# Airport Link

## Phase 2 – Detailed Feasibility Study

CHAPTER 11

FLORA AND FAUNA

- October 2006

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# 11. Flora and Fauna

*This chapter addresses Section 5.6 of the Terms of Reference. It describes the terrestrial and aquatic habitat values within the study corridor. Ecological values are determined using existing Council and State Government data, published literature and site surveys. A full description of the study is provided in Technical Paper 7 – Flora and Fauna in Volume 3 of the EIS.*

*Potential impacts of the project on these environmental values are assessed and mitigating environmental management measures recommended for identified negative impacts, if any, caused by the project.*

## 11.1 Description of Existing Environment

The flora and fauna assessment is based on an analysis of background information and field investigations undertaken.

### 11.1.1 Methodology

In describing the terrestrial and aquatic flora and fauna of the study area the following data sources were used:

- Searches of the Queensland Herbarium, the Queensland Museum, the Environmental Protection Agency and the EPBC Act Protected Matters (Department of the Environment and Heritage) databases;
- Surveys undertaken by Brisbane City Council and Kedron Brook Catchment Network; and
- Information on existing significant trees and groups of trees within the study area from BCC.

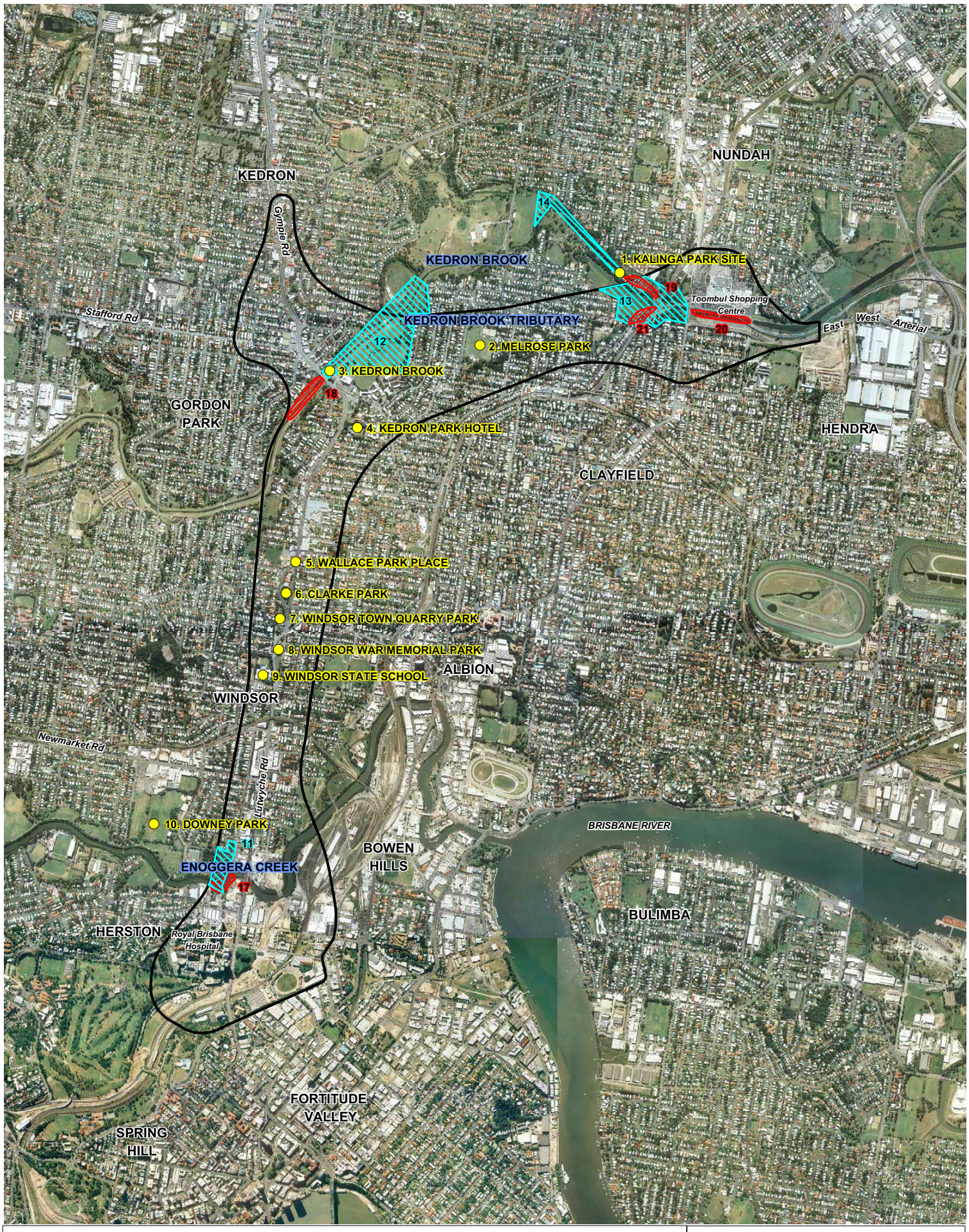
The conservation status of the flora and fauna species occurring in the study area have been assessed in the local, state and regional context with reference to the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, the Queensland *Nature Conservation (Wildlife) Regulation 1994* and BCC's Natural Assets Planning Scheme Policy.

A 'Waterway Management Plan' for the Enoggera Creek catchment was produced by Brisbane City Council in June 2004. This involved the assessment of the health of Enoggera Creek at 33 sites within the catchment, three of which are located within or in close vicinity of the study corridor. Indicators used to assess the environmental health of the ecosystem include riparian vegetation, instream habitat, macroinvertebrates, water quality, sediment quality and litter. A review of fauna across the catchment was also conducted.

Furthermore, a study on 'An Assessment of the Fauna Habitat along Kedron Brook' was undertaken by the Wildlife Preservation Society of Queensland in December 2001. This report describes the potential and existing fauna habitat along Kedron Brook and is based on field inspections and observations by Bushcare groups.

Field investigations were undertaken in November and December 2005 and in February 2006 to verify general findings of background data. To assist in describing the terrestrial ecology of the study area, ten sites were selected for surveying. These sites are parks and open spaces which have potential ecological value. These are listed in **Table 11-1** and the locations shown on **Figure 11-1**.

Terrestrial flora and vegetation was assessed at each of the survey sites, where lists were prepared of the species present during the field investigation. The survey sites were traversed and dominant plant species identified within each area. Incidental fauna sightings were noted and habitat values were assessed.




**LEGEND**

- Airport Link Corridor
- Aquatic Survey Sites
- Fauna Survey Sites
- Terrestrial Survey Sites

**Figure 11-1**

**Terrestrial and Aquatic Ecology Sites**

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Airport Link

SKM Connell Wagner JOINT VENTURE

### Table 11-1 Study Corridor Sites

| No. | Study Area Site | Description |
|---|---|---|
| 1 | Kalinga Park adjacent to Sandgate Road | The eastern section of Kalinga Park, under North Coast rail line to the lower park of Toombul Shopping Centre. |
| 2 | Melrose Park, Wooloowin | The watercourse in the southern section of the Park, adjacent to the play ground. |
| 3 | Kedron Brook, adjacent to Gympie Road | The section of Kedron Brook for 300 m upstream and downstream of the Gympie Road bridge. |
| 4 | Wallace Place Park (D1411), Lutwyche | The park at the northern end of the traffic island between Lutwyche Road and Truro Street. |
| 5 | Clark Park (D0507), Lutwyche | The park at the southern end of the traffic island between Lutwyche Road and Truro Street. |
| 6 | War Memorial Park (D0506), Windsor | The park between Lutwyche Road and Roblane Street. |
| 7 | Windsor Town Quarry Park (D1300) and Windsor Shire Chambers | The quarry park and adjacent Shire Chambers, between Palmer Street and Lutwyche Road. |
| 8 | Kedron Park Hotel, Wooloowin | The carpark of the Kedron Park hotel. |
| 9 | Windsor State School, Windsor and 270 Lutwyche Road, (Officeworks) | The western side of these properties. |
| 10 | Downey Park, Enoggera Creek and Northey Street City Farm, Windsor | The area on the northern side of Enoggera Creek from Bowen Bridge to Downey Park. |

A fauna survey involving diurnal bird survey and nocturnal searches was undertaken over 9 days in February 2006 at locations with vegetation and areas of habitat within the study corridor and spoil placement sites. **Table 11-2** lists the fauna survey sites. Details on surveys at spoil placement locations are provided in Technical Paper 7 – Flora and Fauna in Volume 3 of the EIS. The spoil placement site at Fisherman Islands was not surveyed, as it is a reclaimed area and does not currently have any habitat values. A stretch of Kedron Brook to the north of Kalinga Park was investigated for platypus, including incidental fauna sightings.

### Table 11-2 Fauna survey sites

| No. | Study Area Section | Description |
|---|---|---|
| 11 | Northey Street | The area north of Enoggera Creek near the Royal Brisbane Hospital. |
| 12 | Mercer Park | The section of Kedron Brook upstream of the Gympie Road bridge. |
| 13 | Kalinga Park and Ross Park | The entire area of both Kalinga and Ross Parks, extending to the lower park of the Toombul Shopping Centre. |
| 14 | Kedron Brook, Kalinga Park | Stretch of Kedron Brook north of Kalinga Park investigated for platypus and incidental fauna sightings. |
| 15 | Clunies Flat | Spoil placement site at Lytton under control of the Port of Brisbane. |
| 16 | Viola Place | Spoil placement site at Brisbane Airport – along Viola Place. |

The diurnal bird survey involved an early morning count, which was conducted from dawn for two hours, and a late morning count was conducted between two and four hours after dawn. During the diurnal bird survey incidental sightings of terrestrial and aquatic fauna were recorded.

The nocturnal searches involved the use of a spotlight to search for nocturnal mammals, arboreal and semi-arboreal mammals. In conjunction with the nocturnal searches an ANABAT II and ANABAT CF Storage ZCAIM was used to detect microchiropteran bats. A call playback session (targeting birds and amphibians) was used to identify any species within the vicinity of the monitoring location. Each call playback session involved

an initial ten minute listening period, where calls from arboreal mammals and nocturnal birds were recorded, followed by the broadcasting of pre-recorded calls. After the calls were played, each observer scanned the immediate area by spotlight for five minutes. Within the study area, the bird and nocturnal surveys were conducted at each site twice, and once at the spoil placement sites.

For the aquatic surveys, strategic sites of the study area relating to creek crossings or surface works in adjacent areas were chosen from aerial photos and study corridor mapping. One site on Enoggera Creek was chosen for more detailed survey of riparian vegetation and observations associated with instream habitat and aquatic fauna. This site is located at Bowen Bridge on Lutwyche Road. Three sites along Kedron Brook were also surveyed, in the vicinity of Gympie Road, at Kalinga Park and near the intersection of Sandgate Road and the East-West Arterial. **Figure 11-1** shows the location of the aquatic survey sites. An additional survey was undertaken along a small tributary of Kedron Brook in Kalinga Park.

Instream habitat was assessed using the Classification System for Urban Streams developed for the River Health Assessment Program (RHAP). This methodology has been adopted by BCC to assess instream habitat across the Local Government area and is endorsed by the National River Health Program. A field inspection of instream habitat was undertaken at Enoggera Creek and Kedron Brook on 5 December 2005 at the five aquatic survey sites shown in **Figure 11-1**. The characteristics that were assessed include:

- Surrounding land use, including potential threats or disturbance;
- Bank characteristics and condition;
- Aquatic habitat characteristics; and
- Conservation value rating for aquatic flora and fauna, riparian flora and fauna, as a wildlife corridor and the representativeness of the habitat.

This assessment is a basic geomorphological assessment and provides information on the potential of the site for aquatic habitat, other factors such as water quality will influence the presence or absence of particular flora and fauna.

A field inspection of riparian vegetation and condition was undertaken at Enoggera Creek and Kedron Brook on 5 December 2005 at the five aquatic survey sites mentioned above and shown in **Figure 11-1**. Field inspections incorporated photo points (upstream, downstream), survey of riparian vegetation species, structure and riparian vegetation condition. The methodology followed BCC's methodology used for the Breakfast/Enoggera Creek Waterway health assessment of riparian vegetation. Generally, the field inspections incorporated dominant/prevailing vegetation communities/species present, the presence/absence of weed species, structural characteristics, corridor width and an assessment of condition or if relevant conservation. The results were used as a validation of what vegetation communities have been reported to be present along these waterways.

Assessment of existing aquatic fauna was undertaken through a review of available data. Water quality at Breakfast Creek and Lower Enoggera Creek was recorded to have a health rating of D (poor) according to the BCC's Waterway Management Plan. This is due to elevated metal and nutrient concentrations attributed to the adjacent industrial and residential land uses as well as tidal movements from the Brisbane River. As a result further field investigation of the aquatic fauna was not deemed necessary due to the high level of disturbance experienced at waterway habitats creating unfavourable conditions for aquatic fauna and the considerable amount of information already available from relevant government databases and reports, particularly from the BCC, Queensland Museum and the Kedron Brook Catchment Network. These databases have been developed over many years and include result from detailed studies, particularly in Kedron Brook. These databases provide

adequate information base to characterise the aquatic fauna in the waterways and to determine the likely presence of species of conservation significance.

### 11.1.2 Study Areas

The study area includes two components:

- The study corridor for the Airport Link Project through the inner northern suburbs of Brisbane; and
- The spoil placement sites at the Port of Brisbane and at Brisbane Airport.

The study corridor is about eight kilometres long and runs from the ICB and the NSBT at Bowen Hills, north along Lutwyche Road to Gympie Road at Kedron, and in an easterly direction to the intersection of Sandgate Road and the East-West Arterial at Toombul, passing beneath the commercial precinct of Lutwyche and the residential areas of Wooloowin and Clayfield. Two watercourses cross the study corridor. Enoggera Creek, in the south flows into the Brisbane River approximately four kilometres downstream of the study corridor. Kedron Brook, in the north becomes Schulz Canal and flows into Moreton Bay north of Brisbane Airport.

The study corridor covers a highly urbanised area of Brisbane, with terrestrial and aquatic ecosystems highly disturbed from urban development. Terrestrial communities and ecosystems have been substantially cleared, with small, isolated fragments of vegetation remaining in parks and scattered along watercourses. Planted vegetation, both native and exotic, occurs in parks, gardens, schools and along watercourses and roads.

Aquatic ecosystems have been affected by clearing of riparian vegetation, infestation by environmental weeds, pollution from surface water runoff, and management practices of waterways, including channelling for flood mitigation. Vegetation and habitat of the watercourses is mainly found within the channels, with areas once occupied by riparian vegetation now used for parks, sporting grounds and industry.

The Brisbane City Council has devised a Common Nature Conservation Classification System (CNCCS) for areas of ecological significance throughout Brisbane. Within the study corridor there is one area classified as ‘State significant’, a small area of mangroves on the south bank of Enoggera Creek. Immediately north of the study corridor, Kedron Brook has areas of Regional, Citywide and Local significance.

Parks and open spaces located along the study corridor include:

- Windsor War Memorial Park, Windsor;
- Windsor Town Quarry Park, Windsor;
- Clark Park, Windsor;
- Wallace Park, Lutwyche;
- Kalinga Park, Clayfield;
- Kedron Brook Open Space Corridor;
- Melrose Park, Wooloowin;
- Shaw Park, Wooloowin;
- Ross Park, Nundah;
- Schulz Canal; and
- Breakfast/Enoggera Creek Corridor.

These parks and open spaces and associated watercourses have a landscape and amenity value to the community, in terms of recreational spaces and green space corridors. The landscape and amenity values of these parks are considered in Chapters 14 and 15 of the EIS. There are also several trees and groups of trees which contribute to local landscape amenity and which have cultural significance within the community.

The identified possible spoil placement sites include:

- Fisherman Islands;
- Clunies Flat, Lytton;
- Airport Industrial Park, at Viola Place;
- Part of the Gateway Upgrade Project on the old Brisbane Airport site.

Fisherman Islands and Clunies Flat are within the Port of Brisbane area. The Airport Industrial Park is on the site of Brisbane Airports Corporation.

The Port of Brisbane site at Clunies Flat is identified on the land use strategy map for the Port of Brisbane as not being an area of high ecological value. The land is clear of remnant native vegetation and has been identified in the land use strategy to accommodate maritime industries and/or port operational activities. The Port of Brisbane reclamation area was exclusively subtidal prior to the creation of the surrounding seawall. There is the potential for avifauna to use newly created areas (reclamation paddocks) as roost sites. The Viola Place site is predominantly flat, well drained and devoid of much of its natural vegetation.

### 11.1.3 Terrestrial Flora

The search of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Protected Matters Database to assess the occurrence or likely occurrence of nationally threatened flora species listed by the EPBC Act showed a number of listed plant species (refer to **Table 11-3**) may be present in the corridor.

**Table 11-3 EPBC listed plant species**

| Species | Common Name | EPBC Classification | Likely Presence |
|---|---|---|---|
| *Arthraxon hispidus* | hairy-joint grass | vulnerable | not likely |
| *Bosistoa selwynii* | heart-leaved bosistoa | vulnerable | not likely |
| *Bosistoa transversa* | three-leaved bosistoa | vulnerable | not likely |
| *Corchorus cunninghamii* | native jute | endangered | not likely |
| *Cryptostylis hunteriana* | leafless tongue-orchid | vulnerable | possible |
| *Hydrocharis dubia* | frogbit | vulnerable | possible |
| *Macadamia integrifolia* | macadamia nut | vulnerable | possible |

The Regional Ecosystem Mapping (Version 5, 2005) for the study area was reviewed to determine the presence of remnant vegetation. No remnant vegetation was found within the study corridor.

Herbrecs records from the Queensland Herbarium were obtained for the study corridor and these include species commonly found in urban Brisbane. It also contains weeds that are well established in the City. There are no records of species covered by Commonwealth and State legislation. One species, *Eucalyptus seeana*, recorded from Kedron is listed in the Herbrecs list. This species is a significant flora species, as listed in Schedule 3 of the Brisbane City Council Natural Assets Planning Scheme Policy.

The ten sections of the study corridor were surveyed for species and to assess the condition of vegetation in each area. A description of the vegetation and species found at each site within the study area is provided in **Table 11-4**.

### Table 11-4 Terrestrial vegetation description

| Study Area Section | Vegetation Description |
|---|---|
| Kalinga Park adjacent to Sandgate Road, Clayfield | Consists of a mosaic of scattered remnant trees and planted native trees including Sydney blue gum (*Eucalyptus saligna*), tallowwood (*E. microcorys*), hoop pine (*Araucaria cunninghamii*), broad leaf paperbark (*Melaleuca leucadendra*), silky oak (*Grevillea robusta*) and weeping lilly pilly (*Waterhousea floribunda*). Several large trees have developed hollows suitable for use by birds and arboreal mammals.<br>The understorey is generally mown grasses or mulch and planted native herbs except along the creeks and drainage lines where rank, exotic grasses tend to dominate.<br>Downstream of Sandgate Road along Kedron Brook are scattered specimens of the Grey Mangrove (*Avicennia marina*) and bottle brush (*Callistemon viminalis)*. |
| Melrose Park, Wooloowin | Mown and well-maintained park with planted native trees and remnant /regrowth eucalypts and other species confined to an unnamed tributary of Kedron Brook which flows through the southern section of the park.<br>Species included Moreton Bay fig (*Ficus macrophylla*), silky oak (*Grevillea robusta*), tuckeroo (*Cupaniopsis anacardioides*), hoop pine (*Araucaria cunninghamii*), cheese tree (*Glochidion ferdinandii*), cock's comb coral tree (*Erythrina crista-galli*). |
| Kedron Brook, adjacent to Gympie Road, Wooloowin and Lutwyche | Terrestrial vegetation along this section of Kedron Brook has been cleared from the channel of the watercourse. Rank exotic grasses dominate the banks of Kedron Brook.<br>Terrestrial vegetation along this section of Kedron Brook has been cleared from the channel of the watercourse. Rank exotic grasses dominate the banks of Kedron Brook.<br>Outside the channel of Kedron Brook the vegetation consists of scattered plantings of native and exotic trees and mown grass. There is no understorey and shrub layer present. Species found outside the channel of Kedron Brook include Moreton Bay ash (*Corymbia torelliana*), brush box (*Lophostemon confertus*), Queensland blue gum (*Eucalyptus tereticornis*), tulipwood (*Harpullia pendula*), jacaranda (*Jacaranda mimosifolia*), camphor laurel (*Cinnamomum camphora*), poinciana (*Delonix regia*) and a remnant Eucalyptus tereticornis 30m tall with a diameter at breast height (dbh) of approximately 1m with hollows. This tree is located approximately 200m upstream of Gympie Road on the southern bank of Kedron Brook. |
| Kedron Park Hotel, Wooloowin | Three large mature trees that are covered by a Vegetation Protection Order are found in the car park of the Hotel. These include a crows ash (*Flindersia australis*) and two figs (*Ficus benjamina*). |
| Wallace Place Park (D1411) - Lutwyche Road and Truro Road median, Lutwyche | This is a park in a large traffic island in Lutwyche Road. A large and dominant fig (*Ficus benjamina*), known as Pop's fig is growing on the northern end of the park. This tree is 20m tall and has a canopy diameter 30m with an understorey of planted shade tolerant native and exotic palms and herbs. |
| Clark Park (D0507) - Lutwyche Road and Truro Road median, Lutwyche | Clark Park is dominated by a group of hoop pines (*Araucaria cunninghamii*) to 25m tall in a mown park. The hoop pine planting is listed as Valued Urban Vegetation under the BCC Natural Asset Local Law, which recognises the significant landscape value of this group of trees.<br>A mature fig is also present at the southern end of this park. White cypress pine (*Callitris columellaris*) also present along the western side of the park. |
| Clark Park (D0507) - Lutwyche | Clark Park is dominated by a group of hoop pines (*Araucaria* |

| Study Area Section | Vegetation Description |
|---|---|
| Road and Truro Road median, Lutwyche | *cunninghamii*) to 25m tall in a mown park. The hoop pine planting is listed as Valued Urban Vegetation under the BCC Natural Asset Local Law, which recognises the significant landscape value of this plantation.<br>A mature fig is also present at the southern end of this park. White cypress pine (*Callitris columellaris*) also present along the western side of the park. |
| Windsor War Memorial Park (D0506) - median of Lutwyche Road and Roblane Street, Windsor | Mixed planting of native and exotic trees and shrubs in a mown park. Trees are relatively small and low in height. |
| Windsor Town Quarry Park (D1300) and Windsor Chambers between Palmer Street and Lutwyche Road, Windsor | Well maintained park with a mixed planting of exotic and native trees shrubs and herbaceous plants (including ornamental grasses) and mown grass. None of this vegetation is particularly old. Regrowth trees present adjacent to the cliff face. |
| Windsor State School, Windsor and 270 Lutwyche Road, (Officeworks), Windsor | Various species of large fig trees along Lutwyche Road and Harris Street dominate the Windsor State School and the Officeworks site. |
| Downey Park, Enoggera Creek and Northey Street City Farm, Windsor | Narrow mangrove community along the banks of Enoggera Creek. Community planting including gallery rainforest species, cabinet timber plot and vegetable garden is located in the Northey Street City Farm. Amenity plantings are found throughout Downey Park. |

**Table Note**: Brisbane City Council park codes are used to identify some parks in this table.

A list of existing significant trees in the study area is provided in **Table 11-5**.

### Table 11-5 Significant Trees

| Address | Significant Trees |
|---|---|
| Victoria Street, Windsor | 1 *Ficus elastica* |
| 270 Lutwyche Road, Windsor | 21 fig trees |
| 189 Lutwyche Road, Windsor | 1 *Mangifera indica* |
| Lutwyche Road, Windsor | 9 trees |
| Harris Street, Windsor | 12 trees |
| Windsor Memorial Park, Lutwyche Road, Windsor | 1 *Ficus hillii* |
| Windsor Council Chambers, Windsor | 3 *Ficus benjamina* |
| Clark Park, between Lutwyche Road and Truro Street | 50 *Araucaria cunninghamii* |
| Wallace Place Park, Lutwyche | 1 *Ficus benjamina* |
| Cnr Norman and Lutwyche Road, Lutwyche | 2 *Ficus benjamina* |
| Wooloowin Primary School, Wooloowin | 1 *Ficus benjamina* |
| Kedron High School car park, Kedron | 1 *Ficus benjamina* |
| Park Road, Wooloowin | Several *Ficus benjamina* |
| Melrose Park , Rose Street, Wooloowin | Group of eucalypts |
| 4 Lydia Street, Wooloowin | 5 *Ficus benjamina* |
| 800's Sandgate Road, Clayfield | 2 *Ficus benjamina* |
| Eastern side of the T section of Sandgate and the East West Arterial | parkland planting of araucarias and eucalypts |

### 11.1.4 Terrestrial Fauna

## Data Records

The search of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Protected Matters Database for fauna showed that a number of species (refer to **Table 11-6**) are known from the study corridor. These species were not observed during the field investigations.

**Table 11-6 EPBC listed fauna species in corridor study area**

| Species | Common Name | EPBC Classification | Likely Presence |
|---|---|---|---|
| **Birds** | | | |
| *Cyclopsitta diophthalma coxeni* | Coxen's Fig-Parrot | Endangered<br>Migratory (terrestrial) | not likely |
| *Erythrotriorchis radiatus* | Red Goshawk | Vulnerable | not likely |
| *Gallinago hardwickii* | Latham's Snipe | Migratory (wetland) | may overfly the area |
| *Geophaps scripta scripta* | Squatter Pigeon (southern) | Vulnerable | not likely |
| *Haliaeetus leucogaster* | White-bellied Sea-Eagle | Migratory (terrestrial) | may overfly the area |
| *Hirundapus caudacutus* | White-throated Needletail | Migratory (terrestrial) | may overfly the area |
| *Lathamus discolor* | Swift Parrot | Endangered | not likely |
| *Monarcha melanopsis* | Black-faced Monarch | Migratory (terrestrial) | may overfly the area |
| *Monarcha trivirgatus* | Spectacled Monarch | Migratory (terrestrial) | may overfly the area |
| *Myiagra cyanoleuca* | Satin Flycatcher | Migratory (terrestrial) | not likely |
| *Nettapus coromandelianus albipennis* | Australian Cotton Pygmy-goose | Migratory (wetland) | not likely |
| *Rhipidura rufifrons* | Rufus Fantail | Migratory (terrestrial) | may overfly the area |
| *Rostratula australis* | Australian Painted Snipe | Vulnerable | may overfly the area |
| *Rostratula benghalensis* | Painted Snipe | Migratory (wetland) | may overfly the area |
| *Turnix melanogaster* | Black-breasted Button-quail | Vulnerable | not likely |
| *Xanthomyza phrygia* | Regent Honeyeater | Endangered<br>Migratory (terrestrial) | not likely |
| **Mammals** | | | |
| *Chalinolobus dwyeri* | Large-eared Pied Bat, Large Pied Bat | Vulnerable | not likely |
| *Dasyurus maculatus maculatus (s. lat.)* | Spotted-tailed Quoll | Vulnerable | not likely |
| *Potorous tridactylus tridactylus* | Long-nosed Potoroo (SE mainland) | Vulnerable | not likely |
| *Pteropus poliocephalus* | Grey-headed Flying-fox | Vulnerable | may overfly the area |
| **Reptile** | | | |
| *Coeranoscincus reticulatus* | Three-toed Snake-tooth Skink | Vulnerable | not likely |
| **Amphibian** | | | |
| *Mixophyes iteratus* | Southern Barred Frog, Giant Barred Frog | Endangered | not likely |

Records from the Queensland Museum and Wildnet databases show there are nine species that are covered by Schedule 4 of the Brisbane City Council Natural Assets Planning Scheme Policy. These species are listed in **Table 11-7**. The dates these species have been recorded range from 1964 to 1996, and four do not have collection dates recorded. It is possible that some of these species are no longer to be found in the study corridor or nearby sites.

**Table 11-7 Species covered by Natural Assets Planning Scheme Policy**

| Species | Common Name | Location |
|---|---|---|
| *Chelodina longicollis* | eastern long-necked turtle | Kedron Brook, this species is considered to be at a low level of threat, it is rare or uncommon in Brisbane. |
| *Vermicella annulata* | bandy bandy | Lutwyche, this species has a medium level of threat, it is rare or uncommon in Brisbane. |
| *Coturnix chinensis* | king quail | Mayne Junction 1981, this species is considered to be at a low level of threat, it is rare or uncommon in Brisbane. |
| *Ixobrychus minutes* | little bittern | Gordon Park, 1964, this species is considered to be at a low level of threat, it is rare or uncommon in Brisbane. |
| *Haliaeetus leucogaster* | white bellied sea-eagle | Bowen Hills, no date, this species is considered to be at a low level of threat, it is rare or uncommon in Brisbane. |
| *Accipter novahollandiae* | grey goshawk | Albion, no date, this species has a medium level of threat, it is rare or uncommon in Brisbane. |
| *Ptilinopus magnificus* | wompoo fruit-dove | Clayfield, 1996, this species is considered to be at a low level of threat, it is rare or uncommon in Brisbane. |
| *Ptilinopus regina* | rose crowned fruit dove | Wilston, 1986, this species is considered to be at a low level of threat, it is rare or uncommon in Brisbane. |

Three of the species that have been recorded in the study corridor or recorded within the WildNet data are listed as "Endangered, Vulnerable or Rare" under the *Nature Conservation (Wildlife) Regulation 1994* or are listed as "Endangered or Vulnerable" under the EPBC Act. These are the grey goshawk (*Accipiter novaehollandiae*), grey-headed flying fox (*Pteropus poliocephalus*) and powerful owl (*Ninox strenua*). None of these is likely to breed within the study corridor or to be significantly affected by the proposed project.

Some of the migratory species may use the study corridor or the air space above it, but are unlikely to breed within them or be significantly affected by the proposed works.

The study corridor is likely to be used as part of the feeding territory for a number of raptor species, which feed on small ground dwelling fauna including skinks and rodents.

A number of scratches were found on a Queensland blue gum (*Eucalyptus tereticornis*) in Kalinga Park. These are most likely to have been due to the activities of the Common Brushtail Possum (*Trichosurus vulpecula*) or the Common Ringtail Possum (*Pseudocheirus peregrinus*). Both species are recorded in the Queensland Museum and WildNet data as common and widespread species.

Feeding resources for the grey-headed flying fox (*Pteropus poliocephalus*), a species listed as "vulnerable" under the EPBC Act and which occurs in the Brisbane area, are present within the study corridor. Therefore it can be assumed that although there were no grey-headed flying foxes recorded during the survey, it is possible that they would use trees within the study corridor as a food source.

The balance of the fauna species identified within the study corridor during field surveys or listed in the Queensland Museum and WildNet records are common and widespread species or are introduced.

### Habitat Values

Kedron Brook and its associated parklands including areas within the study corridor form a recreational link and wildlife corridor between Brisbane Forest Park and Moreton Bay.

The value of Enoggera Creek which connects Brisbane Forest Park to the Brisbane River as a wildlife corridor is relatively low due to the level of urbanisation and the disjointed nature of riparian vegetation. However it does have the potential with further revegetation efforts by local bushland groups to connect Brisbane Forest Park to the Brisbane River.

While the habitat and vegetation communities along these watercourses has been substantially cleared, fauna still is found in these areas.

There are a number of dead trees and mature trees with hollows within the study corridor. Arboreal mammals, insectivorous bats and hollow nesting birds may use these.

Within the study corridor, these trees are typically found in parks and areas adjacent to Kedron Brook and Enoggera Creek. They are mature, open grown eucalypts. As they are found in areas where surrounding vegetation has been removed, these trees provide excellent roosting and nesting sites, for birds, arboreal mammals and bats.

## 11.1.5 Regional Connections

Kedron Brook and Enoggera Creek are recognised by BCC as important ecological corridors and contain significant habitat and areas of remnant vegetation that provide a connection for the movement of fauna across the City. These corridors are a framework that BCC wishes to use to connect areas of habitat to improve the connectivity of habitat throughout Brisbane and potentially to neighbouring local authorities. Along these corridors, BCC is developing and implementing a range of restoration and rehabilitation projects to improve the connections provided by these corridors.

### Kedron Brook

Kedron Brook and its associated parklands including areas within the study corridor form a significant wildlife corridor connecting the mountains of Brisbane Forest Park and the D'Aguilar Range to the Moreton Bay via Schulz Canal. Strategically, the Kedron Brook corridor is described as a riparian link, and is semi-continuous linking urban habitat areas from the upper catchment through Enoggera Military Reserve, Sparkes Hill, Shaw Park and Grinstead Park to Moreton Bay. Kedron Brook contains a mix of vegetation types and species in its riparian zone, and connects to the Ramsar wetlands and habitat for migratory species.

It is an important ecological corridor for the movement of fauna, in particular many raptor species and squirrel gliders. It is classified as a corridor of state significance by BCC as it crosses local authority boundaries and is a major bioregional connection linking the higher altitude areas of the D'Aguilar Ranges with Moreton Bay.

### Breakfast/Enoggera Creek

Enoggera Creek also forms an ecological corridor, and is described as a three-arm linkage from Brisbane River, following Breakfast Creek, Enoggera Creek, Ithaca Creek and Fish Creek. Corridor arms linking to Mt Coot-tha Reserve and the Enoggera Reservoir through The Gap have also been identified. Although the value of Enoggera Creek as a wildlife corridor has been degraded due to the level of urbanisation and the disjointed

nature of riparian vegetation along the Creek, the corridor supports a band of significant mangroves, and has been classified as 'regional significant' by the BCC according to the CNCCS. However it does have the potential with further revegetation efforts by local bushland groups to provide a better connection for the movement of fauna from Ithaca Creek to the Brisbane River.

BCC has a commitment to securing corridors across the City in an attempt to connect fragments of habitat along these corridors. In securing and strengthening these corridors, many of which are based on creek systems, BCC intends to purchase land, rehabilitate areas of vegetation and manage bushland areas to improve integrity and quality. Actions that compromise the integrity of the strategic linkages of creek systems are seen by BCC as a direct threat to the vision on creating and capitalising on the ecological benefits to be realised from regional corridors.

The habitat value of the study corridor is described in **Table 11-8**. While most of the study has been developed, there are still areas of habitat for a range of species that are adapted to urban environments. Areas that are not mown have pockets of trees and along the watercourses of the area all provide habitat for small birds, arboreal mammals, reptiles and amphibians.

### Table 11-8 Study area habitat values

| Study Area Section | Description of Habitat Values |
|---|---|
| Kalinga Park adjacent to Sandgate Road, Clayfield | This section of Kalinga Park has moderate habitat value relative to other parts of the study area due to the presence of Kedron Brook. There are some large trees with hollows near Sandgate Road which are likely to be important habitat trees for arboreal mammals, microbats and hollow nesting birds. Parts of this area are not frequented by people, and as such provide habitat for small granivorous birds that favour the protection offered by grasses and understorey plants. |
| Melrose Park, Wooloowin | This area has low habitat value as it is isolated from other areas of vegetation. Vegetation along the creek provides some habitat, however this is fairly localised. |
| Kedron Brook, adjacent to Gympie Road, Wooloowin and Lutwyche | Low habitat value due to lack of vegetation to provide habitat. There is one large hollow bearing tree present upstream of Gympie Road, however it is relatively isolated, but does offer opportunities for birds, arboreal mammals and bats for nesting, roosting and breeding. Other trees in gardens provide shade and shelter particularly for birds and arboreal mammals. |
| Kedron Park Hotel, Wooloowin | Low habitat value due to lack of structural diversity, limited extent of vegetation, proximity to traffic noise and isolation from other substantial vegetation. However some limited habitat is provided by the large figs and crows ash tree for birds and arboreal mammals. |
| Wallace Place Park (D1411) - Lutwyche Road and Truro Road median, Lutwyche | Low habitat value due to lack of structural diversity, limited extent of vegetation, proximity to traffic noise and isolation from other substantial vegetation. However some limited habitat is provided by the large figs trees for birds and arboreal mammals. |
| Clark Park (D0507) - Lutwyche Road and Truro Road median, Lutwyche | Low habitat value due to lack of structural diversity, limited extent of vegetation, proximity to traffic noise and isolation from other substantial vegetation. However some limited habitat is provided by the large hoop pine trees for birds and arboreal mammals. |
| Windsor Town Quarry Park (D1300) and Windsor Chambers between Palmer Street and Lutwyche Road, Windsor | Low habitat value due to lack of structural diversity, limited extent of vegetation, proximity to traffic noise and isolation from other substantial vegetation. |
| Windsor War Memorial Park (D0506) - median of Lutwyche Road and Roblane Street, Windsor | Low habitat value due to lack of structural diversity, limited extent of vegetation, proximity to traffic noise and isolation from other substantial vegetation. |

| Study Area Section | Description of Habitat Values |
|---|---|
| Windsor State School, Windsor and 270 Lutwyche Road, (Officeworks), Windsor | Low habitat value due to lack of structural diversity, limited extent of vegetation, proximity to traffic noise and isolation from other substantial vegetation. However some limited habitat is provided by the large figs trees for birds and arboreal mammals. |
| Downey Park, Enoggera Creek and Northey Street City Farm, Windsor | Moderate habitat value relative to other sections within the project corridor due to Enoggera Creek and fringing mangroves. |

**Table Note**: Brisbane City Council park codes are used to identify some parks in this table.

### 11.1.6 Aquatic Flora

#### In-stream Habitat Assessment

The results of the in-stream habitat assessments for Enoggera Creek and Kedron Brook are provided in **Table 11-9**.

In terms of instream habitat value upstream and downstream of Bowen Bridge on Enoggera Creek, this stretch had relatively good ecological value, particularly with regard to the provision of physical habitat. However, there may be water quality issues, in particular, high turbidity that may inhibit aquatic species in this section of creek. In contrast, the value of this corridor for wildlife movement was relatively low due to the highly urbanised and disjointed nature of the riparian vegetation.

The value of instream habitat along Kedron Brook varied between Gympie Road, Kalinga Park and Sandgate Road. The site at Gympie Road had poor habitat value due to the total removal of riparian vegetation for flood mitigation. Consequently, no overhanging vegetation is present. Nevertheless, the site provides some value to aquatic organisms through the creation of small pools and riffles. The absence of riparian vegetation provides no corridor for wildlife.

The Kalinga Park section of Kedron Brook had good habitat value in several regards, particularly for wildlife corridors through the relatively thick riparian zone and aquatic habitat due to the deep pools and riffle areas. This area would provide a significant instream refuge for aquatic organisms through moderation of water temperatures, and would contribute nutrient inputs through leaf litter.

The Sandgate Road section of Kedron Brook was determined to have a low habitat value due to the removal of riparian vegetation and the presence adjacent car park areas. The habitat value for this site was further limited by significant amounts of rubbish occurring in the water.

- **Table 11-9 Enoggera Creek and Kedron Brook**

| In-stream Habitat Components | | Enoggera Creek Bowen Bridge | Kedron Brook Gympie Road | Kedron Brook Kalinga Park | Kedron Brook Tributary | Kedron Brook Sandgate Road |
|---|---|---|---|---|---|---|
| Land Tenure | | Urban Reserve | Urban reserve | Urban reserve | Urban reserve | Urban reserve |
| Land use | | Urban park or road reserve | Urban park or reserve | Urban park or reserve | Urban park or reserve | Urban park or reserve, other – car park |
| Disturbance | | Road, bridge | Road, bridge, channelling, pipe outlet | Bridge, pipe outlet | Road, Bridge, Weir | Road, bridge, channelling, pipe outlet |
| Disturbance Rating | | High | Very High | Moderate | Very High | Very High |
| Bank Condition | Instability Rating | Minimal | Minimal | Minimal | Minimal | Low |
| | Susceptibility Rating | Minimal | Low | Low | Low | Moderate |
| Bed and Bar Condition | Stability Rating | Moderately aggrading | Stable | Moderately aggrading | Stable | Stable aggrading |
| Aquatic Habitat Condition | Aquatic Habitat Rating | Good | Poor | Good | Poor | Poor |
| Conservation Value Rating | Aquatic Habitat Rating | 7 out of 10 | 3 out of 10 | 5 out of 10 | 3 out of 10 | 5 out of 10 |
| | Riparian Habitat Rating | 5 out of 10 | 2 out of 10 | 4 out of 10 | 4 out of 10 | 3 out of 10 |
| | Wildlife Corridor Rating | 5 out of 10 | 2 out of 10 | 6 out of 10 | 3 out of 10 | 3 out of 10 |
| | Aquatic Representativeness Rating | 7 out of 10 | 3 out of 10 | 4 out of 10 | 4 out of 10 | 3 out of 10 |
| | Riparian Representativeness Rating | 5 out of 10 | 2 out of 10 | 4 out of 10 | 4 out of 10 | 4 out of 10 |

**Table Note**: The aquatic habitat value has been rated on a scale of very good to very poor, and disturbance of the stream environs on a scale of very high to very low These assessment scales and conservation value ratings from 1-10, 10 being the highest value, are comparative scales applied by an experienced ecologist from direct observation and based on personal experience to convey comparison of the different sections of stream rather than to identify objective measures.

The Eagle Junction tributary of Kedron Brook had generally poor habitat value due to the fragmented nature of the riparian zone, abundance of weeds and weir structure limiting aquatic fauna movement. A small section at the lower end, however, had good riparian cover and provided good condition aquatic habitat.

No areas in Kedron Brook had significant issues with erosion, presumably due to the flood mitigation works that have occurred in Kedron Brook. Enoggera Creek also did not appear to be erosion prone.

## Riparian vegetation

Riparian vegetation surveys were undertaken at Enoggera Creek and the sites on Kedron Brook, including sites at Gympie Road, Kalinga Park (including tributary) and Sandgate Road.

The prevailing vegetation community at Enoggera Creek was mangrove.

No significant remnant riparian vegetation was located at the Gympie Road site on Kedron Brook. There was no effective tree canopy present and shrub and ground layers were sparse. Banks were dominated by exotic grasses.

Kedron Brook at Kalinga Park (including the Eagle Junction tributary) contained patchy and fragmented communities of riparian vegetation comprising both native and exotic species. The overstorey was estimated to be up to 25m high and no shrub layer existed. Groundcover consists of exotic grasses on top of the banks and into the waterway.

A thin band of mangrove trees exist along the banks of Kedron Brook near Sandgate Road.

## Prevailing species

The only mangrove species detected at Enoggera Creek were *Avicennia marina* (grey mangrove) and *Aegiceras corniculatum* (river mangrove).

Many invasive or exotic species were also prevalent at these sites. In particular Japanese sunflower (*Tithonia diversifolia*), Singapore daisy (*Wedelia trilobata*), blue morning glory (*Ipomea indica*), Chinese elm (*Celtis sinensis*) and castor oil plant (*Ricinus communis*) were prevalent on the edges of these mangrove communities. Grasses such as blady grass (*Imperata cylindrica*) were also common.

Kedron Brook at Gympie Road was dominated by exotic grasses on the banks. Inwater vegetation was dominated by dense waterweed (*Egeria densa*), bulrushes (*Typha* sp.), milfoil (*Myriophyllum* sp.), water primrose (*Ludwigia peploides*) and para grass (*Brachiaria mutica*).

Species dominant in Kedron Brook at Kalinga Park (including the tributary) included native hibiscus (*Hibiscus tiliaceus*), Queensland blue gum (*Eucalyptus tereticornis*), camphor laurel (*Cinnamomum camphora*), Chinese elm (*Celtis sinensis*), brushbox (*Lophostemon confertus*) and waterhousea (*Waterhousea* sp.).

The only mangrove species detected at Kedron Brook near Sandgate Road were *Avicennia marina* (grey mangrove) and *Aegiceras corniculatum* (river mangrove). Exotic grasses were also prevalent on the banks.

## Significant vegetation communities

All marine vegetation, including mangrove communities, is protected under the *Fisheries Act 1994*. In conjunction with the *Integrated Planning Act, 1997*, this prevents removal or disturbance of this vegetation without approval from the Department of Primary Industries and Fisheries (DPI&F).

Under the Brisbane City Council *Natural Assets Local Law 2002*, waterway and wetland vegetation is protected. This includes vegetation along Enoggera Creek and Kedron Brook. No lands subject to the wetlands code occur in the study corridor.

## Structural characteristics

The lower reaches of Enoggera Creek comprise mangrove communities that are very simple in structure. Generally, these communities have few tree or shrub layers and limited ground cover. Canopy cover at the survey sites is relatively high and riparian vegetation (mangrove) width was limited and ranged from one to ten metres.

Kedron Brook in the vicinity of Gympie Road almost exclusively contained exotic grasses and sparse shrubs that have been planted.

Kalinga Park comprises disjointed riparian communities that are relatively thick and tall in places, contrasted against cleared riparian areas that are overgrown with exotic grasses and environmental weeds. In places the overstorey was estimated to be up to 25 metres high. No significant shrub layer exists. Groundcover consists of exotic grasses on top of the banks and into the waterway.

Kedron Brook at Sandgate Road was comprised of mangrove communities that are very simple in structure. Generally, these communities have few tree or shrub layers and have limited ground cover.

### Vegetation condition

The mangrove community at Enoggera Creek was in relatively good condition, although, taking into account weed invasion, width of corridor, diversity and their use as significant habitat assessment using the CNCCS Diagnostic Criteria rates these areas are rated as having a low value.

Vegetation condition at the Kedron Brook sites was poor to very poor. At the Gympie Road site, the vegetation has been removed for flood mitigation. At Kalinga Park, the condition of the riparian vegetation was poor due to dominance of environmental weed species and the level of disturbance experienced by the vegetation along this section of the waterway.

## 11.1.7 Aquatic Fauna

### Fish

**Table 11-10** indicates those species likely to be found in the study areas. Although, this table indicates the presence of the Australian lungfish in Enoggera Creek it is unlikely that this listed species would be located in the study area on a permanent basis. These records are from 1955, 1980 and 1981. The lungfish was introduced in Enoggera Reservoir in the late 1890s, it is a native of the Burnett and Mary Rivers. The presence of Lungfish in the downstream reaches of Enoggera Creek is probably only likely after flood events, when the Reservoir overtops. The lungfish is a freshwater species and does not inhabit brackish or saltwater environments.

Species recorded by the Kedron Brook Catchment Network from the Lutwyche stretch of Kedron Brook are listed in **Table 11-11**.

The fish communities of Enoggera Creek and Kedron Brook are dominated by hardy, common native species and introduced species that are common pests in urban streams in South-east Queensland. Fish most likely to survive in Kedron Brook are those able to utilise a number of habitats, adapt to change and tolerate the fluctuating pollution and nutrient levels.

No threatened fish species are likely to occur in the study reaches. There are no Fish Habitat Areas within or near the proposed Airport Link alignment.

- **Table 11-10 Fish species likely to be located in Enoggera Creek and Kedron Brook**

| Family | Species | Common Name | Location | Recorded since 1980 | Status |
|---|---|---|---|---|---|
| **Enoggera Creek** | | | | | |
| Ceratodontidae | *Neoceratodus forsteri* | Australian Lungfish | Enoggera Ck at Wilston footbridge Brisbane | yes | Vulnerable under EPBC Act (1999) Protected under Fisheries Act (1994) |
| Clupeidae | *Nematalosa erebi* | Bony Bream | Breakfast Creek Brisbane River | Yes | Common |
| Ariidae | *Arius graeffei* | Lesser Salmon Catfish | Breakfast Creek Brisbane River | Yes | Common |
| Plotosidae | *Euristhmus lepturus* | Long-tailed Catfish | Breakfast Creek Brisbane River | Yes | Common |
| Ambassidae | *Ambassis marianus* | Estuary Perchlet | Breakfast Creek Brisbane River | Yes | Common |
| Sparidae | *Acanthopagrus australis* | Yellowfin Bream | Breakfast Creek Brisbane River | Yes | Common |
| Mugilidae | *Liza subviridis* | Green-back Mullet | Breakfast Creek Brisbane River | Yes | Common |
| Mugilidae | *Mugil cephalus* | Sea Mullet | Breakfast Creek Brisbane River | Yes | Common |
| Gobiidae | *Mugilogobius stigmaticus* | Mangrove Goby | Breakfast Creek Brisbane River | Yes | Common |
| Eleotrididae | *Butis butis* | Bony snouted Gudgeon | Breakfast Creek Brisbane River | Yes | Common |
| **Kedron Brook** | | | | | |
| Mugilidae | *Mugil cephalus* | Sea Mullet | Kedron Brook Royal Parade Alderley | Yes | Common |
| Poeciliidae | *Gambusia holbrooki* | Mosquitofish | Kedron Brook Royal Parade Alderley | Yes | Introduced |
| Poeciliidae | *Gambusia holbrooki* | Mosquitofish | Schulz Canal at Rail Bridge Toombul | Yes | Introduced |
| Poeciliidae | *Poecilia latipinna* | Sailfin Molly | Kedron Brook at Gympie Rd Kedron Brisbane | Yes | Introduced |
| Poeciliidae | *Xiphophorus helleri* | Swordtail | Kedron Brook Royal Parade Alderley | Yes | Introduced |
| Poeciliidae | *Xiphophorus helleri* | Swordtail | Schulz Canal at Rail Bridge Toombul | Yes | Introduced |
| Poeciliidae | *Xiphophorus helleri* | Swordtail | Kedron Brook at Kedron Sports Club Brisbane | Yes | Introduced |
| Poeciliidae | *Xiphophorus maculatus* | Platy | Kedron Brook at Gympie Rd Kedron Brisbane | Yes | Introduced |

Table Note: Records sourced from Queensland Museum, May 2004. Likelihood of presence determined through habitat preference and consulting *The Brisbane River: a source book for the future* (1990) written by the Australian Littoral Society.

### Table 11-11 Fish species recorded in Lutwyche stretch of Kedron Brook

| Family | Species | Common Name | Location | Status |
|---|---|---|---|---|
| Eleotrididae | *Gobiomorphus australis* | Striped Gudgeon | Lutwyche stretch Kedron Brook | Common |
| Poeciliidae | *Xiphophorus maculatus* | Platys | Lutwyche stretch Kedron Brook | Introduced |
| Poeciliidae | *Gambusia dominicensis* | Mosquito fish | Lutwyche stretch Kedron Brook | Introduced |
| Poeciliidae | *Xiphophorus helleri* | Swordtails | Lutwyche stretch Kedron Brook | Introduced |
| Anguillidae | Unspecified – sighting only | Eel | Lutwyche stretch Kedron Brook | Common |
| Mugilidae | Unspecified – sighting only | Freshwater mullet | Lutwyche stretch Kedron Brook | Common |

Source: Fish Snapshot Surveys in Kedron Brook over 2003 -2005, spreadsheet. Downloaded from http://www.kedronbrook.org.au/__data/ page/12814/Fish_Snapshot_results.xls

## Aquatic Invertebrates

Aquatic invertebrate surveys have been undertaken previously in Enoggera Creek and Kedron Brook.

In Enoggera Creek, BCC (2003) sampled benthic invertebrate species as part of the Breakfast/Enoggera Creek Waterway Health Assessment. The study concluded that the invertebrate community in the estuarine reach was in moderate condition and the community has a high degree of stability. The study resulted in collection of 18 species. In this study, nereid polychaetes and tanaidacean crustaceans (*Apseudes estuarius*) dominated the Breakfast Creek area, while the bivalve *Arthritica helmsii* were most common in the sublittoral habitat of the Rasey Park site.

In Kedron Brook, the invertebrate fauna present are considered representative of a degraded urban waterbody. The site at Sandgate Road was determined to have poor to moderate communities based on SIGNAL scores, while the site at Kalinga Park was moderate. The number of invertebrate families identified for habitats at each site (pool and microphyte) also showed a decrease between the Kalinga Park site and Sandgate Road site. The difference was suggested to have been due to rehabilitation works that had been carried out in the mid-section of Kedron Brook including Kalinga Park. Fewer organisms and lower SIGNAL scores were observed in Kedron Brook following a flooding event.

The Freshwater crayfish (*Cherax dispar*) has been recorded by the Queensland Museum from Kedron Brook.

## Water Dependent Mammals

Little information is available on the presence of marine mammals in Enoggera Creek. A variety of marine mammals (dugong and several dolphin species) have been reported from lower reaches of the Brisbane River and Moreton Bay. It is highly unlikely, however, that these species would be found in Enoggera Creek, due to lack of habitat and relatively poor water quality.

Similarly, no marine mammals have been reported for Kedron Brook, which is essentially freshwater in the study area and water depths are insufficient for these marine mammal fauna.

### Water Dependent Reptiles

Information regarding reptiles in Enoggera Creek and Kedron Brook is relatively limited, and no specific information is available regarding turtles in Enoggera Creek.

WBM (2000) identified three marine turtle species that are resident in Moreton Bay. These species are unlikely, however, to extend further upstream than the Brisbane River mouth due to the lack of habitat and food sources and the high boating traffic that occurs in the Brisbane River.

Freshwater turtles are common in the deeper pools along Kedron Brook. The Saw shelled turtle (*Elseya latisternum*) and Brisbane long-necked turtle (*Chelodina longicollis*) are reported as the most common species.

Turtles are protected in Queensland under the *Nature Conservation (Wildlife) Regulation 1994*.

### Amphibians

Information regarding amphibians in Enoggera Creek and Kedron Brook is relatively limited. A search of the BCC's database listed the following frog species to occur within two kilometres of the centre of the study corridor:

- Eastern sedgefrog (*Litoria fallax*);
- Common green treefrog (*Litoria caerulea*);
- Striped marshfrog (*Limnodynastes peronii*); and
- Emerald spotted treefrog (*Litoria peronii*).

The Southern Barred Frog (*Mixophyes iteratus*) was listed under the EPBC Act database as in the general area, but is regarded as not likely to occur in the study corridor. This species is known to occur in uplands and lowlands in rainforest and wet sclerophyll forest, including farmland. Populations have been found in disturbed areas with vegetated riparian strips in cattle farms and regenerating logged areas (DEH 2006).

## 11.1.8 Spoil Placement Areas

The Port of Brisbane spoil placement site at Clunies Flat has been identified on the Port of Brisbane land use strategy as not being an area of high ecological value. The site is clear of remnant native vegetation and has been identified in the Port land use strategy as a location for maritime industries and/or port operational activities.

The Fisherman Islands site is an area being reclaimed by the Port of Brisbane that extends the existing area of reclaimed Port land, into Moreton Bay. The Fisherman Islands reclamation area is undergoing gradual filling primarily from dredge spoil and preparation for development. The area of reclamation is a man made landscape that will be ultimately be used for port and marine related industry. The area does not currently have any habitat values. It is, however, used by shore and migratory birds, *albeit* at a low level of use. A Brisbane Airport Vegetation and Habitat Assessment was completed in 2002. The Viola Place Industrial Park and Gateway Upgrade sites have been cleared of remnant vegetation and undergone multiple disturbances. The sites are currently vegetated with weeds, grasses and *Acacia* species that are providing low shrub and tree cover. There are also ephemeral waterbodies. The lack of human presence and activity in recent years has allowed wildlife undisturbed use, which has developed some minor habitat value, despite the past history of modification of habitat. The ephemeral waterbodies provide opportunistic seasonal habitat for waders and other waterfowl. Due to the low-lying nature of this area, it is likely that opportunistic breeding by frog species may occur after freshwater flooding/rain periods.

The listed threatened and migratory species identified from the EPBC Act Protected Matters Database (24 October 2005) for the general area of the spoil placement sites are listed in **Table 11-12**.

### Table 11-12 EPBC listed flora and fauna species at spoil placement sites

| Species | Common Name | EPBC Classification | Type of Presence | Likely Presence |
|---|---|---|---|---|
| **Plants** | | | | |
| *Arthraxon hispidus* | Hairy-joint Grass | Vulnerable | Species or species habitat likely to occur | not likely |
| *Austromyrtus gonoclada* | Angle-stemmed Myrtle | Endangered | Species or species habitat likely to occur | not likely |
| *Bosistoa selwynii* | Heart-leaved Bosistoa | Vulnerable | Species or species habitat likely to occur | not likely |
| *Bosistoa transversa* | Three-leaved Bosistoa | Vulnerable | Species or species habitat likely to occur | not likely |
| *Corchorus cunninghamii* | Native Jute | Endangered | Species or species habitat likely to occur | not likely |
| *Cryptostylis hunteriana* | Leafless Tongue-orchid | Vulnerable | Species or species habitat may occur | not likely |
| *Hydrocharis dubia* | Frogbit | Vulnerable | (type of presence was not identified in the EPBC Search Report) | not likely |
| *Macadamia integrifolia* | Macadamia Nut | Vulnerable | Species or species habitat likely to occur | not likely |
| *Phaius australis* | Lesser Swamp-orchid | Endangered | Species or species habitat likely to occur | not likely |
| **Birds** | | | | |
| *Arenaria interpres* | Ruddy Turnstone | Migratory (wetland) | Species or species habitat likely to occur | may be found overflying the area |
| *Calidris ferruginea* | Curlew Sandpiper | Migratory (wetland) | Species or species habitat likely to occur | may be found overflying the area |
| *Charadrius mongolus* | Mongolian Plover | Migratory (wetland) | Species or species habitat likely to occur | may be found in the vicinity of the area |
| *Cyclopsitta diophthalma coxeni* | Coxen's Fig-Parrot | Endangered<br>Migratory (terrestrial) | Species or species habitat likely to occur | not likely |
| *Erythrotriorchis radiatus* | Red Goshawk | Vulnerable | Species or species habitat likely to occur | has been recorded in area |
| *Gallinago hardwickii* | Latham's Snipe | Migratory (wetland) | Species or species habitat may occur | has been recorded in area |
| *Geophaps scripta scripta* | Squatter Pigeon (southern) | Vulnerable | Species or species habitat likely to occur | not likely |
| *Haliaeetus leucogaster* | White-bellied Sea-Eagle | Migratory (terrestrial) | Species or species habitat likely to occur | has been recorded in area |
| *Heteroscelus brevipes* | Grey-tailed Tattler | Migratory (wetland) | Species or species habitat likely to occur | has been recorded in area |
| *Hirundapus caudacutus* | White-throated Needletail | Migratory (terrestrial) | Species or species habitat may occur | may be found overflying the area |
| *Lathamus discolor* | Swift Parrot | Endangered | Species or species habitat may occur | not likely |
| *Limosa lapponica* | Bar-tailed Godwit | Migratory (wetland) | Species or species habitat likely to occur | has been recorded in area |
| *Macronectes giganteus* | Southern Giant-Petrel | Endangered<br>Migratory (marine) | Species or species habitat may occur | not likely |
| *Macronectes halli* | Northern Giant-Petrel | Vulnerable<br>Migratory (marine) | Species or species habitat may occur | not likely |
| *Monarcha trivirgatus* | Spectacled Monarch | Migratory (terrestrial) | Breeding may occur | may be found |

| Species | Common Name | EPBC Classification | Type of Presence | Likely Presence |
|---|---|---|---|---|
| | | | | overflying the area |
| *Monarcha melanopsis* | Black-faced Monarch | Migratory (terrestrial) | Breeding likely to occur | may be found overflying the area |
| *Myiagra cyanoleuca* | Satin Flycatcher | Migratory (terrestrial) | Breeding likely to occur | not likely |
| *Nettapus coromandelianus albipennis* | Australian Cotton Pygmy-goose | Migratory (wetland) | Species or species habitat may occur | not likely |
| *Numenius madagascariensis* | Eastern Curlew | Migratory (wetland) | Species or species habitat likely to occur | has been recorded in area |
| *Numenius phaeopus* | Whimbrel | Migratory (wetland) | Species or species habitat likely to occur | has been recorded in area |
| *Pluvialis fulva* | Pacific Golden Plover | Migratory (wetland) | Species or species habitat likely to occur | has been recorded in area |
| *Pterodroma neglecta neglecta* | Kermadec Petrel (western) | Vulnerable | Species or species habitat may occur | not likely |
| *Puffinus leucomelas* | Streaked Shearwater | Migratory (marine) | Species or species habitat may occur | not likely |
| *Rhipidura rufifrons* | Rufous Fantail | Migratory (terrestrial) | Breeding may occur | may be found in the area |
| *Rostratula australis* | Australian Painted Snipe | Vulnerable | Species or species habitat may occur | not likely |
| *Rostratula benghalensis s. lat.* | Painted Snipe | Migratory (wetland) | Species or species habitat may occur | not likely |
| *Thalassarche impavida* | Campbell Albatross | Vulnerable<br>Migratory (marine) | Species or species habitat may occur | not likely |
| *Turnix melanogaster* | Black-breasted Button-quail | Vulnerable | Species or species habitat likely to occur | not likely |
| *Xanthomyza phrygia* | Regent Honeyeater | Endangered<br>Migratory (terrestrial) | Species or species habitat may occur | not likely |
| *Xenus cinereus* | Terek Sandpiper | Migratory (wetland) | Species or species habitat likely to occur | has been recorded in area |
| **Frogs** | | | | |
| *Mixophyes iteratus* | Southern Barred Frog, Giant Barred Frog | Endangered | Species or species habitat likely to occur | not likely |
| **Mammals** | | | | |
| *Chalinolobus dwyeri* | Large-eared Pied Bat | Vulnerable | Species or species habitat may occur | not likely |
| *Dasyurus maculatus maculatus* | Spotted-tailed Quoll | Endangered | Species or species habitat likely to occur | not likely |
| *Potorous tridactylus tridactylus* | Long-nosed Potoroo | Vulnerable | Species or species habitat may occur | not likely |
| *Pteropus poliocephalus* | Grey-headed Flying-fox | Vulnerable | Roosting known to occur | has been recorded in area |
| *Xeromys myoides* | Water Mouse | Vulnerable | Species or species habitat may occur | has been recorded in area |
| **Reptiles** | | | | |
| *Coeranoscincus reticulatus* | Three-toed Snake-tooth Skink | Vulnerable | Species or species habitat may occur | not likely |

The likelihood that the identified species in the table may be encountered is briefly identified in the last column of the Table. Where a species is determined to be unlikely to be present, the assessment is based on the lack of suitable habitat or recorded sightings of the species within the proposed study corridor area.

Of the 27 threatened species listed in the EPBC Protected Matters Report there are two species or their habitat areas that have been recorded in the area:

- Grey-headed Flying Fox (*Pteropus poliocephalus*); and
- Water Mouse (*Xeromys myoides*).

The Grey-headed flying fox is a wide ranging species, commonly found within the Brisbane region. However, the Grey-headed flying fox feeds opportunistically on flowering native and exotic species across the Brisbane region and ranges throughout the region. The Grey-headed flying fox has been recorded at the Airport and it is believed that this species overflies the Airport to areas of habitat. There are no colonies of the Grey-headed flying fox at the old airport site or in the adjacent areas.

The water mouse is known to inhabit mangrove forests, where they feed on small crabs, shellfish and worms. They build large mud nests, usually in sedges outside the mangroves where they can escape above the highest of tides. It is found in coastal wetlands such as lagoons, swamps and sedged lakes close to fore dunes. It forages amongst the mangroves at night when the tide is low, and when the tide rises, it returns to the adjacent sedgelands for shelter. It has not been reported from the Brisbane Airport or the Australia TradeCoast.

Of the 24 migratory species identified in the Protected Matters Report (excluding migratory marine mammals, reptiles and sharks) (**Table 11-10**), some 15 species are considered likely to overfly the area, be found in the area or have been recorded in the area. These 15 species include:

- Ruddy Turnstone (*Arenaria interpres*) - may be found overflying the area;
- Curlew Sandpiper (*Calidris ferruginea*) - may be found overflying the area;
- Lesser Sand or Mongolian Plover (*Charadrius mongolus*) - may be found in the area;
- Latham's Snipe (*Gallinago hardwickii*) - has been recorded in area;
- White-bellied Sea-Eagle (*Haliaeetus leucogaster*) - has been recorded in area;
- Grey-tailed Tattler (*Heteroscelus brevipes*) - has been recorded in area;
- White-throated Needletail (*Hirundapus caudacutus*) - may be found overflying the area;
- Bar-tailed Godwit (*Limosa lapponica*) has been recorded in area;
- Spectacled Monarch (*Monarcha trivirgatus*) - may be found overflying the area;
- Black-faced Monarch (*Monarcha melanopsis*) - may be found overflying the area;
- Eastern Curlew (*Numenius madagascariensis*) - has been recorded in area;
- Whimbrel (*Numenius phaeopus*) - has been recorded in area;
- Pacific Golden Plover (*Pluvialis fulva*) - has been recorded in area;
- Rufous Fantail *(Rhipidura rufifrons*) - has been recorded in area; and
- Terek Sandpiper (*Xenus cinereus*) - has been recorded in area.

## 11.2 Potential Impacts

### 11.2.1 Terrestrial Flora and Fauna

The impacts of the Airport Link Project on terrestrial flora and fauna are unlikely to be significant, as the project is located in a highly urbanised area and the vast majority of the project is underground. There are no areas of remnant vegetation in the study corridor affected by the project, and areas of wildlife habitat and vegetation have been disturbed and fragmented as a result of urban development. The species observed are commonly found throughout Brisbane, and include both native and exotic species.

Areas where potential impacts on terrestrial flora and fauna may occur are shown in **Figure 11-2**. These are at:

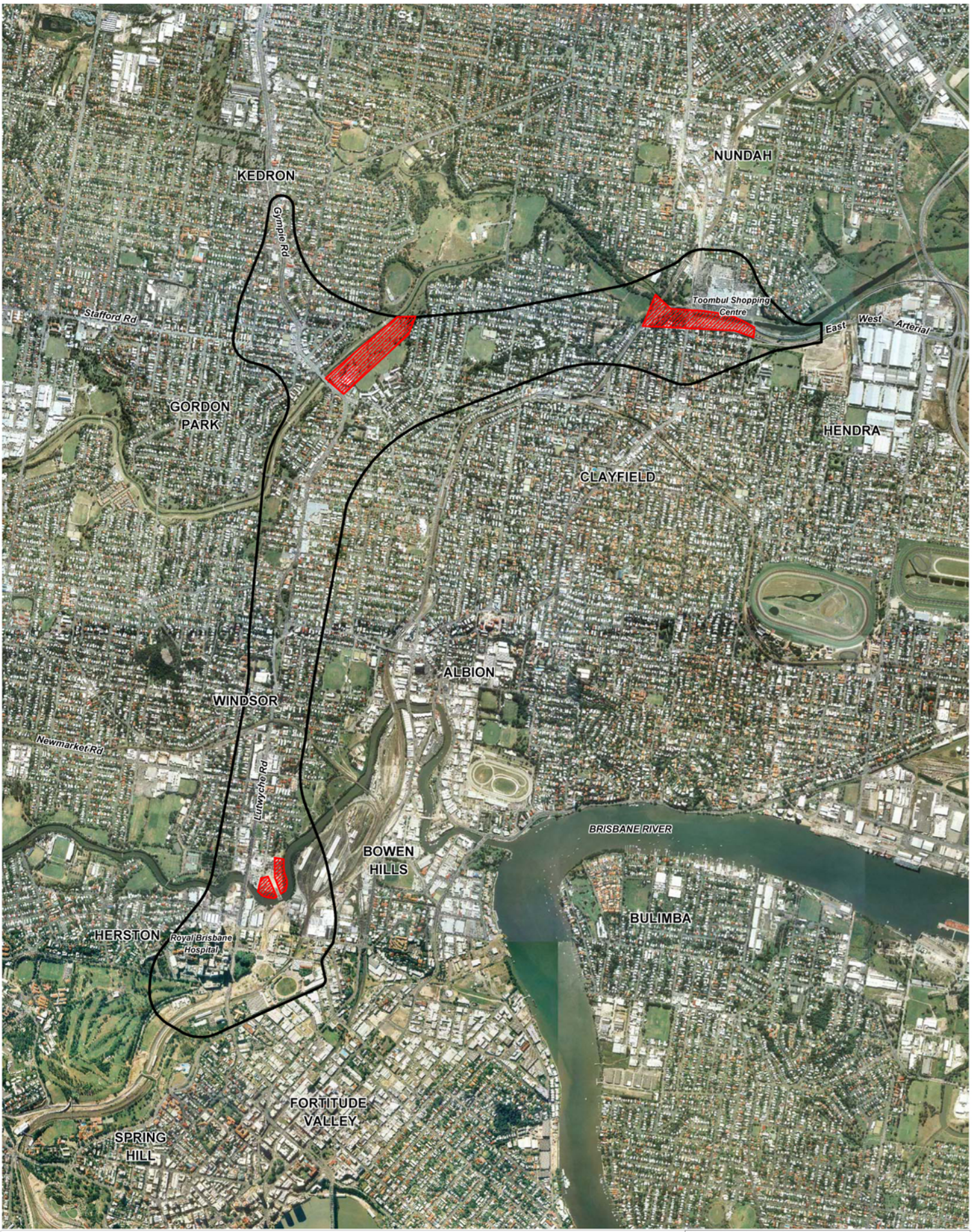
- The Gympie Road connection, where habitat and vegetation north of Kedron State High School and the Emergency Services (immediately south of Kedron Brook), will be cleared for construction of cut and cover tunnels and transition structures; and
- The Sandgate Road connection where habitat and vegetation in the southern end of Kalinga and Ross Parks will be cleared for construction of cut and cover tunnels and transition structures. Further impacts across Kalinga and Ross Parks will arise from the clearing of trees and vegetation for construction site works.

Vegetation along Kedron Brook has been cleared from the channelization of the watercourse. Exotic grasses dominate the banks, and outside the channel the vegetation consists of scattered plantings of common and exotic trees and mown grass. Faunal species identified at Mercer Park are all common and widespread in southeast Queensland. The most abundant species include the introduced Cane Toad and House Gecko, the Eastern Water Dragon and the Black-headed Flying Fox. Other species include the Broad-palmed Rocketfrog, the Brisbane Short-necked Turtle, and the arboreal gecko *Gephyra dubia*. This section of Kedron Brook has low ecological value due to the lack of vegetation to provide habitat, and common exotic flora and fauna. Therefore it is anticipated that the project will not significantly impact on terrestrial flora and fauna. The project proposal to cover the majority of the cut and landscape the area will maintain the value of Kedron Brook as a wildlife corridor.

Vegetation at Kalinga and Ross Parks consists of a mosaic of scattered remnant trees and planted native trees, with an understorey of mown grass, or mulch with planted native herbs. This area has moderate habitat value due to flowing Kedron Brook, and some large trees with hollows near Sandgate Road, which are likely to be habitat trees for arboreal mammals, bats and hollow nesting birds. Mammals include Gould's Wattled Bat, Eastern Broad-nosed bat, White-striped Mastiff Bat, Long-eared Bat, Common Ringtail Possum, Common Brushtail Possum, Black-headed Flying Fox. Construction of the tunnel and use of Kalinga and Ross Parks for construction site works will impact on flora and fauna due to tree clearance, including a group of eucalypts immediately south of Kedron Brook. This will result in a loss of habitat for possums, bats and hollow nesting birds.

Proposed landscaping will mitigate impacts by revegetating areas which are disturbed by construction works. The southern end of Ross Park, north of the proposed tunnel, south of Kedron Brook, west of Sandgate Road and east of the railway line will be re-landscaped as wetlands for flood mitigation.

In Kalinga and Ross Parks and along Kedron Brook and Enoggera Creek, there may be localised fauna disruption during construction due to noise and light. However, this should be minimal, given the noise and light generated currently by traffic and other nearby activities.




**LEGEND**

- Airport Link Corridor
- Area of Ground Disturbance

**Figure 11-2**

**Project Impacts - Ecology**

N

0 0.5 1km

Airport Link

SKM Connell Wagner JOINT VENTURE

BRISBANE CITY

Along the Lutwyche Road corridor where potential exists for lowering of the water table through the drawing down of groundwater into the unlined tunnel (discussed in Chapter 7, Section 7.4.2), trees are growing that are subject to Vegetation Protection Orders (VPOs). These include a large, mature fig (*Ficus benjamina)* at Wallace Place Park and three mature trees at Kedron Park Hotel, one crow's ash (*Flindersia australis*) and two figs (*Ficus benjamina*). Figs that have extensive surface root systems may experience water loss from groundwater drawdown. Other trees, including a group of hoop pines (*Araucaria cunninghamii*) at Clark Park, may also be affected. Between Kedron and Clayfield, the proposed tunnel methodology (lined tunnels and the use of a tunnel boring machine) will largely avoid the draw down problem as draw down would be about 1m.

Widening the existing Gympie Road bridge should have minimal long term effects on faunal movement, particularly birds, along the Kedron Brook open space corridor, given that the bridge level will not change and width will increase by only 1.5m. Minor habitat loss across Kedron Brook catchment, due to construction of piles, is unlikely to have a significant impact, as the banks are dominated by weed species.

The new crossings either side of the Horace Street bridge will be elevated (6-12m) to minimise impacts on mangroves and allow faunal movement along Enoggera Creek. Piles will be located to avoid disturbance to the mangroves on both banks of Enoggera Creek. They may, however, require some pruning. If pruning is required, there may be some loss of habitat for fauna using the fringing mangroves, though this is unlikely to lead to a reduction in species diversity or abundance.

Overall, the project will result in long-term impacts on terrestrial flora and fauna at Kalinga and Ross Parks. However this is not expected to be significant as local species are common and widespread across Brisbane. The project will not cause any impact to species listed under either the *Environment Protection and Biodiversity Conservation Act 1999* or the *Nature Conservation Act 1992*.

### 11.2.2 Aquatic Flora and Fauna

Potential impacts on aquatic flora and fauna may occur at the southern and north-western connections, where bridges cross Enoggera Creek and Kedron Brook, respectively and at the north-eastern connection, where it is proposed to divert the existing Eagle Junction Tributary. There will be new bridges at Enoggera Creek and at Kedron Brook. Bridge construction and modification may have minor local impacts on aquatic flora and fauna, although no significant ecological impacts are expected after the project is completed.

#### New bridges

The Gympie Road bridge would be replaced and a new bridge built on the downstream side.

The Gympie Road section of Kedron Brook has poor habitat value due to removal of riparian vegetation and channelization for flood mitigation, and dominance by exotic grasses and weeds. Nevertheless, the in-water vegetation and the small pools and riffles provide some habitat value to aquatic organisms. Piles would be positioned on either side of the channel, and are not proposed to penetrate the water. Removal of vegetation for construction would have little impact on aquatic flora at Kedron Brook, as remnant riparian vegetation has already been removed, and banks are dominated by exotic grasses. Effects relating to increased shading of aquatic vegetation would be minor, as the area affected is very small. The area would not be permanently overshadowed, as the sun moves from the east to the west throughout the day.

New bridges will be constructed across Enoggera Creek to connect the tunnel with the eastbound and westbound lanes of the ICB and the NSBT. Areas of vegetation remain along the banks of Enoggera Creek, and are dominated by mangrove species. New bridges across Enoggera Creek over very narrow riparian mangrove zones would be designed as high level flyovers, 6m to 12m above ground level. This would allow construction

without removing existing mangroves, although some pruning may be required. Piles would be located to avoid disturbance to the mangroves on both banks of Enoggera Creek. Pruning may result in some loss of habitat for fauna using the fringing mangroves. However, this would be a short-term minimal disruption, unlikely to lead to a reduction in species diversity or abundance. Following construction, the mangroves would regenerate in the disturbed areas. The southern bank of Enoggera Creek is covered with regrowth vegetation, following construction of the ICB. Effects relating to shading of mangroves would be minor, as the areas affected by the new bridges are small and would not be permanently overshadowed.

Areas of mangroves will be cleared to accommodate the bridges for Airport Link, which is in addition to those areas cleared for NSBT and the Northern Busway.

A full marine plant survey would need to be undertaken prior to construction and a development application for marine plant removal submitted to DPI&F for approval. Although Enoggera Creek is not part of a Fish Habitat Area, marine plants have important habitat value and minimal disturbance is required. Removal of marine plants can increase turbidity which can potentially impact upon fauna in the short term but will have no long term impact. Pruning of the small area of mangroves would have minimal impact on the local marine community and associated fauna.

Other potential impacts on aquatic flora and fauna are associated with potential pollutants such as hydrocarbons and sediment in stormwater runoff from construction activities and vehicles. Mitigation measures to ensure that this does not occur are detailed in Chapter 8 – Surface Water Quality of the EIS. Potential Acid Sulphate Soils (PASS) could also impact upon aquatic flora and fauna if indiscriminately disturbed and arrangements for management of this potential impact are outlined in Chapter 6 – Topography, Geology and Soils in Volume 3 of the EIS.

### Diversion of Kedron Brook Tributary

Construction of the cut and cover tunnel at the north-eastern connection requires diversion of the Eagle Junction tributary of Kedron Brook. The tributary has low aquatic habitat value due to the fragmented riparian zone, the abundance of weeds and a weir structure limiting faunal movement. During construction the tributary would be diverted around the flood protection bunding and into Kedron Brook downstream of the railway embankment.

The tributary would be re-instated as part of the landscape and revegetation plan after construction of the tunnel, and flow over the cut and cover in virtually its present alignment. The diversion of the tributary is not anticipated to have any significant ecological impacts on aquatic flora and fauna, as the aquatic habitat value is low, being dominated by exotic grasses and weeds, and has already been disturbed by construction of the weir.

## 11.2.3 Spoil Placement Areas

Placement of spoil within the Port of Brisbane sites is not anticipated to have any significant impact on ecological resources at these sites. The spoil placement site at Clunies Flat has been significantly disturbed and cleared of all remnant native vegetation, and the Fisherman Islands site is currently being reclaimed and does not have any habitat values.

Placement of spoil at Viola Place and the Gateway Upgaade sites will involve some loss of habitat for common and widespread species. These sites have been cleared of original vegetation and revegetated with common and exotic species of both flora and fauna.

As the sites considered for the placement of spoil from the project have been significantly disturbed and cleared of original vegetation, there will be very little impact on flora and fauna values at these sites.

### 11.2.4 Fire Ants

The spoil placement areas for the project, at the Port of Brisbane and Brisbane Airport, are located within a Red Imported Fire Ant restricted area, and as such there is the potential for the project to facilitate the colonisation of new areas by the ant. Fire ants are attracted to areas of freshly disturbed soil, which would be the case at the spoil placement areas. As trucks would be returning to the tunnel construction site, from the restricted area, there is a need to implement procedures to ensure fire ants are not spread from the restricted to unrestricted areas. Means to achieve this are noted in Chapter 19 – Environmental Management Plan of the EIS as a necessary component of the detailed Construction EMP.

## 11.3 Mitigation Measures

### 11.3.1 Detailed Design

A landscape and revegetation plan would outline the restoration of disturbed areas, including replacing vegetation removed during the cut and cover operations, and enhancing areas where vegetation was originally scarce. The landscape and revegetation plan would use local native species, as a priority. Non-native species would only be used where the use of these species is consistent with existing landscaping.

Due to the high water table and low lying nature of the land in this area, the use of wetlands south of Kedron Brook between Sandgate Road and the railway line is considered an appropriate means of managing surface flows.

### 11.3.2 Construction Phase

During construction of the project it is proposed to:

- Implement sedimentation and erosion control plans to reduce sediment leaving the project construction sites in surface water run-off and entering Enoggera Creek, Kedron Brook or stormwater systems;
- Inspect tree hollows in Kalinga Park prior to site clearance to inform a relocation plan for any arboreal mammals or bats found living there;
- Distinguish between vegetation to be removed and that to be retained to minimise loss of habitat and mark areas of vegetation to be retained;
- Avoid damage to the root zones of adjacent trees during construction - locate vehicle access, material storage and cleaning of plant and equipment away from adjacent trees;
- Check construction site works, such as trenches and culverts, each morning and after periods of inactivity to ensure fauna are not trapped or likely to be harmed by construction activities;
- Ensure all native fauna is protected (including snakes) and not intentionally harmed as a result of the construction works or worker actions;
- Where mangrove removal cannot be avoided, ensure site conditions are suitable for the recolonisation of mangroves once construction is completed;
- Revegetate disturbed areas with local native species as soon as practicable after the disturbance;
- Where vegetation is cleared for bridges at Enoggera Creek and Kedron Brook, tree roots would be retained to help stabilise the site and to maintain bank stability;
- Undertake an assessment of the fig trees at Wallace Place Park, for health, prior to commencement of the tunnel excavation to develop a management plan for the on-going health of those trees;
- Water and fertilise figs to encourage root growth, up to 6 months before the tunnel construction reaches the location of the trees;

- Continue watering of the trees, following tunnel excavation under Lutwyche Road, to allow roots to continue to grow and develop; and
- Regularly monitor the health of the trees for two growing seasons after excavation has passed under Wallace Place Park, to monitor response to possible groundwater drawdown.

### 11.3.3 Red Imported Fire Ants

Controls on the movement of soil from unrestricted to restricted areas do not exist. However, trucks will be moving (returning) from the restricted area of the spoil placement area to the construction sites in Bowen Hills and Clayfield, which are outside the restricted area. The following management actions will be taken to manage fire ants in the project:

- Spoil placement areas would be inspected to determine whether fire ants are present at the sites;
- Spoil placement areas would be inspected on a monthly basis, during the placement of spoil to monitor the presence of fire ants;
- Regular contact would be maintained with the Brisbane City Council Fire Ant Control Officer and the DPI&F Fire Ant Control Centre;
- A Risk Management Plan would be prepared to manage the movement of high risk material (soil), and the plan will be approved by DPI&F;
- Liaison will occur with both the Brisbane City Council Fire Ant Control Officer and the DPI&F Fire Ant Control Centre during the planning phase of the project, to agree on mitigation measures and management plans for the management of fire ants during the construction of the project; and
- An inspection system of vehicles leaving the spoil placement area would be implemented to ensure vehicles are free of loose soil or other material that may be capable of containing fire ants.