to identify land with environmental values that can become parklands.	M to M, Environment, Planning, Councillors	Large	High
Urban Creeks and Parks	Seek greater financial commitment to implementing Chermside Parklands Master Plan.	Parks, Space, Councillors	Large	Moderate
Urban Creeks and Parks	Brisbane City Council secure/acquire as a priority public connection between Gympie and Webster Roads.	Space, Councillors	Medium / Large	High
Urban Creeks and Parks	Council negotiate public access agreements if above properties can not be secured as public open space.	Space, Parks, M to M	Medium	High
Urban Creeks and Parks	Existing reserves between Webster / Gympie roads be developed even though linkage may not be immediately possible.	Parks	Medium	Moderate
Urban Creeks and Parks	Management Plan be prepared for Huxtable Park.	Parks, M to M	Small	High
Urban Bushland	Management Plans also be prepared for Raven Street Reserve and Milne Hill Reservoir.	Parks, M to M	Small	Moderate
Urban Bushland	Include regular funding for Chermside Hills Parkland as part of major natural areas maintenance.	Parks, Space, Councillors	Medium	High
	Promotion/Awareness			
Coastal Plains	Canoeing be promoted as an integral part of Corridor movements.	Parks	Small	High

4.4 Part B - Targeted Actions

Management Unit	Action	Responsibility	Cost	Priority
Coastal Plains	Seek to continue involvement of artists in annual residency/commissioned projects at Boondall Wetlands.	Parks, Space, Councillors	Small	High
Urban Creeks and Parks and Urban Bushlands	Create a series of historical / cultural interpretive nodes at key points along the Corridor.	Parks, Space	Medium	Moderate
Urban Bushland	Raven Street Reserve be promoted as a major "park and ride" / "park and walk" destination.	M to M, Parks	Medium	High
Forested Hills	Seek cooperation with DPI nursery, to undertake joint promotion through nursery.	M to M, DPI, DNR	Small	Moderate
Forested Hills	Research and document the cultural and historical values with input from artists of both indigenous and non-indigenous backgrounds.	M to M, Environment, Space, Councillors	Small	Low
Forested Hills	Lobby DPI to market Bunyaville nursery as offering specialty local native plants, including opening on weekend.	M to M, DPI, DNR	Medium	Moderate
Forested Hills	Traffic calming and signage be used to promote trail walkers between State Forests.	Parks, BFP, M to M	Medium	High

4.5 Corridor Expansion

At present the Mountains to Mangrove Corridor is structured along a single corridor of existing linear drainage reserves and numerous natural features. Whilst restricting the Corridor to this existing linkage may be desirable in creating greater awareness and understanding of the areas linked by the Corridor, there may be distinct advantages in broadening its scope.

The scope could be broadened by linking the Mountains to Mangroves Corridor with other logical corridors to form a broader network. For example Cabbage Tree Creek has been identified as retaining greater potential for wildlife movement along the Corridor, as:

- it has retained greater quantities of vegetation (terrestrial and aquatic) along its length;
- it has been protected more effectively by planning mechanisms and conditions on developments (greater width, less modification of natural channel, improved design of stormwater systems); and
- it also links Boondall Wetland to Bunyaville State Forest.

Integration of Cabbage Tree Creek as the major wildlife movement corridor between Boondall Wetlands and Brisbane Forest Park would provide greater opportunity for such movements whilst allowing Downfall Creek to have a greater focus on recreational use and community ownership.

Other opportunities include:

- linking ecological values along South Pine River, from Bunyaville State Forest;
- ecological and recreational values along Little Cabbage Tree Creek from Chermside Hills Parklands;
- increasing the scope of the corridor to incorporate notable natural areas in proximity to the corridor (ie Beneke's Bush within the grounds of Prince Charles Hospital);
- linking recreational and ecological values along Kedron Brook, through linkage at Samford State Forest, and
- recreational and ecological values between Boondall Wetlands and Kedron Brook along the Schulz Canal (Note: the Kedron Brook Branch of Wildlife Preservation

Society of Queensland has already been initiating significant revegetation associated various linkages associated with Kedron Brook).

In incorporating additional arms or elements to the Mountain to Mangroves Corridor, care should be taken on signage and promotion along these “extensions” to the Corridor, to ensure that promotion of the Mountains to Mangroves Corridor does not become to cumbersome or loses its identity.

In expanding the scope and area of the Mountains to Mangroves Corridor it is important that property owners along and adjacent to the Corridor do not feel threatened by the Corridor expansion. Indeed affected property owners should be benefited by the expansion of the Corridor through positive incentives to involve such owners through Voluntary Conservation Agreements, land management agreements, Vegetation Protection measure, rate rebates, etc.

5.0 Promotional Plan

5.1 Past Activities

From the inception of the Mountains to Mangroves concept, the Corridor has been heavily reliant upon promotional activities to generate the necessary support and commitment.

Success has been achieved in the past through utilising a broad range of promotional vehicles, such as:

- coordinating walks along the Corridor through cooperation between Downfall Creek Bushland Centre, Brisbane Forest Park, Bunyaville Environmental Education Centre, State Forest Recreation Officers, Brisbane City Council "Walking for Pleasure" program, Nudgee Beach Environmental Centre "Gold and Chill Out" programs, Neighbours of Huxtable Park and Boondall Wetlands Community Group;
- displays at local shopping centres, libraries, schools;
- integration of Corridor strategy into management plans for various localities / facilities along the Corridor (ie. Downfall Creek Bushland Centre - Annual Report, Bunyaville Environmental Education Centre - Operation Plan, Chermside Parklands - Master Plan);
- the Mountains to Mangroves Festival / Family Day, a community based festival held every two years, supported by local community groups and sponsored by Brisbane and Pine Rivers Councils; and
- development of a number of information sheets on aspects of the Mountains to Mangroves Corridor.

5.2 Recommended marketing and awareness strategy

The marketing, awareness and education strategy needs to engender public and political awareness, use and support. There are three essential components of this, which are summarised below.

Through posters and brochures distributed to ward offices, schools, libraries , shopping centres, recreation centres and existing regional environmental education (ie. Boondall, BFP) which focus on the following messages:	
Its there!	*the corridor exists, its location, where it commences and finishes, its key features and facilities*
Why is it important?	*what are its values? Why is a linkage useful? What are the connections between upper and lower parts of the corridor? How am I connected?*
What does it offer me?	*variety of recreation activities, main access points, range of education and awareness opportunities*
Need to build on what other groups are doing - ie. to 'add on' the Corridor message to existing activities, information and reporting. The idea is to present a steady trickle of activities happening under the Mountains to Mangroves umbrella. The following examples provide an illustration:	
community replanting day	Mountains to Mangroves rehabilitation to create linkages
new bike path opening	Mountain to Mangroves recreation opportunity
arrival of migratory birds at Boondall	Benefits of Mountains to Mangroves wildlife corridors
stormwater controls or upgrades	improving water quality for Mountains to Mangroves aquatic linkage and to improve migratory bird habitat
Reaffirm and consolidate support of Brisbane City, Pine Rivers Shire Councils, State and Federal members	
what's in it for them?	values, opportunities, potential for widely recognised 'icon'; opportunities for contributing to funding support
where are the key areas of community support?	total membership of community groups, suburbs which have some link to the corridor. Potential for association with and endorsement of high profile public events

Key Objectives

Key objectives of an ongoing marketing campaign for the Corridor should incorporate encouraging the community to:

- be aware of the connection between the various separate elements and localities of the Corridor;

- appreciate the importance of this connection between the elements (ie wildlife movement, unique recreational environment, catchment management principles); and

- work with the public to achieve common goals.

Promotional Vehicles

Such objectives are most likely to come as a result of continued exposure to such marketing as opposed to once-off promotions. As such it is recommended that the following promotional vehicles should be utilised:

- Regular release of press releases / editorials to local newspapers on local interest stories that promote Corridor (for example monitoring results undertaken by local schools, build up to festivals, arrival of migratory species at Boondall, local wildlife and history stories);

- Continuation of biannual festivals to celebrate the Corridor (successive festivals should build momentum and awareness);

- Use of coordinated signage and logos at key focal points (main road crossings, visitor nodes, etc.) is critical to give the Corridor substance;

- Include Corridor promotion within existing promotional activities undertaken by Brisbane Forest Park (ie “Go Bush”), Boondall Wetlands (both city wide promotions), Nudgee Beach Environmental Education Centre, Downfall Creek Bushland Centre and Bunyaville Environmental Education Centre; and

- Prepare single poster with supporting brochure for display at libraries, ward offices, schools on Corridor.

- Linking Corridor promotion to promotional activities undertaken by parent agencies where applicable , ie links to Boondall Wetlands web site, BCC web sites.

- Establishment of a Corridor based community art and cultural awareness trail which could include: provision of local artworks at prominent locations along the corridor, interpretive signs about local cultural elements and features, local education packages for schools, local poem and verse competitions on corridor theme, community art workshops within the corridor, etc.

Success Factors

The success of this promotional campaign is likely to be dependant on the following requirements:

- the presence of a person who is vested with the responsibility to undertake such a promotional campaign, at a minimum this person would be required to work 25% full time on such promotional work (50% desirable);

- Initial funding to allow production of poster (and brochure) and utilisation of existing promotional activities;

- Development of close and effective personal contact with existing promotional activities undertaken within Boondall Wetlands, Brisbane Forest Park and other environmental centres;

- As Brisbane City Council is a major participant in promoting and marketing the Corridor it is also essential that there are clear responsibilities established for which section of Council is responsible for marketing of natural areas and natural activities (at present this responsibility is not clearly established).

Possible Role of Marketing / Promotional Employee

The following elements should comprise the major tasks of any promotional Corridor employee:

- development and maintenance of close personal alliance with agencies/individuals already undertaking promotional activities, that may be utilised to promote the Corridor;
- undertake joint marketing between councils and agencies along the Corridor
- coordination of interpretive signage and markers along the Corridor promoting the Corridor;
- ensuring wide and correct usage of Corridor logo;
- personally visiting ward offices to develop alliance with local politicians and promote Corridor;
- visiting schools, libraries, etc to distribute posters and promote Corridor (coordinate with environmental education centres for best effect);
- identifying and establishing contacts with key landholders along the Corridor to seek compatible management of these properties;
- securing grant applications and pursuing avenues of ongoing promotional funding;
- promoting ecotourism along Corridor; and
- promoting the Corridor wherever and whenever feasible.

Some of these tasks have already been initiated by existing centres along the corridor, but need to be continued and expanded upon.

Extending the Success

The initial success of the campaign can then be built upon by :

- addressing issues relating to the Corridor that have been identified by local councillors and elected representatives (develop “win-win” scenarios);

- tapping into skilled individuals within existing community groups to assist in Corridor promotion where appropriate;

- utilising community groups to undertake letterbox drops, information distributions around specific Corridor locations;

- expanding promotional of cultural interpretation along the Corridor from Boondall Wetlands to other nodes along the Corridor; and

- coordinating promotional activities with public access providers..

Key Marketing and Awareness Recommendations

1. Funding be committed from BCC, Pine Rivers, Greening Australia and Brisbane Forest Park for 25% (minimum) full time project officer to promote the Corridor.

2. Funding also be committed from BCC, Pine Rivers, Greening Australia and Brisbane Forest Park for preparation of informative colour poster and brochure on the Corridor, for personal distribution to schools, libraries and ward offices.

3. Resolution of marketing responsibility within BCC to either environment or parks section for all natural area and natural activity promotions.

4. Apply for Natural Heritage Trust, Bushcare funding for additional funding towards project officer / promotional activities.

6.0 References

Brisbane City Council 1996 “Chermside Parklands Master Plan”, Brisbane City Council.
Brisbane City Council 1996 “Chermside Parklands Planning Study”, Brisbane City Council.
Brisbane City Council 1996 “Chermside Parklands Planning Study Appendices”, Brisbane City Council.
Brisbane City Council 1997, “Chermside Regional Business Centre Development Control Plan”, Brisbane City Council.
Brisbane City Council 1997, “McDowall/Bridgeman Downs, Local Area Outline Plans”, Brisbane City Council.
Brisbane City Council 1998, “Draft Cabbage Tree Creek Catchment Management Plan”, Brisbane City Council.
Chenoweth & Assoc., 1996, “Brisbane Strategic Revegetation Plan” Commonwealth Department of Transport and Regional Development.
Chenoweth & Assoc., 1996, “Interim Nundah/Downfall Creek Catchment Management Plan”, Brisbane City Council.
Department of Recreation and Health, 1996, “McDowall/Bridgeman Downs, District Open Space Study”, Brisbane City Council.
Loder & Bayly Consulting Group, 1991 “Boondall Wetlands Reserve Management Plan”, Brisbane City Council.
Mackay S. and Arthington AH. 1997, “Survey of Freshwater Fish, Downfall Creek - A Study for the Brisbane City Council” Giffith University.
Parker P., (?) “Chermside Hills Plan of Management, Vol 1”. Brisbane City Council.
Parker P., (?) “Chermside Hills Plan of Management, Vol 2”. Brisbane City Council.
Ploughman K. Dr. 1985, “The vertebrate fauna of Brisbane Forest Park”, Brisbane Forest Park.
The Parkscape Group, 1994, “Chermside Hills Reserve Walking Track and Rehabilitation Study”.
Wills, Power and Plowman, 1997, “Bird and Mammal use of Cabbage Tree Creek and adjacent remnants in the McDowall area”.
Young P. 1992, “Vegetation Survey of Brisbane Forest Park” Brisbane Forest Park.

Other Information Reviewed:

Boondall Wetlands Reserve - Pamphlet, 1997, BCC
Brisbane Forest Park, Information Guide, Dept Natural Resources,

Bunyaville State Forest, Resource Booklet, Dept Natural Resources.
M to M Signage Project Requirements
Festivals Australia Application Form
Background paper for BCC with Save the Bush Funding June 1995
Aims and Objectives of M to M Advisory Committee
Background Paper 1996
Corridor Walk and Family Fun Day Pamphlet, 1997
Downfall Creek Bushland Centre.

Appendix A
Corridor Analysis

An analysis was undertaken of key locations within each management unit of the Corridor, to determine priority issues and actions that were needed if the Corridor was to:

- fully utilise and protect existing ecological values;
- offer maximum recreational opportunities appropriate for the site;
- provide maximum community access;
- promote awareness of environmental issues associated with the Corridor; and
- be managed for the benefit of existing and future generations and the sustainable management of the natural resources.

A.1 Forested Hills Unit

A.1.1 Camp Mountain

KEY FEATURES - NATURAL

Reserve 309 (Camp Mountain) is connected to the rest of the main section of Brisbane Forest Park along a common boundary; therefore the Reserve is both a buffer and part of the core habitat area within the Forest Park.

The vegetation communities contain tall open forests and closed riparian forest within the deeper gullies. The forest along the ridges are drier than those in the gullies and on the southern facing slopes.

This reserve also provides a range of habitats for a range of fauna species and is a summer refuge for many forest birds as well as a resource for fauna species to migrate down into the urban bushlands and the coastal habitats.

Brisbane Forest Park contains approximately 236 bird species, 58 mammals, 61 reptiles, 30 frog species (Ploughman 1985) and over 1228 plant species (Young 1992). These plant species are contained in 12 broad vegetation communities. These vegetation communities and their location within Brisbane Forest Park provide a range of substantial to microhabitats for these species.

KEY FEATURES - SOCIAL

The area contains several walking tracks and firebreaks that are available for bushwalkers, horse and mountain bike riders. All of the trails and firebreaks are on a three-year maintenance cycle. Permits are required for horse and mountain bike riders before they can gain access to the trails and firebreaks in this area and these park visitors are requested to stay off the walking tracks.

Various visitor facilities have been developed within Camp Mountain, ie picnic areas, lookouts.

CURRENT INITIATIVES

None known

CORRIDOR CONSTRAINTS

None known

Camp Mountain Recommendations	
Key Priorities	maintain existing values; major node
Ecological and Rehabilitation	
Brisbane Forest Park continue with the existing management of the environment and recreation activity within the State Forest.	
Recreation and Access	
Camp Mountain be promoted as the starting point for a regional bush walk through Brisbane Forest Park and the larger Mountains to Mangroves Corridor.	
Lessons for Other Corridors	
+'ve	Corridors should always terminate at logical points of arrival or departure, but should allow greater recreational and ecological opportunities beyond this termination point.
+'ve	Local corridors can become more significant when linked to Regional corridors and regional corridors can become more important when linked to national corridors (such as the National Trail for horse riding and hiking).

A.1.2 Upper Kedron

KEY FEATURES - NATURAL

The Upper Kedron area is made up of large rural residential properties located on steep sided foothills of the Taylor Range. The area contains vegetated gullies with areas cleared for buildings and associated infrastructure.

The vegetation throughout this area and which continues into the mountains is open forest dominated by *Eucalyptus fibrosa* and *Corymbia citriodora. E. tereticornis, E. microcorys* and *Lophostemon confertus* are dominate in the gully lines.

KEY FEATURES - SOCIAL

This section of the Corridor contains no formal track or trails. However, bushwalkers have utilised Sutton Court and Lochinvar Road to gain access to a road reserve which in turn provide access to a firebreak in the southern portion of Samford State Forest.

There are existing residences scattered throughout these properties. To date development has largely been sympathetic to the natural values of the area, although inappropriate development / land use may threaten wildlife values.

CURRENT INITIATIVES

The Kedron Brook Branch of the Wildlife Preservation Society of Queensland has a revegetation plan for the whole of Kedron Brook, although it not known whether such a plan addresses specific issues in this part of the Corridor.

CORRIDOR CONSTRAINTS

The roads in this area closely follow the natural ridge lines, as such they are windy, have no shoulders and experience poor visibility. At present these roads are utilised as a linkage for horses, cycles and walkers going between the forests, thus presenting a serious safety concern for local traffic.

In addition this area is on the boundary of the two Councils making coordination of measures to develop safe access between the two State Forests more difficult.

Upper Kedron Recommendations
Key Priorities retain wildlife movements; safety of trail users
Ecological and Rehabilitation
Target properties between forests for assistance to encourage properties are managed to promote wildlife movements.
Recreation and Access
The Pine Rivers Shire Council and the Brisbane City Council develop a pedestrian access

plan to provide safe walking and riding for Corridor users between the Samford State Forest and Reserve 309, this may involve seeking public access rights over suitable corridors ie electricity transmission easements or establishing defined trails parallel to the existing road pavements. Appropriate traffic calming measures and awareness be provided along roads which are currently utilised by walkers.
Securing the Corridor
Appropriate zoning / conservation measures be placed on all properties between Samford and Camp Mountain State Forests.
Promotion/Awareness
Both Councils encourage the local landowners to retain as much endemic vegetation on their properties to retain the vegetative link between the two State Forests.
Lessons for Other Corridors
+'ve Small numbers of private properties can readily be targeted to seek cooperative protection of corridor values, through the introduction of appropriate incentives and mechanisms. -'ve Lack of public land makes completion of recreation trails, etc. more difficult and may require appropriate agreements with local property owners.

A.1.3 Samford Forest

KEY FEATURES - NATURAL

Samford State Forest is an area of open woodland and tall open woodland dominated by a suite of eucalyptus species with *Lophostemon confertus* dominating the drainage lines. Brisbane Forest Park manages the Forest for recreational purposes.

The forest is also used extensively for horse riding and Mountain bike riding which are both regulated through a permit system obtained through the Brisbane Forest Park Headquarters. The firebreak and trail system is the focus of the horse and bike riders with the walking trail reserved for pedestrians.

KEY FEATURES - SOCIAL

The area contains three significant and popular picnic grounds with access from Samford Road. These facilities are supplemented by a number of smaller parklands and commercial areas (ie Australian Woolshed) which also attract large visitor numbers.

The forest is divided by numerous firebreak, fire trails and walking tracks. Horse and Mountain bike riders are required to obtain a permit from the Brisbane Forest Park headquarters before they are allowed on the break and trail system within the forest. They are also restricted from using the existing walking track systems which are reserved for walkers.

CURRENT INITIATIVES

Samford and Camp Mountain State Forests differ slightly from Bunyaville Forest, in that recreation management of these forests are undertaken by the Brisbane Forest Park (BFP), who organise a variety of popular recreational activities and facilities.

It could be argued that the diminishing role of commercial forestry from these forests, has meant BFP's management of recreation is attracting proportionally more funding for these areas, seeing Brisbane Forest Park becoming more influential in resource management issues, which were originally largely beyond the role of the BFP.

The firebreaks and trails are maintained on a three-year cycle. Prescribed burning is undertaken on a mosaic pattern throughout the forest.

There is currently a proposal before Pine Rivers Shire to develop a road linkage through the eastern end of Samford State Forest, between Bunya Road and Samford Road (known as the Linkwood Road extension).

Pine Rivers Shire Council has also been negotiating with developers immediately south east of Samford State Forest to achieve greater public land adjacent to the Forest.

CORRIDOR CONSTRAINTS

The large size of these State Forests often restricts the available resources for development of facilities throughout the reserves. This is true where basic fencing and

signage may not achieve the same standard of promotion and identity that may be sought as part of a larger corridor network.

Samford Road is a major road that winds around the southern boundary of Samford State Forest, poor visibility and high speeds create potentially hazardous pedestrian and wildlife crossings.

Samford Forest Recommendations
Key Priorities maintain values; define main trail
Ecological and Rehabilitation
Brisbane Forest Park continue with the existing management of the environment and recreation activity within the State Forest. A road management plan should be developed to ensure that Samford Road does not further alienate wildlife as a result of future road "improvements". Greater analysis should be undertaken on the need for and alternatives to the Linkwood Road extension.
Recreation and Access
A safe pedestrian crossing be developed across Samford Road along the major trail to improve public safety.
Promotion/Awareness
Greater resources and effort be placed on appropriate signage and trail markers along existing tracks to achieve continuous corridor walking trail.
Lessons for Other Corridors
+'ve Large regionally significant natural areas provide important foundations for the corridor, in terms of both ecological and recreation values. -'ve Promotion of a corridor concept may not always be in tune with the management of large natural areas.

A.1.4 Bunya Properties

KEY FEATURES - NATURAL

This area of the Corridor consists of medium to large rural properties with a range of rural land uses. The vegetation throughout this area contains areas of remnant vegetation, areas of partly cleared or with cleared or modified understorey and areas which have been totally cleared for agricultural purposes.

This land between Bunyaville and Samford State Forests is undoubtably a critical wildlife corridor between the two reserves for an extensive range of native animals, including large mammals and forest birds.

The waterways that transect this area still contain a reasonable riparian structure with some low level degradation through inappropriate land use.

The rural landscape is dominated by modified open eucalyptus woodland with taller Eucalyptus and scrub species occupying the riparian zone.

KEY FEATURES - SOCIAL

There are no established or formulised tracks or trails through this area, with the exception of the current road network, which in some of the rural residential areas are wide, attractive and carry relatively small volumes of traffic.

This area is under pressure for development for rural residential purposes as the proximity to the CBD and the pleasant rural character. Development approvals have been issued for a number of key sites in this area.

CURRENT INITIATIVES

Pine Rivers has recognised the need for a significant wildlife corridor between Bunyaville and Samford State Forests and has been negotiating subdivision approvals to achieve this linkage. A local area plan currently being developed by Pine Rivers Shire Council will seek to achieve a 150m wide corridor to the north of the existing rural residential estate.

Similar wildlife corridors (of lesser width) are also envisaged along a number of tributaries of/and South Pine River, which may also offer some avenues for wildlife movement.

An existing public park off Blue Hills Drive has the potential to compliment the proposed wildlife corridor as a refuge area, if it were appropriately rehabilitated. This park could also become a node for interpretation.

CORRIDOR CONSTRAINTS

At present the most direct linkage between Bunyaville State Forest and Samford State Forest has been alienated through rural residential subdivisions. The presence of domestic pets (particularly dogs) and fences are significant deterrents to the safe movement of koalas and other native animals.

Existing zonings provides certain development expectations for landholders within this area, consequently these expectations may preclude the ability of Pine Rivers Shire to seek maximum areas for wildlife corridors.

As surrounding areas are developed it will be essential to protect and enhance the vegetative corridor through appropriate zoning of properties and buffers along creeklines and acquisition of additional areas to achieve a sustainable fauna corridor. A vegetated corridor approximately 200m wide and free from residential or physical obstructions should be developed.

Bunya Properties Recommendations
Key Priorities save wildlife linkage; community support; separate walking trail
Ecological and Rehabilitation
Development approvals in the area should also seek appropriate landscaping and property encumbrances to support wildlife. Pine Rivers Shire should actively negotiate with property owners (prior to lodgement of applications), seeking to enter voluntary conservation agreements or similar over key properties.

Existing reserve and secured corridors be restored as important wildlife refuge

Assistance be given in the form of free local suitable tree and shrub species to local landholders, in order to make properties wildlife friendly.

Pine Rivers Shire should consider incentives and local laws to make properties within identified wildlife corridors more wildlife friendly, ie. curfews on dogs, restrictions on number and type of dogs on appropriate properties.

Ecological connections to other creeks and waterways should be investigated to further enhance wildlife potential.

Recreation and Access
Walking trails be developed along roadsides to link forest areas. Such trails should be well signed for walkers and traffic alike and should be sighted to ensure public safety.

Securing the Corridor
Pine River Shire Council negotiate to achieve maximum wildlife corridors as part of development activities.

Promotion/Awareness
An education program should be targeted for existing land owners between State Forests on the important role their properties have in maintain viable ecosystems.

Lessons for Other Corridors	
-'ve	Threats to severe corridor linkages often occurs many years before physical evidence of such threats. For example inappropriate zoning of properties gives validity to land use expectations which may result in loss of wildlife linkages and values.
+'ve	Low intensity activities can often result in maintenance of wildlife values of natural areas when coupled with appropriate incentives for compatible management.
-'ve	Rural type roads are rarely designed for users other than vehicles, consequently construction of road profile may inherently endanger pedestrians and non-motorised users.
-'ve	Many common traffic management measures are inappropriate on "rural type" roads.
-'ve	Shires with large rural rate base often find it difficult to justify or afford acquisition of specific sites which may be important as part of a broader corridor.

A.1.5 Bunyaville

KEY FEATURES - NATURAL

The Bunyaville State Forest contains several vegetation communities which were actively resourced for timber up until the mid 1980's. The area is now predominantly used for forest based recreational activities such as Mountain bike riding, horse riding and bushwalking.

Information on the vegetation of Bunyaville State Forest is somewhat limited, but has been previously described as Dry Open Sclerophyll Forest, dominated by a variety of Eucalyptus sp. Information on native animals is also poor in all the State Forests, however, a variety of native mammals including Common Dunnart *Sminthopsis murina*, Echidna *Tachyglossus aculaetus*, Koala *Phascolarctus cinereus*, Red Necked Wallaby *Macropus rufogriseus* and Swamp Wallaby *Wallabia bicolour* are believed to occur in the forest.

KEY FEATURES - SOCIAL

The trail system through the forest consists of old logging roads and the firebreak system. These tracks and trails traverse the entire forest providing a wide range of outdoor recreation opportunities for forest visitors, although signage and interpretation of trails could be vastly improved.

Within Bunyaville Forest there are a variety of facilities ie picnic grounds, a plant nursery, and the environmental education centre, which attract external visitors into the forest, although these facilities are not actively promoted as public recreation locations.

The Bunyaville Environmental Education Centre has a high visitation rate (some 134,000 students since 1977), with the centre providing a diverse range of environmental interpretation programs for school students.

CURRENT INITIATIVES

During 1997 a proposal to resume forestry activities (ie logging) was defeated by community pressure on local politicians, seeing the introduction of a logging embargo in this area.

At present, Bunyaville State Forest along with all state reserves in South East Queensland, is being considered within a Comprehensive Regional Assessment (to

prepare Regional Forestry Agreements). This assessment will give certainty to the future management and responsibilities for these reserves (for example, it is possible that there may be a change in the management of some of these reserves to more of conservation status).

To maintain the existing firebreaks and fire trails and continue to allow access to these breaks and trails by horses and Mountain bike riders.

CORRIDOR CONSTRAINTS

As the areas surrounding Bunyaville are developed, roads across Bunyaville Forest (ie Jinker Track and Dugandan Roads) are increasingly being utilised as short-cuts or alternatives to defined major roads, creating dangerous pedestrian/wildlife crossings in busy and fast traffic.

Given the close interface of Bunyaville and other nearby State Forests to residential properties, increasing conflict will be experienced which will require active management and greater expenditure on the part of the reserve managers (ie overhanging branches, bushfire control, snakes, illegal dumping, etc).

The Department of Natural Resources - Forestry Division, controls Bunyaville and other State Forests, and is largely responsible for maintenance of these Forests. The Department of Primary Industries - Forestry is responsible for commercial production from these forests, and as such injects funding into elements of the forest which enhance timber production (for example within Bunyaville, DPI contributes significant funding to the communications centre, nursery and fire trails).

It is envisaged that once the Regional Forestry Agreement is finalised all management responsibilities for these state forests should be reviewed and facilities within them.

Bunyaville Recommendations	
Key Priorities	maintain existing values; enhance visitor focus
Ecological and Rehabilitation	

Department of Natural Resources continue to manage the Bunyaville State Forest for its environmental resource values and continue to provide access to environmentally sensitive and low impact recreation activity. Once Regional Forestry Agreement is finalised, a management plan should be developed for forest incorporating all interest groups and local community. Management plan should clearly identify management responsibilities of various agencies (possibly BFP responsibility for recreation / interpretation facilities).
Promotion/Awareness
All facilities within the forest be utilised to promote quality visitor experiences. The government nursery should be upgraded to promote environmentally appropriate landscaping and provide an extension service to local residents. The nursery could then become a major weekend visitor focus within the forest, and expose visitors to other recreational / education elements within the forest. Promote as regional visitor node
Lessons for Other Corridors
-'ve Significant natural areas managed by a different agencies may not always be managed for the same purpose as other areas within the corridor. -'ve State management of areas may not always reflect local demands and expectations on these areas. +'ve Infrastructure provided in state managed areas can often be utilised as basis for increased visitation, with only relatively minor promotion and awareness. -'ve State funding for maintenance of natural areas rarely achieves the desired standard of maintenance associated with surrounding urban settlements and is often more applicable to more remote properties. -'ve Management of significant natural areas for partly productive purposes (ie timber production) may lead to conflict in management objectives.

A.2 Urban Bushland Unit

A.2.1 Cabbage Tree Creek

KEY FEATURES - NATURAL

Cabbage Tree Creek is a waterway which provides an alternative waterway corridor between the Foothills of the Taylor and D'Aguilar Ranges and Moreton Bay. The creek is in a similar condition as Downfall Creek except that the catchment recently changed from an agricultural/rural land use to an urban land use with the expansion of residential development.

The waterway itself is characterised by a dominant remnant riparian zone which is occupied by closed forest plant species. The soil along Cabbage Tree Creek is similar to Downfall Creek with the addition of the Aspley landscapes which consists of Red earths and Krasnozems with gleyed podzolic soils derived from hills of clay and sandy clays. (Beckman et al 1987)

KEY FEATURES - SOCIAL

Recreation infrastructure such as bikeways and foot trails are being constructed as land along Cabbage Tree Creek is being developed. A well developed system of bike paths has been established along the Corridor but is restricted through a lack of bridge crossings over the creek.

Many of the reserves developed along the creek are attractively treed, with basic neighbourhood park facilities (ie. drinking fountain, playstation). Additional understorey planting has been undertaken in parts to improve the natural appearance of the creek and to rehabilitate the natural values of these areas.

CURRENT INITIATIVES

A corridor utilising the Cabbage Tree Creek as the waterway has been flagged as having potential as an complimentary waterway corridor to Downfall Creek. As the rural land is being developed the opportunity to protect and retain a portion of the waterway for a vegetative and recreational corridor is being diminished.

However the extension of Cabbage Tree Creek to Moreton Bay, has not been included as part of the Mountains to Mangroves Corridor concept.

CORRIDOR CONSTRAINTS

The dominant Corridor constraints relate of the tenuous linkages from Raven Street Reserve through Chermside Hills Reserve to the Bunyaville State Forest. Between Chermside Hills reserve and Cabbage Tree Creek reserve, pedestrian linkage is restricted to a confined point, where a change in height and road crossing confront park users.

Pedestrians and wildlife also need to cross two major roads in Beckett and Old Northern Roads, creating obvious safety concerns.

South of Hamilton Road, Cabbage Tree Creek flows through privately owned land with existing houses on large rural residential type allotments. Opportunities for public ownership of the creek is therefore limited to redevelopment of these properties (a medium to long term possibility only). Alternatively, the alignment of Hamilton Road must be used as corridor connection for pedestrians. This in turn restricting the experiences of walkers forced to walk alongside urban houses on a wide road.

Cabbage Tree Creek Recommendations	
Key Priorities	second arm to Corridor; safe pedestrian linkage; improve wildlife habitat
Ecological and Rehabilitation	
Council undertake the rehabilitation of the parkland west of Beckett Road to strengthen the vegetative link between Chermside Hills Reserve and the Bunyaville State Forest. Establishing the entire Cabbage Tree Creek as a northern arm of the corridor for the Mountains to Mangroves Corridor, enabling greater fauna linkage opportunities. Rehabilitate pockets of vegetation that would protect desirable animals from aggressive species (ie noisy miners)	
Council ensure that in-stream habitats are protected and enhanced as part of its waterway management program. Assistance be provided (free trees, VCA's, rezoning incentives, rebates, etc.) to property owners south of Hamilton Road to establish extensive and safe fauna habitat areas along Cabbage Tree Creek alignment.	
Recreation and Access	
Develop trail linkages through Cabbage Tree Creek in line with overall management of riparian values. Council seek to ensure safe pedestrian crossings are established across Beckett and Old Northern Roads, for trail users.	
Securing the Corridor	
Council continue to acquire land within the Cabbage Tree Creek and Little Cabbage Tree Creek waterway corridor with an emphasis on retaining and protecting riparian vegetation	

to ensure the long term survival of the water as an east-west corridor.
Lessons for Other Corridors
+'ve Linkages to other creeks, corridors greatly improves ecological value of individual corridor links as it improves animal and plant movements along and between different areas, which may improve the sustainability of resident animal populations.
+'ve Newer land division developments should result in greater retention of natural vegetation and other values associated with creeks and streams.

A.2.2 Chermside Hills

KEY FEATURES - NATURAL

The Mountains to Mangroves Corridor is linked from Milne Hill Reservoir, via a thin (30m wide) reserve recently dedicated to Council, and through a series of reserves along Little Cabbage Tree Creek to Chermside Hills.

The most significant natural features are found within the Chermside Hills Reserve which is a large bushland area managed by the Brisbane City Council as an Urban Nature Reserve. In 1989, Chermside Hills Reserve was identified in a Bushland Strategy as one of the five most important natural areas remaining in Brisbane.

The Chermside Hill Reserve is one of the last significant areas of bushland within Brisbane City and an important corridor node between the Bunyaville State Forest and the Downfall Creek catchment.

The Reserve contains six vegetation communities predominantly with a heathy or grassy understorey (Parker 1991). These communities include open woodland dominated by Scribbly gum *Eucalyptus racemosa* and an area of open forest dominated by Tallow wood *Eucalyptus microcorys* which contains a shrubby understorey. Immediately adjacent to the Reserve another restricted vegetation community occurs along the two waterways which traverse the north eastern boundary and is outside the western boundary of the Reserve.

Cabbage Tree Creek and Little Cabbage Tree Creek contain a degraded tall forest community with a scrubby understorey. Both of these waterways form a northern corridor linkage,

but are equally degraded and under development pressure that will further degrade the faunal components of the Corridor.

Chermside Hills Reserve is believed to provide habitat for a similarly diverse variety of fauna as Raven Street Reserve. Indeed, given that Chermside Hills Reserve is twice the size of Raven Street there may be greater diversity.

Although the reserve linkage along Little Cabbage Tree Creek is indicated as an Urban Nature Park in the Bridgeman Downs/McDowall District Open Space Study, many of these values have been compromised through historic disturbances or recent residential developments adjacent the reserve.

KEY FEATURES - SOCIAL

Due to a lack of "on the ground" management initiatives in place at Chermside Hills Reserve this land is frequently perceived as being a type of "waste land". Historically the site suffered from use as a venue for off-road motor bikes and vehicles. Due to these activities the reserve is traversed by a multitude of poorly maintained tracks and trails which have only recently begun to be rationalised.

The presence of significant high points within the Chermside Hills Reserve has the potential to make this reserve more desirable for visitors seeking views over the city (it is understood funding for a Lookout Tower has recently been approved).

CURRENT INITIATIVES

Brisbane City Council is intending to prepare a management plan for Chermside Hills Reserve during 1999. A plan of management for this reserve was previously developed but has not been actively enacted upon (due to inconsistencies in the plan).

In 1994 the Brisbane City Council commissioned the preparation of a track report which details the design, construction and rehabilitation of walking tracks (The Parkscape Group, 1994). This report and plan has not as yet been implemented although perimeter fencing has reduced off road vehicle access points into the park. Unfortunately, trail bikes and mountain bikes are difficult to control due to difficulty in restricting their access.

The Bridgeman Downs/McDowall District Open Space Study prepared by Brisbane City Council in 1996, recognises part of Little Cabbage Tree Creek and Chermside Hills Reserve as Urban Nature Parks.

A draft fire plan is in place for Chermside Hills Reserve.

CORRIDOR CONSTRAINTS

Land for a proposed Western Arterial Transport Corridor has been set aside along a corridor running north-south to the east of Chermside Hills Reserve. At present this land is poorly maintained and provides an ecological and aesthetic extension to the Chermside Hills Reserve, however development of this corridor is likely to become a severe barrier to movements of animals and people along the Corridor. Development of the road corridor is also likely to have extensive visual, traffic, noise and safety impacts on existing residents who are adjacent to this corridor. The Western Arterial Transport Corridor would also cross Little Cabbage Tree Creek whilst within Chermside Hills reserve, creating extensive environmental disturbances.

The linkage between Milne Hill Reservoir and Chermside Hills Reserve is likely to be inadequate as a wildlife corridor (current width 30m) as the close proximity of adjacent residential properties on both sides of the reserve is likely to threaten the movement of native ground animals.

The Mountains to Mangroves Corridor has difficulty maintaining a logical connection between the reserves through this portion of the corridor, necessitating pedestrians to walk up and down steep trails linking Milne Hill (and Raven Street Reserve) and Chermside Hills Reserve. This poor connection is likely to deter and limit the appeal of these trails for walkers and cyclists alike. It would be far more logical for trails to be developed along ridgelines or along creeklines, allowing more constant and gentle gradients to be provided. Unfortunately, the alienation of these routes by private developments makes such a connection practically impossible.

The current status of Chermside Hills Reserve makes funding of any works within the reserve difficult. Being considered a minor natural area it does not attract funding through the bushland management levy (levy on property rates) and is instead funded through regional budgets for parks and gardens. Unfortunately, the sheer size of the reserve

makes such funding ineffective in providing any significant capital improvements to the reserve. The low visitation of the reserve also limits the priority of works planned for such areas in itself further reducing actual expenditure in such areas.

It is understood that Chermside Hills reserve is made up of numerous separate property titles, some of which may have zoning classifications which would allow development of these sites for uses which may be inappropriate for their setting (ie residential). Although such properties may be managed as an Urban Nature Park by Brisbane City Council it is important that zoning reflects this preferred land use.

Chermside Hills Recommendations	
Key Priorities	improve movement of animals; Western Arterial Transport Corridor; greater active management
Ecological and Rehabilitation	
Encourage property owners along Hamilton Road (currently utilised as low density residential allotments) to undertake planting of vegetation which would allow movement of native mammals.	
Rehabilitate pockets of vegetation that would protect desirable animals from aggressive species (ie noisy miners)	
Continue to maintain the vegetation communities within the reserve through sustainable management practices such as prescribed burning, environmental weed control and community education.	
Recreation and Access	
Upgrade primary trail both to and within the Reserve for bicycle movements.	
Seek to ensure regular and appropriate financial commitment to implementation of management plan.	
Securing the Corridor	
Ensure that all properties that comprise Chermside Hills Reserve are appropriately gazetted as reserve lands and zoned to ensure their long term protection.	
Actively lobby politicians to dispose of land held for Western Arterial Transport Corridor, and seek to dedicate all areas of environmental significance or worthy as a wildlife linkage.	
Lessons for Other Corridors	
+'ve	Although the natural values of a narrow corridor may be limited, these values can

	be expanded through appropriate incentives for neighbouring properties to have compatible plantings and land uses.
+'ve	Corridors which retain some native canopy vegetation can readily be enhanced through planting of understorey refuges, to improve appeal to bird species from denser forest areas.
-'ve	Close proximity to urban settlement often places pressure on natural areas to be "cleaned up", which may compromised natural values.
+'ve	Inclusion of specific sites into a broader corridor concept can provide greater political argument for more appropriate design options when specific proposals are considered, ie new road corridors.

A.2.3 Raven Street

KEY FEATURES - NATURAL

Raven Street Reserve is a large semi-natural reserve managed jointly by Brisbane City Council and Downfall Creek Bushland Centre (Greening Australia). It is an area of remnant bushland located in the upper reaches of Downfall Creek.

The reserve contains predominantly two vegetation communities. One community is an open woodland dominated by *Corymbia trachyphloia* with a heathy understorey. The other vegetation community is a mixed eucalyptus open woodland with a grassy understorey. A third community occupies the banks of Downfall Creek however this community is heavily degraded by environmental tree and grass weed species.

The sections of Downfall Creek from Maundrell Terrace upstream have been channalised with either earthen banks or concreted banks and bed. Therefore the environmental values of the waterway itself are very low and/or extremely degraded.

As stated above one of the major vegetation communities within Raven Street Reserve is the open woodland with a heathy understorey. This vegetation community is restricted throughout Brisbane and as such is extremely restricted within the Corridor. The nearby Chermside Hill Reserve also contains an open woodland with a heathy understorey, however the canopy tree species are *Eucalyptus racemosa*.

Reportedly some 14 mammal species have been recorded within Raven Street Reserve, along with 11 species of lizards and nine snakes. Eight species of frogs were also located within Raven Street Reserve.

Downfall Creek Bushland Centre is an important focus for environmental activities in Northern Brisbane, consequently the grounds surrounding the centre have been the subject of periodical landscaping, planting and revegetating associated with the centres other functions.

Milne Hill Reservoir is located on freehold land managed by Brisbane Water (corporate section of Brisbane City Council). The land housing the reservoir has significant vegetation coverage and views over the northern Brisbane suburbs.

KEY FEATURES - SOCIAL

Downfall Creek Bushland Centre is the focus for environmental education and extension programs over northern Brisbane, attracting patronage from over South East Queensland. The centre has therefore become the focus for a variety of community interests.

A regular bus service links Raven Street Reserve to Chermside Shopping Centre, except Sundays.

Raven Street Reserve is attractive and well landscaped, there is an extensive network of paths (some informal whilst others are well developed bikeways) with recreational facilities, ie play ground, basketball court, seats, bins.

Milne Hill Reservoir is a local high point and offers limited views over Northern Brisbane. According to signage at the reservoir, the site is open to the public between 6am and 6pm although locked gates, six foot high fences, etc . do not actively encourage patronage. Therefore usage of the site as a lookout is likely to be less than if the site were managed to encourage visitation.

CURRENT INITIATIVES

Negotiations have been underway for some time between Brisbane Water and the Local Asset Services section of Brisbane City Council to release management responsibility for Milne Hill Reservoir and other reservoir sites to parks (with the exclusion of water infrastructure on these sites). This transfer of responsibility is likely to lead to the development of improved visitor facilities and a management regime which should improve the natural values of the site.

There is currently a proposal to undertake significant improvements to the Downfall Creek Bushland Centre including a larger building, greater parking, pathways, with these improvements there is opportunity for greater visitation at the centre.

The Bridgeman Downs/McDowall District Open Space Study prepared by Brisbane City Council in 1996, indicates that Raven Street Reserve is classified as an Urban Nature Park. It also proposes that Milne Hill Reservoir should become an Urban Nature Park and that a Council owned quarry adjacent Milne Hill should become a sporting parkland.

CORRIDOR CONSTRAINTS

Being the location of a transition in landform from a creek based corridor to a hills based corridor, makes Raven Street Reserve a psychological termination point along the Mountains to Mangroves Corridor.

Changes in track grades through Raven Street Reserve also make this area an transition from walking and cycling (associated with the creekline) to being predominantly walking only.

Hamilton Road at the moment presents a limited barrier between Raven Street Reserve and Milne Hill Reservoir, for the movement of people and animals between the two areas. A culvert was installed under Hamilton Road to assist fauna in moving beneath the roadway. At present there are no plans for upgrading Hamilton Road by Brisbane City Council and the Main Roads Department advises it is unlikely that Hamilton Road would connect to the Western Arterial Transport Corridor (if and when that route is ever developed), although it is understood that preliminary designs have been prepared to realign Hamilton Road to a straight carriageway. If such a proposal was instigated there would be significant cut and fill required adjacent to Milne Hill reservoir and it is unclear what impact this might have on pedestrian / wildlife movements in this area.

The retention of all water infrastructure at Milne Hill Reservoir under the control of Brisbane Water is likely to limit visitor potential in this area. The impacts of increased visitation at these localities also needs to be carefully considered in order to ensure all functions of the site can be integrated.

The risk of uncontrolled fires within Raven Street Reserve and Milne Hill Reservoir are anticipated to be low, but should however be planned for, particularly in the provision of visitor facilities.

The proposed development of sporting parkland in an quarry adjacent Milne Hill has the potential to become an important addition to the natural values of the Milne Hill area itself (eg. sporting parkland could be developed with toilets, parking. that could also be used by visitors to Milne Hill. Unfortunately, it is anticipated that there would be design limitations with linking a quarry site to the Milne Hill Reservoir due to differences in height.

Raven Street Recommendations	
Key Priorities	clear future; protection of existing natural values
Ecological and Rehabilitation	
Continue to restore existing vegetation community through concentrated revegetation / bush care programs Rehabilitate pockets of vegetation that would protect desirable animals from aggressive species (ie noisy miners)	
Recreation and Access	
A formal management plan should be prepared for Raven Street Reserve, to integrate the current and future aspirations of the site, BCC, Greening Aust and the local residents. In part this plan should continue to maintain the vegetation communities within the reserve through sustainable management practices such as prescribed burning, environmental weed control and community education. A management plan should also be prepared for Milne Hill Reservoir which would integrate the need to maintain water infrastructure equipment and functions, improve interpretation and visitation of the site, improve quality of the bushland for fauna and incorporate the needs of local residents.	

Securing the Corridor
Transfer responsibility for management for Milne Hill Reservoir to Local Asset Services, to better manage natural values of site. Design of any road realignment should aim to enhance pedestrian / wildlife linkages along the corridor.
Promotion/Awareness
Raven Street Reserve should be promoted as a joining point for the Mountains to Mangroves Corridor. Facilities should be provided to encourage people to leave their cars here and then walk or cycle the Corridor in either direction.
Appropriate signage, visitation and parking facilities should be provided as part of this focus.
Lessons for Other Corridors
-'ve Significant changes in corridor style (ie from a riverine based corridor to hilly corridor) may prove challenging to maintain recreational usage, wildlife potential and promotional image. +'ve Sites with moderate or low natural values can assume greater importance when utilised as part of a larger wildlife corridor. +'ve The stimulus of being part of a corridor may bring about greater recognition of the natural values of specific sites within the corridor, which may lead to improved preservation of those values. +'ve Natural landform diversity can provide greater opportunities for visitor experiences (ie viewing areas).

A.3 Urban Creeks and Parks Unit

A.3.1 Western Reserves

KEY FEATURES - NATURAL

Again, the natural values of Downfall Creek in this area has been substantially altered, through historic land clearing, timber collection and agricultural activities.

Downfall Creek maintains a relatively intact canopy of trees along the watercourse itself (although this canopy is composed of native and introduced tree species).

East of Webster Road, Downfall Creek is located within private and public land. In the private holdings the creek is subjected to agistment of horses and other stock, which impact on the ecological and landscape values of the creek.

East of Webster Road, Downfall Creek maintains a naturally appearing channel. However, due to past disturbances and urban runoff, the creek is not expected to support any significant wildlife.

Huxtable Park is an area of open parkland, which is undergoing a community generated rehabilitation program. The community Bushland Care Program sponsored by the Brisbane City Council's Habitat Brisbane Program is rehabilitating the open eucalyptus woodland of this parkland area.

Through part of Huxtable Park low water flows along the creek are piped underground and only high flows are visible in the reserve. Through this portion the channel is grassed with few trees.

Downfall Creek also passes through a highly channelised section of reserve known as Melaleuca Green, where the creek has been confined to a narrow concrete lined channel, with a straight alignment. Through this section of the creek the natural value of waterway is low.

The soil group through this section of Downfall Creek are the Nundah landscapes which consists of Red-yellow Podzolic soils with red earths derived from low hills of sandstones, shales and clay.

KEY FEATURES - SOCIAL

Wesley General Mission runs an aged persons settlement adjacent to Downfall Creek, which includes significant portions of the creek itself. A community focus such as this settlement is likely to have significant social values for relatives of residents.

Huxtable Park is a well presented and sizeable urban park which has been adopted by a local community group “Neighbours of Huxtable Park”, formed in 1988. Volunteers spend significant time and effort in assisting the council to maintain and develop the park. As such community ownership of this park is strong and as a result little vandalism occurs.

A rainforest enclosure has been developed within Huxtable Park (complete with elevated boardwalk, signage) which has become a focal visitation point within the park, offering as it does a variation in landscape.

Huxtable Park has a well developed network of bikeways throughout the park as well as seating and a bins. The park is well landscaped with many new native plantings which have been developed by the local community group.

CURRENT INITIATIVES

Brisbane City Council has previously identified (in the Chermside Parklands Master Plan) the need to acquire land between Gympie and Webster Roads to enable continuous public access along Downfall Creek corridor. The responsibility for this action was identified as Brisbane City Council as part of the Mountains to Mangroves Corridor.

At present the arrangement for management and development within Huxtable Park is through working agreements between the “Neighbours of Huxtable Park” group and local parks supervisors for Brisbane City Council. At present this relationship is an excellent example of a “partnership” between community and Council which should be encouraged elsewhere along the corridor. There is a need however, to formalise these arrangements and develop a management plan for the reserve to ensure the expectations of the

community group can be meet with long term commitments from Brisbane City Council, and that the park is developed in accordance to an agreed outcome.

A concept plan was prepared internally by Brisbane City Council officers for the naturalisation of the concrete lined channel at Melaleuca Green (ie removal of concrete, creation of meanders). The current status of that concept plan is unknown, although it is understood that support was being sought as part of Integrated Catchment Management initiatives and future Capital Works program.

CORRIDOR CONSTRAINTS

At present a significant part of the Mountains to Mangrove Corridor west of Gympie Road is owned and managed by Wesley General Mission and a number of other landholders. These privately owned lands along Downfall Creek effectively block any public pedestrian/cycle access along the Corridor.

These private lands are affected by flooding and consequently the demand for development of these sites is limited. Therefore although it is anticipated that Council would ultimately secure public linkage through the creation of reserves from development approvals the creation of these links may take some years to achieve.

The isolation of existing public reserves between Gympie Road and Webster Road by these privately owned lands also prevents the integrated development of recreational facilities linking these existing reserves. This may create local resident friction in the future if the council was to develop these reserves (once the public corridor is established) and introduce external visitors to these parks, that up until now have served as quiet neighbourhood green spaces.

Webster Road / Hamilton Road roundabout and Maundrell Terrace creates an imposing physical barrier to public movement along Downfall Creek.

The narrow width of the creek west of Maundrell Terrace (Melaleuca Green) presents a visual challenge to create an attractive and natural setting in a reserve where adjacent houses are highly visible.

The economic viability of removing concrete lining of the creek at Melaleuca Green and restoration of natural features is doubtful, as large capital funds would be required. Such a project would be worthwhile from the perspective of a public relations / demonstration project, although justification for such a proposal would be reliant upon significant funding becoming available.

Western Reserves Recommendations
Key Priorities safe road crossings; secure public parkland
Ecological and Rehabilitation
The naturalisation of Downfall Creek at Melaleuca Green could prove a useful demonstration project for the reinstatement of natural features along a highly urbanised and constrained corridor, if external funding can be obtained. Areas of Huxtable Park and nearby reserves should continue to be rehabilitated with locally indigenous species.
Recreation and Access
Concerted effort should be directed to providing a safe and convenient pedestrian/cycle connection across Webster/Hamilton Road Roundabout and Maundrell Terrace. If practical roundabout could also become an important focal point on the Corridor with usage of signage and appropriate landscaping. Isolated parklands between Gympie and Webster Roads should be developed as soon as practical with improvements that would ultimately be needed on these reserves. (This would minimise future resident alienation when the usage of these reserves to more regional usage). To illustrate commitment to the "Neighbours of Huxtable Park", a management plan should be developed by Brisbane City Council with major input from this community group. Such a management plan should establish the future development priorities within Huxtable Park and have agreed commitments towards funding of priority projects for the next 0-3 years.
Securing the Corridor
Negotiations be pursued with vigour by Brisbane City Council to acquire private lands along Downfall Creek between Gympie and Webster Roads. If these lands can not be voluntarily acquired then negotiations should be undertaken to enter into a public access agreement with the private owners of these lands.
Lessons for Other Corridors
+'ve Community groups can prove to be a great alliance in undertaking physical work on elements of a corridor through voluntary assistance and political pressure.

-'ve	Facilitation of community groups may require significant input to ensure common goals are achieved and efforts of community group are appropriately recognised.
-'ve	Creeks which have been greatly modified to improve flooding performance, will require extensive capital to restore their natural values, which may be unrealistic given other funding priorities.
+'ve	Small pockets of privately owned land can often be targeted for public acquisition as they may not be that expensive and may provide almost immediate return for that investment (ie completion of public trail, improved movement, greater promotion and visitation).

A.3.2 Chermside Parks

KEY FEATURES - NATURAL

Downfall Creek

The natural features of Downfall Creek have been substantially modified in this area, reflecting the high degree of urbanisation through this portion of the creek. Following World War II, to allow for returned soldiers settlements, large scale earthmoving projects modified many of the natural topographic features of the region, ie. hills cleared and flattened, and local depressions filled.

Despite historic disturbances, the actual watercourse of Downfall Creek has not been significantly channelised and maintains a variety of natural riparian characteristics (eroding banks, waterholes, shallow ripples.) through the interconnected reserves.

Vegetation

Vegetation along the creek has been subjected to extensively clearing and infestation by weed species. Vegetation away from the creek was predominantly removed entirely. Limited areas of tree planting has been undertaken within the Corridor in association with recent park developments within the parklands.

The remnant vegetation communities are tall open woodland that contain *Eucalyptus tereticornis, Corymbia intermedia, E. racemosa* and *E. siderophloia*. *Acacia aulacocarpa* and *A. leiocalyx* along with *Allocasuarina littoralis* dominate the remnant understorey. A selection of indigenous and exotic grasses and herbs make up the groundcover.

Seventh Brigade Park

The Seventh Brigade Park is a significant open space area contained within this section of the Corridor and has the greatest potential to be developed as a vegetative node. This area has historically been utilised for a range of active sporting activities necessitating the alteration of the natural landscape and removal of vegetation from within the reserve. Over the last six years areas of the Seventh Brigade Park have undergone rehabilitation to restore some of the vegetation communities to the area to enhance the aesthetic values of the reserve and to contribute to the waterway corridor and habitats within this section of Downfall Creek.

Soils

The soils through this section of the Corridor belong to two main soil landscapes. The immediate area along the waterway is the Eprapah Soil landscapes which consists of Gleyed Podzolic soils with alluvial soils and humic gleys derived from low terraces of silty alluvium and flood plains of coastal streams. The other main soil group is the Nundah landscapes which consists of Red-yellow Podzolic soils with red earths derived from low hills of sandstones, shales and clay.

KEY FEATURES - SOCIAL

Chermside Centre has been identified as a Regional Business Centre and will be a major employment node and the major centre for serving the northern sector of Brisbane City. Chermside Regional Business Centre is also expected to be a major busway station and public transport interchange.

Despite this level of high activity immediately adjacent to the Chermside Parklands, the parklands themselves are largely under utilised. The large size of Chermside Parklands (150 ha) and the proximity to the Regional Business Centre, suggest these parklands have the potential to become significant metropolitan parklands with high visitation and community usage.

A major “Kidspace” area has been developed within the park to encourage local and regional children. The local community was encouraged to play a large role in the design and construction of this facility.

Both 7th Brigade Park (74 ha) and Marchant Park (55 ha) have a rich European heritage. Known originally as Sparkes' and Murphy's Paddocks these areas were originally utilised for shingle and timber cutting, holding yards for cattle abattoirs, breaking in horses during WWI, troop encampments during WWI and WWII, and a foundry. Unfortunately, there are few physical reminders of this history with the exception of the commemorative gates on Marchant Park.

CURRENT INITIATIVES

Due to the proximity of the reserves which make up Chermside Parkland to the Chermside shopping and business centre, considerable interest has been shown by major developers and landholders in sponsoring upgrades of the parks.

Extensive planning has been undertaken of the Chermside Parklands by Brisbane City Council, in recognition of the regional nature of these parklands (Chermside Parklands Master Plan Nov. 1996 and Chermside Parklands Planning Study Dec. 1996). The Master Plan (which was prepared following community consultation) provides a 20 year vision for the development of the Chermside Parks.

Key elements of the Master Plan include: being a core component of Mountains to Mangroves concept, embracing a large variety of activities (including sporting, community, regional playscape, open air stage, environmental, historic precincts, family orientated places), improved access, greater connection of parklands to local residents and improving the aesthetic settings associated with the parklands.

A major component of the Master Plan is the formation of a lake system in the heart of the parklands. Such a feature would provide excellent opportunities for enhanced environmental and interpretation values.

The findings of the Chermside Parkland Master Plan were reinforced in the Chermside Regional Business Centre Development Control Plan (which applies to development in this area).

The community and the Council are undertaking bushland rehabilitation projects within the reserve with the objective of restoring some of the attributes of the original vegetation communities that may have occurred in this area.

Additional work such as the construction of riffles, pools and snags is required to increase the quality and quantity of in-stream habitats with the section of the Corridor for the aquatic and amphibious fauna species.

CORRIDOR CONSTRAINTS

Despite the proximity to numerous major roads, a public transport node at Chermside Shopping Centre and high profile to Gympie Road, site access and usage of the Chermside Parks is poor.

The Master Plan for Chermside Parklands provides a 20 year vision for the parklands. Some of the concepts within such a Master Plan will require major capital expenditure. Current annual budget processes are unlikely to result in such concentrated expenditure being approved through Brisbane City Council. Consequently large portions of Chermside Parklands may remain under-utilised for years to come.

The potential high profile of the Chermside Parklands, places the parklands at risk of being dominated by high profile activities (which may not be part of the current Master Plan), possibly to the detriment of passive or environmental uses of the parklands.

The sheer size of the Chermside Parklands (some 150 ha) and the amount of improvements that could be undertaken, makes community ownership of the parklands and comprehension of needed work difficult. Thus the potential for community involvement in park projects may be limited to peripheral issues and sites.

This area provides the best opportunity to develop a substantive vegetative node along the Mountains to Mangroves Corridor. It is likely that flooding concerns will however limit the extent of revegetation which is feasible within the Chermside Parklands. There is also community hesitation regarding the existence of bushland areas within close proximity to residential areas.

Beneke's Bush a remnant bushland area within Prince Charles Hospital (south of Hamilton Road) provides a disjointed refuge area to the south of the Mountains to Mangroves Corridor. The value of areas like Beneke's Bush in providing temporary refuge along the

corridor, and a reserve for local plant and animal provenances should be recognised and enhanced as part of the management of these areas.

Chermside Parks Recommendations	
Key Priorities	implement existing plans; aesthetic revegetation
Ecological and Rehabilitation	
Substantial effort be directed towards extensive tree planting / revegetation over the site.	
Investigate options to increase and develop in-stream habitats for aquatic fauna. Eg pools and riffle, 'snags', holes in the bank, diversity of habitat values in lake design, etc.	
Council continue to rehabilitate areas of the Reserve which will not result in flooding impacts upstream of Gympie Road.	
Remnant vegetation within Beneke's Bush be rehabilitated and interpreted as an extension to Corridor.	
Securing the Corridor	
Greater financial commitment to the implementation of the Chermside Parklands Master Plan.	
Lessons for Other Corridors	
+'ve	Major regional centres provide the potential to create wide exposure and access to the corridor for social activities.
+'ve	Corridors can often provide linkages to remnant areas not always in physical contact with the corridor. Remnant refuges which are large enough can provide important seed sources and animal refuges for the re-establishment of natural communities within the corridor.
+'ve	Historical links to existing parklands provides an avenue for greater interpretation and community ownership of the corridor.
-'ve	The scale of regional capital improvements can often endanger the viability of such works unless appropriate regional funding can be secured.

A.3.3 Eastern Reserves

KEY FEATURES - NATURAL

East of Newman Road, Downfall Creek passes through a relatively narrow corridor of Council reserves, between residential and industrial estates. Natural vegetation has been

extensively cleared with the exception of a highly altered canopy of predominantly eucalyptus trees. The creek channel appears to have been modified through filling and leveling of land adjacent the creek. In some locations it appears significant earthworks has reshaped the banks and tributaries of Downfall Creek.

A variety of native and exotic trees and grasses occur along the creekline often obscuring the actual watercourse. Planting within the reserve corridor has been very limited with no significant revegetation noted. It is anticipated that the current vegetation communities would offer only minor wildlife habitat for aquatic fish, amphibians and birdlife that are common in urbanised habitats.

KEY FEATURES - SOCIAL

There are no significant individual social elements along this portion of Downfall Creek. However, the presence of Virginia State School and proximity to Virginia Railway Station suggest the potential for increased visitation and usage of the Corridor.

It appears that cycle paths/footpaths are linked the entire length of this portion of Downfall Creek. The reserves that make up the Downfall Creek corridor also have basic visitor facilities (ie seats, shelters, bins).

CURRENT INITIATIVES

There are no known initiatives for any portion of parkland along this section of the Corridor.

CORRIDOR CONSTRAINTS

The Mountains to Mangroves Corridor is limited in width by established residential and industrial estates. The lack of any future development adjacent to the reserve is likely to result in a lack of impetus of external funding for improvement works within the Corridor.

The narrow width of the reserves would make it difficult to undertake substantial landscaping works to modify the experiences of the reserve user. However, additional landscaping would be of benefit in screening the built form along the Corridor.

The size of the open space within this section, the proximity of the residential development and the flooding constraints virtually eliminate the opportunity to develop a sustainable vegetative corridor through this section.

Eastern Reserves Recommendations
Key Priorities upgraded landscapes; in-stream habitat; railway station
Ecological and Rehabilitation
Coordinated landscaping should be undertaken along the reserves to achieve an attractive, shady and unifying landscape feeling for park visitors. A review of stormwater outlets along this portion of the creek should be undertaken, to reduce risk of pollution within the creek. Interplanting of suitable canopy species should be undertaken to achieve an aerial corridor for movement of birds and arboreal mammals. Neighbouring residential communities be encouraged to participate in the development of the vegetative corridor by providing expert advice and plants to re-establish the vegetative corridor. Investigate options to increase and develop in-stream habitats for aquatic fauna. Eg pools and riffle, 'snags', holes in the bank etc.
Promotion/Awareness
Greater promotion of the linkage and integration of Virginia Railway Station should be encouraged. (For example Virginia Railway Station could be promoted as a major node for cycling, walking along the Mountains to Mangroves Corridor).
Lessons for Other Corridors
-'ve Traditional urban land divisions rarely provide sufficient width to retain the natural values associated with streams and creeks. -'ve Further alienation of creek corridors for recreational activities, can further deteriorate wildlife values. -'ve Close proximity of urban residences places increased pressure on linear reserves to be maintained to higher visual standards than may be desired to enhance natural values. +'ve Adjacent residents can become major allies in demanding corridor improvements through community pressure on to politicians and bureaucrats. +'ve Major transport nodes to service the urban residences can provide good access to the corridor for visitors from outside the immediate area. +'ve Creeks which have not been concreted or piped retain greater potential of rehabilitation to improve natural values than creeks which were heavily modified to

improve drainage functions.

A.4 Coastal Plains Unit

A.4.1 Virginia

KEY FEATURES - NATURAL

Nudgee School

Nudgee School fronts onto Sandgate Road and backs onto Nundah Creek and also has Zillman Waterholes as another southern boundary. The rear portion of the property has been used for agricultural purposes and has been linked to educational activities run by the School.

A portion of the property still contains some assemblages or attributes of previous vegetation communities and as the creek has been filled with sediment, mangrove plant species have moved upstream to occupy new habitats created from this sedimentation.

The creek banks and flood plain contain a mix of *Sporobolus virginicus* grasslands, and a mix of *Casuarina glauca* and *Melaleuca quinquenervia* open woodland.

Downstream of the junction of Downfall Creek and Zillman Waterholes the waterway changes its name to Nundah Creek. The junction is located within the area owned by Nudgee College.

Downfall / Nundah Creeks

Downfall Creek consists of two distinct units through this section. Below Virginia Golf Course Downfall Creek becomes Nundah Creek, following the junction with Zillman Waterholes. Nundah Creek is characterised by a number of well defined oxbow meanders. The creekbanks in this unit support limited stands of mangroves and other tidal vegetation. Although the floodplains have in general been extensively cleared in the past, well developed regrowth of Melaleuca / Eucalypt woodlands now occurs in patches behind the creek.

It is anticipated that the bends in Nundah Creek in this area would create a variety of habitats making this area an ideal fish and crustacean nursery area. Given the absence of development adjacent to the creek through this unit, it is likely to also provide important roosting opportunities for birdlife from the nearby Boondall Wetlands. It is also likely that portions of Zillman Waterholes may also display similar wildlife potential.

Prior to the confluence with Zillman Waterholes, Downfall Creek also passes through and runs adjacent the Virginia Golf Course. In this area the natural values of the creek have been highly modified, with the construction of fairways and greens in close proximity to the watercourse. It is also probable that the natural course of the creek may have been modified through filling associated with the golf course.

Golf Course

Tidal influences through the golf course are rare and the vegetation as a result along the creek supports greater eucalypt and freshwater species. Whilst the highly modified environment of the golf course may not support diverse aquatic or ground fauna, it is expected that the trees within the golf course would provide habitat for common urban birds and arboreal mammals.

Through this area both Downfall Creek and Zillman Waterholes flow behind an industrial estate where disturbances of the natural creek would also be expected (ie filling, dumping, stormwater discharge).

Soils

The soils in this area are of Woongoolba landscape that contains Humic gleys, peaty gleys and solonchaks, Logan landscapes of Alluvial soils and some humic gleys, Redlands landscapes with Krasnozems derived from low hills of deeply weathered (laterised) basalt and clay (Beckman et al 1987).

KEY FEATURES - SOCIAL

Elliott Road Reserve is the only Council reserve adjacent Nundah Creek west of the Sandgate Railway. It has only been partially developed as a local sporting reserve with significant natural areas remaining. This reserve also serves as a local youth focus, as a skateboard ramp built near Nudgee Railway Station is used by local and visiting youths.

Nudgee College is a significant landowner immediately north of Nundah Creek in this area, controlling some 136 ha of land. Nudgee College has recently recognised the value of the riparian vegetation and Melaleuca wetland community within their land, by entering into a Voluntary Conservation Agreement (VCA) with the Brisbane City Council, which covers some $31^{1}/_{2}$ ha. This VCA aims to maintain and enhance the natural condition of the land, by agreeing not to develop subject land for any purpose outside the VCA's aim. Nudgee College is a well recognised educational institution and has utilised the natural areas around the college for part of its environmental component within their curriculum.

As yet there are no formal tracks or trails open to the general public through the grounds of Nudgee College.

Padua College also maintains sporting grounds adjacent Nundah Creek on Elliott Road. However, as the college is not located locally (campus is located in Kedron) it would appear that use of these facilities is limited and grounds are only basically maintained.

Virginia Golf Course is an attractive and significant landmark along Sandgate Road. It also provides a formal recreational resource for golfers in the northern Brisbane suburbs. The golf course has also been utilised in the past by local residents as a venue for walking dogs and jogging. The erection of security fencing adjacent to residential areas has seen this informal recreational usage heavily restricted.

CURRENT INITIATIVES

At present there is only one property with immediate creekside access in this area that is publicly owned, all other lands along the creek are in private ownership.

Nundah College has recently entered into a Voluntary Conservation Agreement with Brisbane City Council to maintain and enhance the natural condition of their land.

Water testing in Zillman Waterholes in 1995 found elevated levels of heavy metals (possibly as a result of industry in area). Through the Interim Nundah/Downfall Creek Catchment Management Plan, a number of strategies are proposed which should improve ecological functioning, maintenance of high water quality and flood reduction.

CORRIDOR CONSTRAINTS

Development of the recreational linkages along the Mountains to Mangroves Corridor is limited by an absence of public access to the Downfall and Nundah Creeks in this area. As much of the private land in this area is subject to significant flooding problems these properties also have limited development opportunities, indicating that securing of public land through development approvals could not be relied upon.

Virginia Golf Course also provides a significant barrier to any potential pedestrian movement along Downfall Creek. It is also unclear whether the roads surrounding the golf course could be utilised as an alternative route for any future walking/cycle trails along Downfall Creek. Future development of public access through the golf course is unlikely given existing layout of course and public liability issues.

Obviously the golf course does not present the same barrier to the movement of aerial fauna and birds, although type of tree species present in the golf course, the extent of shrub and ground cover species and the density of vegetation can all influence the type and number of birds and animals that would utilise the golf course.

Virginia Recommendations

Key Priorities	monitoring water quality; long term pedestrian access through private lands; maximise fish habitats

Ecological and Rehabilitation

Regular monitoring of water quality in sub-catchments, to identify point source pollution industries and target utilising EPA.

Negotiate with existing property owners along Nundah Creek to encourage revegetation work, possible trail access and land management practices.

Assist Golf Course and large property owners along Corridor, in developing and implementing a vegetation management plan, to enhance habitat values for local wildlife.

Seek to rehabilitate riparian vegetation along Nundah and Downfall Creeks and Zillman Waterholes, to improve fish habitats.

Recreation and Access

Negotiate with Nudgee College and Virginia Golf Course to determine feasibility of public access arrangements through these properties as part of Mountains to Mangrove Corridor (fund trail construction works if appropriate).

Securing the Corridor

Failure to secure public access along Downfall and Nundah Creeks, should see greater effort in securing public access along surrounding road reserves and along Zillman Waterholes to enable public access along Corridor.

Promotion/Awareness

Utilise and assist Nudgee and Padua College and Virginia Golf Course in promoting Mountains to Mangroves strategy through fetes, interpretive material, education programs.

Lessons for Other Corridors

-'ve	Properties subject to flooding often have high natural values due to limited development potential, however lack of development incentives may also prevent opportunities to secure important linkages in public ownership.
-'ve	Golf Courses and similar low intensity developments often retain important visual attributes but can have limited opportunities for recreational linkages and wildlife corridors.
+'ve	Private tenure/control of important natural areas does not always prelude protection of those values although public access to such areas can often be difficult.
+'ve	Educational institutions can often have similar interests as public agencies and common ground can often be established to maximise resources.

A.4.2 Boondall

KEY FEATURES - NATURAL

Vegetation

The most significant area within the coastal section of the Corridor is the Boondall Wetlands Reserve. This reserve is an area of Brisbane City Council managed land covering some 665 hectares and which contain several significant vegetation communities and habitats within Brisbane City and the Moreton Bay region.

The vegetation communities within this reserve have been identified as:

- Mangroves;
- Salt marshes;
- Open forest/woodland dominated by *Melaleuca quinquenervia*;
- Grassland dominated by *Sporobolus virginicus*;
- Open woodland dominated by *Casuarina glauca*;
- Open Forest / Woodland dominated with a mix of Eucalyptus, Melaleuca and Casuarina species.

In addition to these major vegetation communities several smaller communities exist on habitats conducive to their sustainability. These include:

- Open woodland dominated by *Callistemon salignus: and*
- Small individual 'scrubs" which contain a restricted diversity of softwood scrub species such as *Cupaniopsis anacardioides, Alphitonia excelsa* and *Jagera pseudorhus*.

In the past, fire has impacted on the biodiversity of the reserve through a frequent fire regime. The high fire frequency has assisted in removing the understorey and restricting its re-establishment within the open woodlands throughout the reserve. Initial removal of the understorey would have been a combination of physical removal to enhance the area for stock grazing and the use of frequent fire to assist in the maintenance of the grassy groundcover.

During this period many of the seed obligated plant species have disappeared from the reserve with the vegetative obligate species being sustained through this management

regime. As the area is now being managed by the Brisbane City Council and grazing has been removed there are opportunities to reintroduce understorey plant species to improve the biodiversity of the wetlands reserve.

Habitats

The habitats provided by this wetland reserve are based around the waterways that traverse the area and the interface with Moreton Bay. These habitat types have become significantly restricted within the region due to changes in the sediment deposits resulting in the invasion of sandy areas by mangroves. In addition there have been claims that substantial increases in toxic chemicals being deposited into the saline muds may have resulted in the death of whole families and even some Classes of macro-benthic fauna (ie. certain types of mussels). This degradation in food availability has resulted in a decrease in the diversity and abundance of bird species utilising the wetland habitats in the reserve and adjacent areas.

The estuarine creeks within and adjacent the Boondall Wetlands are recognised as important nursery areas for marine fish and crustaceans, which are commercially and recreationally important within Moreton Bay.

Migratory birds

These degraded habitats still provide nesting roosting and feeding locations for migratory bird species covered under international agreements with other countries that relate to protection of habitat eg the JAMBA and CAMBA agreements. The Boondall Wetlands Reserve is also considered to be part of a series of protected areas by the State and local governments, which are based around the Moreton Bay Marine Park. Boondall Wetlands and various other sites around Moreton Bay are also listed under the RAMSAR Convention on Wetlands of International Importance, which seeks the sustainable management of the natural properties of Moreton Bay.

Nudgee Beach lies to the south east of Boondall Wetlands and is a small settlement between the wetlands and Moreton Bay. From Nudgee Beach the tidal mudflats of Moreton Bay can be accessed at low tide. These mudflats are important feeding areas for many of the migratory waders that utilise Boondall Wetlands.

Wildlife management

Boondall Wetlands Reserve also has terrestrial problems that continually impact on its environmental values. These impacts come from pest animals such a foxes and cats which prey on indigenous fauna while the environmental weeds such as Broad leafed pepper tree displace indigenous plant species from their preferred habitats. Recently feral pigs have bred within the lands around Brisbane airport and are now impacting on the values of Boondall Wetlands.

The possible reintroduction of macropods such as wallabies has been suggested as a future management initiative for Boondall Wetlands. Although the public benefit from such a re-introduction would be substantial, there are also limitations for such actions. For example, the size and location of the Reserve may not lend itself to macropod reintroduction, due to pest species, the gateway arterial and distance from other macropod communities. The future management of these animals in relation to the diversity of the wetlands, also needs to be carefully considered, ie. over population of wallabies could prevent rehabilitation of grassland areas.

KEY FEATURES - SOCIAL

Boondall Wetlands Reserve has been the focus of significant recreational infrastructure development over the last six years which has included walking tracks, bikeways, boardwalks, bird hides and a visitor centre. The development of a vegetation rehabilitation program, a fire management plan and a visitor information and interpretative programs have augmented these works.

Currently there are two bird-hides and one boardwalk located near Nudgee Beach township and at the junction of Cabbage Tree Creek and Nundah Creek. A bikeway links the Boondall Railway station to the Boondall Wetlands Visitor Centre and the Nudgee Beach Road. Walking tracks also lead out from the Visitor Centre in a circuit to allow visitors to the reserve to experience the Melaleuca and Casuarina open woodlands.

A boat ramp has also been constructed on the western bank of the Kedron Brook floodway (Schulz Canal) which allows access to Moreton Bay and the Kedron Brook floodway and is extremely popular on weekends. Basic visitor facilities (parking, picnic, toilets.) have also been provided at the boat launching site.

Boondall Wetlands is also a major venue for canoeing and low impact nature based activities. In addition a canoe trail has also been established which links a launching ramp on Nudgee Creek at Nudgee Beach Township to Nundah Creek via a 100-metre boardwalk. This canoe trail then extends up Nundah Creek to approximately where the rail line crosses the creek some three kilometres upstream. Fishing is a common activity both within the wetlands and in nearby Nudgee Beach.

Boondall Wetlands Visitor Centre has become a popular interpretation resource which provides a range of holiday / weekend education activities. Nudgee Beach Environmental Education Centre provides a curriculum based environmental educational program for school groups from throughout Queensland.

CURRENT INITIATIVES

Boondall Wetlands is owned and managed by Brisbane City Council, with advice from a community based management committee. Other natural areas managed by Brisbane Airport, the Commonwealth and various State departments are in close proximity to the wetlands, and are utilised by local and migratory wildlife.

Brisbane City Council is also responsible for the management of two other largely natural properties in the area, Boondall Entertainment Centre, and land adjacent Schulz Canal. The remainder of the Boondall Entertainment site has been earmarked for future commercial uses, despite the significant nature of the vegetation within the site. Land adjacent Schulz Canal has the potential to be developed with more intensive recreation which would compliment the nature based recreation facilities provided in the adjacent wetlands.

A Management Plan was prepared for Boondall Wetlands in 1991. In the years since its adoption, Boondall Wetlands has been fortunate in attracting significant funding, which has allowed the implementation of many of the recommendations from within the management plan. As such the current management plan is now dated and in need of renewal.

A business plan has recently been compiled for the Boondall Wetlands Visitor Centre which will provide direction for future activities and promotional programs (including

entrepreneurial) associated with the centre. Boondall Wetlands role within the Mountains to Mangroves Corridor is recognised within the business plan.

The Boondall Wetlands Reserve is zoned Conservation whilst the area around the visitor centre is zoned Open Space which would allow for the development or construction of a greater range of infrastructure such as buildings and car parks.

In recent years there has been considerable exploration, documentation and interpretation of the history of Boondall Wetlands, this information is presented in a website address (http://brisbane-stories.powerup.com.au).

CORRIDOR CONSTRAINTS

The Gateway Arterial Road, a railway line and lack of public land prove a formidable barrier to pedestrian movement between Boondall Wetlands and Downfall Creek. Whilst canoes can travel under the Gateway Arterial, facilities for canoes have not been provided west of the Gateway Arterial.

It would appear that the loss of natural values associated with any expansion to Boondall Entertainment Centre would significantly impact on the overall natural values of the Boondall Wetlands area.

Boondall Recommendations	
Key Priorities	restore natural diversity; monitor environmental health; canoe focus; consolidation of wetland reserves; tap into existing visitor programs.
Ecological and Rehabilitation	
Undertake an assessment of the ground dwelling and arboreal fauna with Boondall Wetlands Reserve to determine base line data with respect to the faunal diversity and abundance and the Corridor opportunities for these fauna species.	
If appropriate, suitable native mammals should be reintroduced to the reserve, to further expand on the natural values of the wetland.	
Continue to undertake rehabilitation of the understorey of all vegetation communities within the Reserve, with the exception of the Grassland and Saltmarsh communities.	
Establish monitoring stations within Boondall Wetlands Reserve to develop data to assess	

environmental change within the vegetation communities within the Reserve.

Recreation and Access
Canoe facilities should be provided in parkland west of the Gateway Arterial Road and promoted as part of the Boondall Wetlands recreation opportunities. As an interim measure consideration be given to providing pedestrian and bicycle linkage between Boondall Wetlands and Downfall Creek parkland areas through existing road and reserve networks. The area west of the Gateway Arterial be developed to provide nature based recreational opportunities which may link through to Sandgate Road. The link could be established on either side of Nudgee Creek depending upon negotiation with the respective landowners.

Securing the Corridor
An analysis should be undertaken of the future development potential within the Boondall Entertainment Site to determine the extent and area of possible development. Areas which are identified as being inappropriate for development due to flooding or environmental/scenic values should be amalgamated into the Boondall Wetlands and managed to enhance the natural and social values of these area. Similarly, other land managed by BCC should be reviewed to determine possible amalgamation into the Boondall Wetlands Reserve. Consideration should be given to the possible long term acquisition (through environmental levy funds) of flood affected properties west of the Gateway Arterial in order to provide continuous public access to Downfall Creek. The area of bushland west of the Gateway Arterial and South of Bicentennial Road be set aside for nature conservation purposes and be incorporated into the Boondall Wetlands Reserve.

Promotion/Awareness
All future lands managed as part of the Boondall Wetlands Reserve will require visitor facilities which are complimentary to existing management strategies, most particularly along potential east-west linkages. Management of Boondall Wetlands should continue to focus on protection of natural values whilst providing for nature based recreational pursuits. Promotion of the Corridor should be based heavily upon existing initiatives being implemented through Boondall Visitor Centre

Lessons for Other Corridors	
+'ve	Boondall Wetlands is an excellent example of a corridor based upon regionally significant natural areas, with a variety of existing complimentary interpretation mechanisms.
+'ve	Opportunities to provide diverse recreational and interpretive experiences allows the corridor to be accessed and promoted to a wider audience.
-'ve	Too much diversity can reduce the impact of the corridors marketing potential.

-'ve	Major transport corridors can dramatically sever natural and recreational corridors unless consideration is given to appropriate grade separation in the design of the road, railway, etc.
-'ve	Large natural areas can often be considered by decision makers as an under-utilised resource with pressure on natural buffer areas to be utilised for land uses offering potentially higher financial returns (ie Entertainment Centres, Commercial or Private Land Uses)