NORTHEAST BUSINESS PARK

Terrestrial Ecology Assessment Report

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TERRESTRIAL ECOLOGY ASSESSMENT REPORT

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1. INTRODUCTION

This Terrestrial Ecological Assessment Report (TEAR) has been prepared by Cardno on behalf of Northeast Business Park Pty Ltd in respect of the proposed Northeast Business Park ("NEBP") development. The development encompasses seven of parcels of land within Caboolture Shire, which are formally described as follows:

- Lot 10 on RP902079 (34 Nolan Drive, Burpengary);
- Lot 12 on RP145197 (60 Traflagar Drive, Morayfield);
- Lot 15 on RP902073 (15 Nolan Drive, Morayfield);
- Lot 2 on RP902075 (2 Nolan Drive, Burpengary);
- Lot 24 on SP158298 (195 Farry Road, Burpengary);
- Lot 7 on RP845326 (185 Farry Road, Burpengary); and
- Lot 17 on RP902072 (31 Trafalgar Drive, Morayfield).

Collectively these parcels of land encompass an area of approximately 769 ha and will be referred to hereafter as "the site", unless specified otherwise. A locality plan of the site is provided as Figure 1.

The Queensland Coordinator General has declared the NEBP development a significant project which requires an Environmental Impact Statement (EIS) in accordance with Part 4 of the *State Development and Public Works Organisation Act 1971*. A finalised Terms of Reference has been issued for the EIS. This report addresses the Terms of Reference for an Environmental Impact Statement, prepared by the Coordinator General, Queensland Government, December 2006, that relate to terrestrial ecology. A separate ecological assessment report addressing aquatic ecology matters has been prepared by The Ecology Lab Pty Ltd.

The objectives of this report are to provide an analysis of the nature conservation values of the site and the potential impacts and mitigation measures to minimise any adverse effects on these values as a result of the development.

This TEAR is based on field surveys, examination of aerial photography and a review of relevant literature resources, and provides the following.

a. In Section 2.0, information concerning the general characteristics of the site.

b. In Section 3.0, information concerning the assessment methodology used in the preparation of this report.

c. In Section 4.0, a description of the terrestrial vegetation occurring at the site with reference to the relevant Regional Ecosystem vegetation types and significant flora species.

d. In Section 5.0, information concerning the terrestrial fauna habitat values of the site.

e. In Section 6.0, a description of the NEBP proposal including an overview of:
   - the impact of the proposal upon terrestrial ecosystems; and
   - the proposed impact mitigation and management strategies.

f. In Section 7.0, an assessment of the degree of compliance the NEBP proposal achieves with the requirements of legislation having a terrestrial biodiversity conservation and/or management focus, including:
   - the *Environment Protection and Biodiversity Conservation Act 1999*;
   - the *Nature Conservation Act 1992*;

- the *Vegetation Management Act 1999*;
- the *Coastal Protection and Management Act 1995*; and
- the *Caboolture Shire Planning Scheme*.

g. In Section 8.0, a summary of the findings and conclusions of this assessment.

h. In Section 9.0, a list of information sources that were utilised in the production of this TEAR.

2. SITE DESCRIPTION

The site is situated on the southern bank of the Caboolture River, approximately 8km upstream from the mouth of the Caboolture River, approximately 4km to the south-east of Caboolture town centre and approximately 40km north of the Brisbane Central Business District. An aerial photograph of the site (circa 2007) is presented in Figure 2.

With reference to Figure 2, the site is bound:

- to the north by the Caboolture River, with land on the northern side of the river being used primarily for agricultural pursuits;
- to the west by the Bruce Highway, with land on the opposite side of Bruce Highway developed with residential and open space areas; and
- to the south and east by privately owned rural residential, cleared grasslands and fragmented bushland.

The site is relatively flat ranging in elevation from less than 3m AHD along the site's Caboolture River frontage and drainage lines to 16.5m AHD in the south and west of the site. The site is traversed by Raff Creek, a tributary of the Caboolture River, and a number of constructed drainage channels and minor drainage lines. Raff Creek extends from the south-east corner of the site, where it is a freshwater system, to the centre of the site where it becomes subject to tidal influences. An unnamed and predominantly freshwater tributary of Raff Creek enters the site from the south-east. Tidal levels of the Caboolture River, adjacent to the site are approximately 1.34m AHD for Highest Astronomical Tide (HAT) and 0.81m AHD for Mean High Water Springs (MHWS).

The majority of the site is highly disturbed and has been the subject of previous land clearing, livestock grazing and plantation forestry activities. The site is characterised by large expanses of disturbed grassland, some scattered trees, paperbark (*Melaleuca quinquenervia*) communities, eucalypt open forest and areas of marine vegetation which fringe the Caboolture River and associated waterways.

The northern sectors of the site:

- adjoin the Deception Bay Declared Fish Habitat area, which extends along the entire length of the northern boundary, within the bounds of the Caboolture River*;*
- are adjacent to the Moreton Bay Marine Park Habitat Zone which ends at the north-eastern boundary of the site; and
- adjoin the Moreton Bay Ramsar Wetlands, which encompass the same reaches of the Caboolture River as the Moreton Bay Marine Park.

3. ASSESSMENT METHODOLOGY

The terrestrial ecosystem and conservation values of the site and the potential impacts of the proposed NEBP development on these values was assessed using the following methodology.

1. A review of background information on the flora and fauna of the site locality from relevant sources including:
    - previous ecological surveys and assessments carried out on the site such as the "Ecological Assessment Report at (a) Lot 10 on RP902079, & (b) Lot 2 on RP 902075 Nolan Drive & Buckley Road, Morayfield for Lensworth Group Limited" prepared by Yurrah Pty Ltd, June 2004;
    - the Queensland Environmental Protection Agency's (EPA) Wildlife Online database;
    - the Commonwealth Department of Environment and Water Resources' (DEWR) online *Environment Protection and Biodiversity Conservation 1999* ("*EPBC Act*") Protected Matters Search tool;
    - current and historical aerial photography of the site; and
    - current Regional Ecosystem mapping for the site locality.

2. Field surveys carried out over the period from April 2006 to October 2007 during which information was collated in respect of:
    - terrestrial vegetation communities and flora species that occur on the site;
    - terrestrial fauna observed on the site, or those that are considered likely to utilise the site due to the presence of suitable habitat; and
    - the functional contribution that specific areas or aspects of the site may make towards the preservation of native wildlife populations in the site locality.

    Flora surveys involved traversing the site using high-resolution aerial photography images overlaid with contours and a Global Positioning System reference grid. Boundaries between the vegetation communities were delineated according to changes in floristic structure and composition. It should be noted that vegetation communities within the site often exhibited weak gradients in composition and structure rather than strong boundaries. An attempt was therefore made to incorporate ecotones within the community boundaries. Historical photographs were also reviewed to assist in the delineation of vegetation community boundaries.

    Fauna survey efforts focused on detecting and assessing the presence of suitable habitat areas and resources for fauna species, with particular emphasis on those species of formally recognised conservation significance that have been previously recorded, or considered likely to occur, in the locality of the site. In this respect, a search of the Queensland EPA's Wildlife on-line and the Commonwealth DEWR's online EPBC Act Protected Matters Search Tool were used to assess records of species occurring, or likely to occur, within a 10 km radius of the site. The habitat requirements and the functional contribution that specific areas or aspects of the site may make towards the preservation of populations of these species in the site locality were then assessed.

3. Evaluation of the potential impacts of the proposed NEBP development on the terrestrial ecology of the site locality with particular attention given to those aspects which are of recognised conservation significance. The nature and significance of potential impacts upon terrestrial ecosystems were considered with reference to existing information concerning:
    - the ecology and sensitivity of potentially affected flora, fauna and ecosystems;
    - the regional occurrence and conservation status of potentially affected flora, fauna and ecosystems; and
    - the capacity of best environmental practices to minimise both on-site and off-site impacts upon terrestrial ecosystems and individual species of recognised conservation significance.
4. Evaluation of the degree of compliance the proposed plan of development achieves with the requirements of the local planning scheme and relevant State and Commonwealth legislation having a terrestrial biodiversity conservation and/or management focus.

4. FLORA HABITAT VALUES

4.1 Overview

Historically the site has been subject to episodes of broad-scale vegetation clearance associated with native timber getting, livestock grazing and exotic pine plantation forestry. Currently recently the site is being utilised for livestock production and as such, the majority of the site supports highly disturbed grassland vegetation. Interspersed throughout the grassland landscape are small areas of marine vegetation, paperbark swamps, eucalypt forest, native pine vegetation and heathland. The Caboolture River, which delineates the northern boundary of the site, supports riparian vegetation that has been reduced to a narrow fringe of terrestrial and marine plants with varying levels of weed incursion. There are also groves of cultivated exotic trees remaining along the banks of the Caboolture River where old homesteads used to exist.

A copy of the Certified Regional Ecosystem (RE) Map for the site and surrounding locality was obtained from the EPA on the 5th of January 2007. This mapping is provided in Appendix A and is reproduced using information extracted from the Regional Ecosystem Remnant Data database, on an aerial photograph of the site in Figure 3. With reference to this figure, the majority of the site is identified as supporting "Plantation Forest" with south-western sector of the site identified as supporting two REs, namely RE 12.5.3 and RE 12.3.5. These REs are described as follows.

RE 12.5.3 *Eucalyptus tindaliae* and/or *E. racemosa* open-forest with *Corymbia intermedia, E. siderophloia* ± *E. resinifera, E. pilularis, E. microcorys*, *Angophora leiocarpa* on complex of remnant Tertiary surfaces ± Cainozoic to Proterozoic sediments. *Melaleuca quinquenervia* often a prominent feature of lower slopes. Minor patches (<1ha) dominated by *Corymbia citriodora* can sometimes occur. Occurs on complex of remnant Tertiary surfaces ± Cainozoic and Mesozoic sediments. This RE type has an *Endangered* status pursuant to the *Vegetation Management Act 1999* ("*VM Act*").

RE 12.3.5 *Melaleuca quinquenervia* open-forest to woodland. Understorey depends upon duration of water logging; sedges and ferns, especially *Blechnum indicum*, in wetter microhabitats and grasses and shrubs in drier microhabitats. Other tree species that may be present as scattered individuals or clumps include *Lophostemon suaveolens, Eucalyptus robusta, E. tereticornis, E. bancroftii, E. latisinensis, Corymbia intermedia, Callistemon salignus, Livistona australis, Casuarina glauca, Endiandra sieberi. Melastoma malabathricum* subsp. *malabathricum*, *Glochidion sumatranum* and *Melicope elleryana* are often in understorey. Occurs on Quaternary alluvial plains in coastal areas. This RE type has a *Not Of Concern* status pursuant to the *VM Act*.

Major vegetation communities that were identified during field surveys of the site are:

1. Mixed marine vegetation;
2. Paperbark (*Melaleuca quinquenervia*) open forest;
3. Disturbed grassland;
4. Cypress pine (*Callitris columellaris*) woodland;
5. Disturbed Saltwater couch (*Sporobolus virginicus*) grassland;
6. Swamp oak (*Casuarina glauca*) woodland;
7. Disturbed mixed species woodland;

8. Swampy heathland;
9. Riparian vegetation;
10. Cultivated vegetation;
11. Scribbly gum shrubby open forest;
12. Regenerating paperbark forest; and
13. Regenerating *Acacia* dominated woodland

More detailed descriptions of the structure and floristic composition of these communities are provided in Section 4.2 and their distributions across the site are illustrated in Figure 4.

4.2 Vegetation Types

4.2.1 Mixed Marine Vegetation

Mixed marine vegetation encompasses approximately 38.7 ha (or 5%) of the site and occurs along the banks of the Caboolture River and within lower-lying areas that are associated with tidally influenced sectors of Raff Creek and minor drainage channels that traverse the site (refer Figure 4).

This community is generally dominated by Grey mangrove (*Avicennia marina*) and River mangrove (*Aegiceras corniculatum*) with an understorey of Saltwater couch (*Sporobolus virginicus*), which in some areas becomes locally predominant, forming treeless plains. The terrestrial fringes of this community are often lined with Swamp oak (*Casuarina glauca*) and other species such as *Suaeda* sp., Ruby saltbush (*Enchylaena tomentosa*), Lantana (*Lantana camara*), Brazilian nightshade (*Solanum seaforthianum*), Balloon cotton bush (*Gomphocarpus physocarpus*), Broad-leaved pepper tree (*Schinus terebinthifolius*), Mile-a-minute (*Ipomoea cairica*), Monkey rope vine (*Parsonsia straminea*), Wild tobacco (*Solanum mauritianum*), *Passiflora* sp., Rhodes grass (*Chloris gayana*), Fleabane (*Conzya* sp.), *Emilia sonchifolia* and Groundsel bush (*Baccharis halimifolia*). In some areas, this community is in a highly degraded state owing to a history of clearance and the actions of livestock.

This community is broadly analogous to RE 12.1.3 which is briefly described as 'Mangrove shrubland to low closed forest on Quaternary estuarine deposits' and has *Not of Concern* status pursuant to the *VM Act*.

4.2.2 Paperbark (*Melaleuca quinquenervia*) open forest


Paperbark (*Melaleuca quinquenervia*) open forest occupies approximately 19.9 ha (or 2.5%) of the site and occurs in three discrete locations within the site. The largest patch of Paperbark open forest is associated with an unnamed tributary of Raff Creek located in the south-east of the site and occupies an area of approximately 11.2 ha. The other two patches of Paperbark open forest are associated with Raff Creek and are located in the very south-western corner of the site and the central south of the site. These two patches form part of a contiguous band of Paperbark open forest associated with Raff Creek which extends into adjoining land to the south of the site.

The vegetation is generally dominated by Broad-leaved paperbark (*Melaleuca quinquenervia*) to a height of approximately 20m with scattered Queensland blue gum (*Eucalyptus tereticornis*), Grey ironbark (*Eucalyptus siderophloia*) and Swamp box (*Lophostemon suaveolons*). The upper canopy of this vegetation community is relatively intact although, in the south-eastern community fire scars to a height of 7 – 8m on the trunks of canopy dominants indicate the recent passage of fire.

The understorey is dominated by a combination of native species, exotic grasses and other introduced plants. Species that occur within this section community include Poison peach (*Trema tomentosa*), Monkey rope vine, *Melaleuca linariifolia*, White passion flower (*Passiflora subpeltata*), Groundsel bush, Pink euodia (*Melicope elleryana*), *Glochidium sumatranum*, *Stephania japonica*, Red ash, *Pittosporum revolutum*, *Kennedia rubicunda*, Frogsmouth (*Philydrum lanuginosum*), Smartweed (*Persicaria* sp.), Water hyacinth (*Eichhornia crassipes*), Wild tobacco, Soft bracken (*Calochlaena dubia*), *Lomandra longifolia*, *Ludwigia peploides*, Camphor laurel (*Cinnamomum camphora*), Mile-a-minute, Fleabane (*Conzya* sp.) and *Passiflora* sp. However, *Phragmites australis* and *Blechnum indicum* become locally predominant in some areas of the communities associated with the drainage lines. The community that occurs along the south-western boundary is subject to less frequent periods of inundation and as such supports an understorey is characterised by a sparse shrub layer and a grassy groundstorey.

The far south-western community has been classified on the current Certified RE Map as remnant vegetation comprised of RE 12.3.5, whilst the balance of this community is classified as being non-remnant vegetation.

4.2.3 Disturbed grassland

Disturbed grassland, resulting from past vegetation clearance episodes and current management practices, occupies approximately 598 ha (or 78%) of the site area.

This community is characterised by species that are common to disturbed rural landscapes such as Pigeon grass (*Setaria* spp.), Rhodes grass (*Chloris gayana*), *Paspalum* sp., Guinea grass (*Panicum maximum*), Wild tobacco, Balloon cotton bush (*Gomphocarpus physocarpus*), Silverleaf desmodium (*Desmodium uncinatum*), Phasey bean (*Macroptilium lathyroides*), Siratro (*Macroptilium atropurpureum*), Blady grass, Cobblers peg (*Bidens pilosa*), Blue billygoat weed (*Ageratum houstonianum*), *Callistemon viminalis*, Fleabane (*Conyza* sp.), Scotch thistle (*Cirsium vulgare*), *Passiflora* sp., Groundsel, Devils fig (*Solanum torvum*), *Cyperus* sp., *Emilia sonchifolia,* Mile-a-minute, Lantana, *Ludwigia peploides*, Red ash, *Phragmites australis* and some scattered areas of Slash pine (*Pinus elliottii*) and *Acacia* regrowth. Isolated native species such as Queensland blue gum and Pink bloodwood (*Corymbia intermedia*) are scattered throughout this community.

This community supports a number of constructed and natural water bodies that are generally in a degraded state as a result of livestock traffic and vegetation removal. These waterbodies support a range of exotic grasses and native rushes and sedge species. Some of these areas also support scattered Swamp oak and Broad-leaved paperbark.

This community is not analogous to any described RE type and is classified as either non-remnant vegetation or plantation forest on the current Certified RE Map.

4.2.4 Cypress pine (*Callitris columellaris*) woodland


Cypress pine (*Callitris columellaris*) woodland exists as two isolated patches, situated in the central sector of the site, that collectively encompass approximately 1.8 ha (or 0.2%) of the site area.

The overstorey dominated by Cypress pine (*Callitris columellaris*) to a height of approximately 16-17m with a few scattered Broad-leaved paperbark and Slash pine. This vegetation community has an open understorey with sparse, scattered species such as Lantana, Wild tobacco, Bracken fern (*Pteridium esculentum*), Prickly pear (*Opuntia* sp.), *Dianella* sp. and *Leptospermum* sp.

This community is not analogous to any described RE type and is classified as non-remnant vegetation on the current Certified RE Map.

4.2.5 Disturbed Saltwater couch (*Sporobolus virginicus*) grassland


Disturbed Saltwater couch (*Sporobolus virginicus*) grassland occurs as three isolated patches that collectively encompass approximately 7.7 ha (or 1.0%) of the site. This community occurs adjacent to the Caboolture River and associated drainage channels that are subject to tidal influence.

The community is dominated by Saltwater couch (*Sporobolus virginicus*) and intergrades with Green couch (*Cynodon dactylon*) and various pasture plants and grasses at the terrestrial interface. All areas representative of this community are currently in a highly disturbed state owing to actions of livestock and vehicular access.

This community is broadly analogous to RE 12.1.2, which is briefly described as 'Saltpan vegetation comprised of *Sporobolus virginicus* grassland and samphire herbland on Quaternary estuarine deposits and has a *Not of Concern* status pursuant to the *VM Act*. The Certified RE map classifies this community as being non-remnant vegetation.

4.2.6 Swamp oak (*Casuarina glauca*) woodland


Swamp oak (*Casuarina glauca*) woodland occupies approximately 5 ha (or 0.7%) of the site area and is comprised of three fragmented patches associated with highly disturbed drainage channels.

The canopy is generally a monoculture of Swamp oak to a height of approximately 15–18m with scattered Slash pine and the occasional Grey ironbark. Other species present in the lower strata include Lantana, Groundsel bush, *Passiflora* sp., Fleabane and *Phragmites australis.*

This community is analogous to RE 12.1.1, which is briefly described as *Casuarina glauca* ± *Melaleuca quinquenervia* ± mangrove open forest on margins of Quaternary estuarine deposits and has an *Of Concern* status pursuant to the *VM Act*. The Certified RE map classifies this community as being non-remnant vegetation.

4.2.7 Disturbed mixed species woodland


Disturbed mixed species woodland occupies a narrow strip in the central portion of the site covering approximately 7.1 ha (or 0.9%) of the site.

The overstorey consists of scattered canopy species such as Queensland blue gum, Pink bloodwood, Moreton Bay ash (*Corymbia tessellaris*), Slash pine, *Acacia* sp. and Broad-leaved paperbark. Owing to a history of disturbance and edges effects this community is currently subject to high levels of invasion by many of the exotic plant species described for the disturbed grassland community.

This community is not analogous to any described RE type because of the sparsity of the overstorey vegetation and high levels of weed incursion. The Certified RE map classifies this community as being non-remnant vegetation.

4.2.8 Swampy heathland

Swampy heathland occurs in the central sector of the site and covers approximately 1.5 ha (or 0.2%) of the site.

This community is currently in highly disturbed state and consists of low-lying heath regrowth dominated by species such as *Blechnum indicum* and *Baloskion tetraphyllum* on sandy soils. Other species include scattered Slash pine regrowth, Broad-leaved paperbark seedlings, Prickly moses (*Acacia ulicifolia*), *Acacia leiocalyx*, Blady grass and other exotic grasses also present in the disturbed grassland community.

This community is broadly analogous to RE12.3.13, which is briefly described as 'Closed or wet heathland on seasonally waterlogged Quaternary alluvial plains along coastal lowlands' and has an *Of Concern* status pursuant to the *VM Act*. The Certified RE map classifies this community as being non-remnant vegetation.

4.2.9 Mixed riparian vegetation


Mixed riparian vegetation occupies approximately 34.5 ha (or 4.5%) of the site area, the majority of which occurs along northern boundary fringing the Caboolture River. There are also smaller areas of this community associated with Raff Creek in the central sector of the site.

This community is characterised by Grey mangrove River mangrove with terrestrial species such as Queensland blue gum, Swamp oak, Slash pine, Grey ironbark, Pink bloodwood, Moreton Bay Ash and Tuckeroo on the elevated and landward extent of these mangroves. Other species include *Acacia* sp., Red ash, Bracken fern, Blady grass, Kangaroo grass (*Themeda triandra*), Cypress pine (*Callitris* sp.), *Dianella* sp., and Yellow button (*Chrysocephalum apiculatum*).

This community is currently subject to varying levels of weed incursion, particularly by species such as Lantana, Broad-leaved pepper tree, Wild tobacco, Groundsel bush, Camphor laurel, Chinese celtis (*Celtis sinensis*) and Mother of millions (*Bryophyllum spp*.).

This community contains elements from a number of regional ecosystem types. The Certified RE map classifies this community as being non-remnant vegetation.

4.2.10 Cultivated vegetation

Cultivated vegetation occupies approximately 12.9 ha (or 1.7%) of the site and is comprised of actively cultivated vegetation associated with existing dwellings and old homesteads within the site.

Where this community is associated with old homesteads the vegetation is generally dominated by cleared grassland with dense groves of ornamental species such as Camphor laurel, Bougainvillea (*Bougainvillea* sp.), Bunya pine (*Araucaria bidwillii*), Moreton bay fig (*Ficus macrophylla*), Giant bamboo (*Bambusa arundnacea*) and Umbrella tree (*Schleffera actinophylla*). In contrast, existing dwellings generally support a few retained native trees such as Queensland blue gum and Broad-leaved paperbark with ornamental garden plants and fruit trees within areas of maintained lawn.

This community is not analogous to any described RE type and is classified as non-remnant vegetation on the current Certified RE Map.

4.2.11 Scribbly gum (*Eucalyptus racemosa*) shrubby open forest

Scribbly gum (*Eucalyptus racemosa*) shrubby open forest occupies approximately 15.5 ha (or 2.0%) of the site and occurs as a single patch in the south-western corner of the site.

The overstorey of this community is dominated by Scribbly gum (*Eucalyptus racemosa*) with Grey ironbark, Pink bloodwood and scattered Swamp box. The lower strata have been subject to disturbance in the past and currently dominated by species responsive to such conditions including *Acacia* spp., Red ash, Lantana, Blady grass and Para grass (*Urochloa mutica*).

The floristic and structural elements of this community are generally consistent with the description for RE 12.5.3 - *Eucalyptus tindaliae* and/or *E. racemosa* open-forest with *Corymbia intermedia, E. siderophloia* ± *E. resinifera, E. pilularis, E. microcorys*, *Angophora leiocarpa* on complex of remnant Tertiary surfaces ± Cainozoic to Proterozoic sediments. *Melaleuca quinquenervia* often a prominent feature of lower slopes. This RE type has an *Endangered* status pursuant to the *Vegetation Management Act 1999* ("*VM Act*").

The Certified RE map classifies this community as being remnant vegetation comprised of RE 12.5.3.

4.2.12 Regenerating paperbark forest


Regenerating paperbark forest directly adjoins the northern extent of the Scribbly gum shrubby forest and covers approximately 12.6 ha (or 1.6%) of the site.

The vegetation has been subject to extensive clearance in the past and currently supports a mosaic of recently cleared areas dominated by Broad-leaved paperbark saplings and areas more advanced regrowth. The community also supports a dense coverage of exotic and native grasses and herb species. The community is bounded by a narrow strip of mature vegetation supporting a mixture of Broad-leaved paperbark, Queensland blue gum, Pink bloodwood and scattered Swamp box and Slash pine.

This community is in a highly disturbed state and is classified as non-remnant vegetation on the current Certified RE Map.

4.2.13 Regenerating *Acacia* dominated woodland


Regenerating *Acacia* dominated woodland covers approximately 13.4 ha (or 1.7%)of the site. This community is confined to the central portion of the site on an island of slightly elevated land (i.e. 2 m AHD) encircled by tidal reaches of Raff Creek and the Caboolture River and adjoining land that supports marine vegetation.

Land supporting this community has been subject to broad-scale vegetation clearance in the past and currently supports a dense coverage of Blady grass and Commoon reed (*Phragmites australis*). Woody vegetation mainly consists of regrowth *Acacia* spp., Swamp oak and Slash pine. This community also supports Groundsel bush, Balloon cotton bush and Lantana.

This community is not analogous to any described RE type owing to it's highly disturbed nature, density of weed species and sparsity of wooded vegetation. This community is classified on the current Certified RE Map as being non-remnant vegetation.

4.3 Flora Species of Significance

A review of flora records from the site locality was undertaken to assess the occurrence or likely occurrence of significant flora species pursuant to the *Nature Conservation Act 1992* ("*NC Act*"), the *EPBC Act* and the *Land Protection (Pest and Stock Route Management) Act 2002* ("*LP Act*"). Records utilised included data held within the *EPBC Act* Online Protected Matters Search Tool and the Queensland EPA's Wildlife Online database for a 10km search radius of the site. Copies of data extracted from these databases for the site locality is presented in Appendix B and Appendix C respectively.

4.3.1 Threatened Species

A review of flora records from the site locality indicated 11 species of conservation significance that may potentially occur in the site locality. Profiles of each of these species, including details concerning their general ecology and habitat requirements, are provided in Appendix D.

For each species an assessment of the likelihood of occurrence on the site is also provided based on the results of field surveys and consideration of its known habitat requirements and the availability of suitable habitat on the site.

Details of threatened flora species, their relevant status under the *EPBC Act* and *NC Act,* potential on-site habitat, and likelihood of occurrence on site are provided in Table 1.

Table 1 Threatened flora species likely to occur in the site locality

Species Name	Common Name	Status	Potential on-site habitat	Likelihood of occurrence
Acacia attenuata	-	CV, QV	Scribbly gum open forest, Paperbark open forest	Moderate
Arthraxon hispidus	Hairy Joint Grass	CV, QV	Fringes of Paperbark open forest	Moderate
Bosistoa selwynii	Heart-leaved Bosistoa	CV	None	Low
Bosistoa transversa	Three-leaved Bosistoa	CV	None	Low
Elaeocarpus coorangooloo	Brown Quandong	QR	None	Low
Cryptostylis hunteriana	Leafless Tongue Orchid	CV	Swampy heath	Moderate
Dodonaea rupicola	Glass House Mountains Hop Bush	CV, QV	None	Low
Leptospermum leuhmannii	-	QR	None	Low
Macadamiaintegrifolia	Bush nut	CV, QV	None	Low
Macadamia ternifolia	Bopple nut	CV, QV	None	Low
Phaius australis	Lesser swamp-orchid	CE, QE	Paperbark open forest	Moderate

* CE, CV = Commonwealth (*Endangered, Vulnerable*) – *EPBC Act*
QE, QV, QR = Queensland (*Endangered*, *Vulnerable, Rare*) – *NC Act*

None of these or any other threatened flora species were recorded on the site, during field surveys carried out as part of this or previous site assessments (i.e. Yurrah Pty Ltd, June 2004), or are otherwise considered to have a high probability of occurrence at the site. This circumstance is attributable to the absolute lack of suitable habitat for some species (e.g. *Leptospermum leuhmannii* and *Dodonaea rupicola*) or the degradation of potential habitat by anthropogenic disturbance (i.e. vegetation clearance, altered fire regimes, establishment of exotic pine plantations, livestock grazing, displacement by weeds) for species such as *Phaius australis*.

4.3.2 Weed Species

Surveys within the site have identified a number of significant weed species pursuant to the *LP Act* and its related Regulation. The main purpose of the *LP Act* is to provide for pest management for land and stock route network management. The main policy objectives are to protect land and water from the adverse impacts of weeds and pest animals and to manage the stock route network in a sustainable manner for travelling stock and other purposes. Pursuant to the *LP Act* it is suggested that significant species be treated under three classes:

Class 1 - These species have the potential to become serious pests if they are ever introduced into the State. The aim is to keep these out of Queensland and eradicate any that are found.

Class 2 - These species are major pests in Queensland. Most have the potential to spread over much larger areas of the State. The aim is to reduce the rate at which these species invade new areas and to suppress existing infestations.

Class 3 - These species are significant weeds that have spread over most of their potential range but need to be controlled in environmentally significant areas. Their sale needs to be restricted to help avoid re-invasion of areas where these pests have been controlled.

A list of significant weed species is presented below and provides an indication of their occurrence within the site and current classification under the *LP Act*.

Class 2 pest plants:

- Groundsel bush (*Baccharis halimifolia*), infestations of this species are scattered throughout the site;
- Prickly pear (*Opuntia* sp.), this species was recorded within disturbed cleared areas and within the Cypress pine woodland;
- Water hyacinth (*Eichhornia crassipes*), this weed occurs within the paperbark forest in the south-eastern sector of the site;
- Mother-of-millions (*Bryophyllum* sp.), infestations of this species are scattered throughout site; and
- Salvinia (*Salvinia molesta*), a small constructed waterbody associated with the old homestead/heritage area supports a dense infestation of this species.

Class 3 pest plants:

- Camphor laurel (*Cinnamomum camphora*), the highest densities of this species were recorded within areas of cultivated vegetation and the northern extents of riparian vegetation associated with Caboolture River;
- Lantana (*Lantana camara*), this species is scattered in its distribution across the site;
- Asparagus fern (*Asparagus africanus*), this species is scattered in its distribution across the site;
- Chinese elm (*Celtis sinensis*), this weed occurs mostly within areas of disturbed riparian vegetation; and
- Broad-leaved pepper tree (*Schinus terebinthifolius*) is scattered in its distribution across the site, with the highest densities occurring within areas of disturbed riparian vegetation.

5. FAUNA HABITAT VALUES

The NEBP site and adjacent reaches of the Caboolture River provide habitat resources that are exploited by a diversity of terrestrial fauna. Whilst past and current land use practices have resulted in substantial modifications to the site's natural ecosystems, the modified ecosystems that remain provide food, shelter, breeding sites and movement corridors for many species of native and introduced mammals, birds, reptiles and frogs. The diversity of terrestrial fauna that either permanently inhabit or periodically utilise the site is also a function of the following factors:

- the relatively large area of the site and diversity of vegetation and fauna habitats that occur therein;
- the position of the site adjacent to the Caboolture River; and
- the relatively close proximity of the site to Moreton Bay to the east and the D'Aguilar Ranges to the west.

The influence of the above factors is reflected in the results of a search of the EPA Wildlife Online database, for a 10km radius search area centred on the site, which are provided in Appendix C. Within this search area the EPA Wildlife Online database contains recorded sightings of over 430 species of terrestrial vertebrate fauna, with a total of 127 species having been observed on the NEBP site during the course of field surveys. A list of fauna species observed at the NEBP site is provided in Appendix E.

Descriptions of the NEBP habitat values for the main terrestrial vertebrate fauna groups that have been observed at, or which are otherwise considered likely to utilise, the NEBP site are provided below.

5.1 Mammals

A total of 51 species of terrestrial mammal have been recorded in the EPA's Wildlife online database within a 10km radius of the NEBP site. During the various field surveys that have been carried out on the NEBP site a total of 20 species of terrestrial mammal have been recorded.

Large ground-dwelling mammals such as Eastern grey kangaroo (*Macropus giganteus*) and Black wallaby (*Wallabia bicolour*) forage within the site's disturbed grassland communities, shelter within wooded areas and disperse through the site during border movements within the locality. Small ground-dwelling native mammals such as Northern brown bandicoot (*Isoodon macrourus*), Fawn-footed melomys (*Melomys cervinibes*), Yellow footed antechinus (*Antechinus flavipes*), Bush rat (*Rattus fuscipes*), Swamp rat (*Rattus lutreolus*) and Short-beaked Echidna (*Tachyglossus aculeatus*) are more closely associated with the more sheltered woodland and open forest communities that occur on the site. Non-native ground-dwelling mammals that were observed on the site are House mouse (*Mus musculus*), Black rat (*Rattus rattus*), Brown hare (*Lepus capensis*), Red fox (*Vulpes vulpes*), Dog (*Canis familaris*), Cat (*Felis catus*), Horse (*Equus caballus*) and Cattle (*Bos taurus*). Signs of typical feral pig (*Sus scrofa*) rooting activity near the Caboolture River however no feral pigs were actually sighted.

Habitat availability for arboreal species within the site has been significantly reduced as a consequence of past land clearance events and the dominance of the disturbed grassland community. The site's paperbark and scribbly gum open forests, riparian vegetation and mixed species woodland communities are utilised by native arboreal fauna. Arboreal species observed utilising these habitat types include the Koala (*Phascolarctos cinereus*) and Common brushtail possum (*Trichosurus vulpecular*). A nest of the Common ringtail possum (*Pseudocheirus peregrinus*) was also observed in the cultivated vegetation surrounding the old homestead site. Although not sighted during field surveys, species such as the Squirrel glider (*Petaurus norfolcensis*) and Feathertail glider (*Acrbates pygmaeus*) may also utilise forested habitats where suitable hollow bearing trees are available for nesting.

The NEBP site provides habitat resources that would be exploited by a range of microchiropteran bats, such as the Gould's long-eared bat (*Nyctophilus gouldi*), Large bentwing bat (*Miniopterus schreibersii*) and the Northern long-eared bat (*Nyctophilus bifax*). These species would forage for insects above and below the canopy of the site's forest and woodland communities and over the disturbed grasslands. A number of megachiropteran species, including the Grey-headed flying-fox (*Pteropus poliocephalus*), Black flying-fox (*Pteropus alecto*) and Little red flying-fox (*Pteropus scapulatus*) would also forage within the site during the flowering and fruiting periods of dominant tree species. The site's paperbark open forests in particular would provide a seasonally important food source for local flying-fox populations.

5.2 Birds

Birds are by far the most diverse group of terrestrial vertebrates in the site locality, with a total of 309 bird species recorded in the EPA's Wildlife online database within a 10km radius of the NEBP site. During the various field surveys that have been carried out on the NEBP site a total of 89 bird species have been recorded.

The NEBP site's mosaic of permanent and ephemeral, freshwater and saline wetlands provides habitat resources for a diversity of wetland dependent bird species. The Caboolture River provides habitat that is utilised by species such as the Darter (*Anhinga melanogaster),* Australian Pelican (*Pelecanus conspicillatus*) and Little Black Cormorant (*Phalacrocorax sulcirostris*). The Caboolture River and Raff Creek also provide foraging habitat for species such as and Great egret (*Ardea alba*), Pacific heron (*Ardea pacifica),* and Striated Heron (*Butorides striatus*). The estuarine sand banks and mud-flats of the Caboolture River provide habitat for a diversity of shorebirds, including migratory species such as the Grey-tailed Tattler (*Tringa brevipes*), Ruddy turnstone (*Arenaria interpres),* Sharp tailed sandpiper (*Calidris acuminata),* Red necked stint (*Calidris ruficollis),* Great knot (*Calidris tenuirostris),* Terek sandpiper (*Xenus cinereus)*. Adjacent reaches of the Caboolture River are also an important feed ground for the White-bellied Sea-eagle (*Haliaeetus leucogaster*), Brahminy Kite (*Haliastur indus*) and Osprey (*Pandion haliaetus*). Onsite freshwater wetlands, including constructed dams, provide habitat for Pacific Black Duck (*Anas superciliosa*), Australian Wood Duck (*Chenonetta jubata*), Eurasian Coot (*Fulica atra*) and Royal Spoonbill (*Gallinula tenebrosa*).

The site's open forest and woodland communities provide temporary and permanent roosting and foraging habitat for a range of avian species including the Tawny frogmouth (*Podargus strigoides*), Laughing kookaburra (*Dacelo novaeguineae*), White-throated Treecreeper (Cormobates leucophaeus), Noisy Friarbird (*Philemon corniculatus*) and Black faced cuckoo shrike (*Coracina novaehollandiae*). Habitat resources for hollow dependent species such as the Sulphur-crested Cockatoo (*Cacatua galerita*) and Galah (*Cacatua roseicapilla*) occur throughout the site but are most abundant in areas of Scribbly gum open forest in the west of the site. The riparian vegetation lining the Caboolture River provides habitat for some open forest generalists and more specialised species such as Mangrove honeyeater (*Lichenostomus fasciogularis),* Mangrove gerygone (*Gerygone levigaster)* and Azure Kingfisher (*Alcedo azurea*).

The site's grassland communities provide habitat for species such as the Brown quail (*Coturnix ypsilophora*), Masked lapwing (*Vanellus miles miles),* Australian white ibis (*Threskiornis molucca),* Bush Curlew (*Burhinus magnirostris*), Willie wagtail (*Rhipidura leucophrys*), Torresian crow (*Corvus orru*), Red-backed fairy-wren (*Malurus melanocephalus*) and Bar shouldered dove (*Geopelia humeralis*). Raptors, such as the Brown goshawk (*Accipiter fasciatus*) and Whistling kite (*Haliastur sphenurus*) were observed foraging over the disturbed grassland community which provides these predatory species with food resources in the form of common snakes, amphibians and introduced, ground dwelling mammals (e.g. the Black rat).

5.3 Reptiles

A total of 45 species of terrestrial reptile have been recorded in the EPA's Wildlife online database within a 10km radius of the NEBP site. During the various field surveys that have been carried out on the NEBP site a total of 13 species of terrestrial reptile have been recorded.

The Caboolture River, Raff Creek and associated wetlands provide habitat resources for reptiles such as the Eastern water dragon (*Physignathus lesueurii*) and Red bellied black snake (*Pseudechis porphyriacus*). Other reptiles which were observed at the site include the Carpet python (*Morelia spilota*), Green tree snake (*Dendrelaphis punctuata*), Brown snake (*Pseudechis australis*), Yellow-faced whip snake (*Demansia psammophis*), Bearded dragon (*Pogona barbata*), Grass skink (*Lampropholis delicate*), Fire-tailed skink (*Morethia taeniopleura*) and the Eastern blue-tongued lizard (*Tiliqua scinoides*).

5.4 Amphibians

A total of 26 species of amphibian have been recorded in the EPA's Wildlife online database within a 10km radius of the NEBP site. During the various field surveys that have been carried out on the NEBP site, a total of 6 species of amphibian have been recorded.

The site's paperbark forests, ephemeral wetlands and constructed waterbodies provide suitable habitat for the Wallum froglet (*Crinia tinnula*), Tusked frog (*Adelotus brevis*), Striped marshfrog (*Limnodynastes peronii*), Eastern sedgefrog (*Litoria fallax*), the Green tree frog (*Litoria caerulea*) and a limited range of other common amphibians. The introduced Cane toad (*Bufo marinus*) also occurs on the site.

5.5 Fauna Species of Significance

A review of fauna records from the site locality was undertaken to assess the occurrence or likely occurrence of significant terrestrial fauna species pursuant to the *NC Act*, the *EPBC Act* and the *LP Act*. Records utilised included data held within the *EPBC Act* Online Protected Matters Search Tool and the Queensland EPA's Wildlife Online database for a 10km search radius of the site. Copies of data extracted from these databases for the site locality is presented in Appendix B and Appendix C respectively.

5.5.1 Threatened Species

A review of terrestrial fauna records from the site locality indicated 28 species that are listed as threatened species pursuant to either the *NC Act* or *EPBC Act* may potentially occur in the site locality. Profiles of each of these species, including details concerning their general ecology and habitat requirements, are provided in Appendix D. For each species an assessment of the likelihood of occurrence on the site is also provided based on the results of field surveys and consideration of its known habitat requirements and the availability of suitable habitat on the site.

Details of threatened fauna species that have been observed at the site or which are considered to have high probability of occurrence at the site, based on the species profiles and assessments presented in Appendix D, are provided in Table 2.

Table 2 Threatened fauna species known or likely to occur at the NEBP site

Species Name	Common Name	Status
Koala	*Phascolarctos cinereus*	QV
Grey-headed flying-fox	*Pteropus poliocephalus*	CV
Grey goshawk	*Accipiter novaehollandiae*	QR
Black-necked stork	*Ephippiorhynchus asiaticus*	QR
Wallum froglet	*Crinia tinnula*	QV
Tusked frog	*Adelotus brevis*	QV

* CE, CV = Commonwealth (*Endangered, Vulnerable*) – *EPBC Act*
QE, QV, QR = Queensland (*Endangered*, *Vulnerable, Rare*) – *NC Act*

5.5.2 Migratory Species

For the purpose of this assessment significant migratory species are species listed under international conventions for the protection of migratory species and their habitats, including the JAMBA and CAMBA. Migratory species that are also recognised as a threatened species are considered in Section 5.5.1.

A review of fauna records from the site locality indicated that 18 species of migratory bird species are known, or considered likely, to utilise available habitat resources in the site locality. Profiles of each of these species, including details concerning their general ecology and habitat requirements, are provided in Appendix D.

Whilst the site is not recognised as an important habitat area for migratory bird species, the site's complex of open grasslands, freshwater and saline wetlands, fringing forests and woodlands, do make a functional contribution towards the internationally recognised migratory shorebird habitat values of Moreton Bay. The relationship between the NEBP site and recognised areas of important habitat for migratory and resident shorebirds is illustrated in Figure 5. With reference to Figure 5 it is relevant to note that the lower reaches of the Caboolture River and adjacent shoreline of Moreton Bay are recognised as general habitat for shorebirds, with two known critical high tide roost site being located to the south of the mouth of the Caboolture River.

Also of note is the presence of a White-bellied Sea-eagle nest within a large Qld Blue gum located adjacent to the old homestead site. The position of this nest is illustrated in Figure 4.

5.5.3 Vertebrate Pest Species

Two species of vertebrate fauna that are known to occur on the site are listed as Class 2 pets within the *Land Protection (Pest and Stock Route Management) Regulation 2003*. These species are:

- Red fox (*Vulpes vulpes*);
- feral Pig (*Sus scrofa*);

Other non-native vertebrate species that are not specifically listed under the provisions of the *LP Act* but which may be considered pest species due to their capacity to have adverse environmental or economic impacts include:

- Black rat (*Rattus rattus*);
- House mouse (*Mus musculus*);
- Brown hare (*Lepus capensis*);
- feral Cat (*Felis catus);*
- Indian miner (*Acridotheres tristis*); and
- Cane toad (*Bufo marinus*).

5.5.4 Invertebrate Pest Species

The main invertebrate pest species that are known to occur in the site locality are species of mosquito and biting midge. Mosquito and biting midge occur on all continents except Antarctica and are commonly encountered along the entire length of the Australian coastline. The site and the balance of Caboolture Shire are no exceptions to this rule and the site locality is host to a number of mosquito and biting midge species that have a potential to adversely affect residential amenity and human health.

The freshwater and saline wetlands and waterbodies within the site locality presently provide a range of different habitat types for a variety of mosquito species known to be serious pests and vectors of communicable human viruses within the Caboolture Shire. These habitats include the following:

1. Slightly brackish and freshwater pools in Paperbark wetlands and mangroves provide habitat for *Verrallina funerea* and *Ochlerotatus vigilax*, which are known vectors of Ross River Virus and Barmah Forest fever. Both species are most frequently experienced at pest levels in areas situated within 5 km of breeding grounds.

2. Freshwater pools, provide habitat for *Culex annulirostris*, *Oclherotatus notoscriptus*, *Coquillettidia linealis* and *Culex quinquefasciatus*, which are known vectors of viruses such as Ross River Virus, Barmah Forest Virus, Australian Encephalitis, Japanese Encephailits, Murray Valley Encephalitis and Kunjin.

3. Intertidal and brackish pools provide habitat for *Culex sitiens* and *Aedes alterans*, both known to be vectors of Ross River Virus.

Biting midges are small, 1-2 mm long, mosquito like insects that breed in range of environments, ranging from rainforests to coastal foreshores and estuarine systems. Biting midges are short-lived animals that are mostly active during the period from September to April each year. During this period of the year each species exhibits fluctuations in its abundance that are linked to the lunar cycle. For example the biting midge species *Culicoides subimmaculatus* is most abundant in the week following a half moon and lowest in the weeks following a full or new moon. During periods of abundance biting midge are most likely to be encountered around dawn and dusk or occasionally throughout the day and night if conditions are still, humid and overcast. Biting midge are generally less active in winds greater than 10km/hr, during which times they seek shelter in densely vegetated areas or other locations protected from the wind (i.e. the lee-ward side of buildings).

Biting midge species are not known to transmit disease amongst humans and as such do not possess the same public health management significance as mosquitoes. Nevertheless biting midge may during periods of high abundance cause discomfort to people residing in close proximity to midge breeding/larval habitats. It is likely that the NEBP site provides habitat for the several pestiferous species of biting midge, namely *Culicoides subimmaculatus, C. molestus* and *C. longior*. The main areas of potential breeding habitat for these species are the mangrove flats and banks of the Caboolture River and Raff Creek.

6. PROPOSED DEVELOPMENT

6.1 General Description

NEBP is a multi-use marina and business park concept that will integrate industry, marina facilities, commercial, residential, heritage and recreational open space precincts. The business, tourism and recreation opportunities that will be created by NEBP is expected to boost the local economy via the creation of 3,300 construction jobs as well as 9,000 long term permanent and casual local employment opportunities. In this regard, the integrated business park satisfies the Queensland Government agenda to establish marine industry clusters, jobs and training to Queensland.

Detailed technical studies and consultations with community, as well as local state and Commonwealth government agencies have been undertaken to ensure NEBP is developed in a manner that achieves balanced environmental, social and economic benefits. Technical studies that have been undertaken to assist with development of the NEBP proposal and associated Environmental Impact Statement include:

- environmental, social and economic demand assessments to justify the project proposal and provide alternatives;
- planning assessments to demonstrate how the proposal conforms with State, regional and local plans including an approval strategy framework;
- topographical and boundary surveys to inform the development outline;
- geotechnical analysis to determine land use capacities;
- landscape character and visual amenity studies to protect and enhance existing values;
- stormwater flows and flood modelling to determine impacts on water resources and inform construction methodology and operational aspects;
- coastal process analysis to determine the impact of a marina and dredging on the physical attributes of the Caboolture River and protect coastal processes and values;
- bathymetric surveys of the Caboolture River to determine navigable access to the site;
- air, noise and waste assessments to prevent environmental harm (including environmental nuisance) and achieve policy objectives;
- ecological assessments to determine areas of the site that warrant protection to preserve aquatic and terrestrial ecological attributes;
- cultural heritage assessments to determine areas of the site that warrant protection and restoration;
- social, economic and net benefit assessments to determine complimentary facilities and service types within the NEBP concept to meet community needs and expectations and principles of ecologically sustainable development;
- infrastructure and utility assessments to determine existing capacity, and upgrade requirements; and
- hazard and risk studies to ensure resident and non-resident safety from natural and anthropogenic causes.

Based on the results of these technical investigations a Structure Plan for the NEBP has been developed and a copy of the NEBP Structure Plan is provided as Figure 6. In summary the NEBP makes provision for a number of different land uses precincts within the site. These land use precincts and the areas of land that they occupy are as follows:

- Marine Industry Business Area (MIBA) Precincts, which occupy approximately 168.9 ha or 22% of the site;
- Marina Precincts, which occupy approximately 67.8 ha or 9% of the site;
- Residential Precincts, which occupy approximately 112.6 ha or 15% of the site; and
- Open Space Precincts, which occupy approximately 419.6 ha or 54.6% of the site.

The NEBP's Open Space Precincts provide substantial opportunities for the preservation and enhancement of some of the site's ecological values and functions. Open Space Precincts that are of particular note in this respect are described below.

Precinct 4(3) Open Space – This precinct occupies over 259 ha, or 33%, of the site and is designed to provide a variety of areas and features which achieve a significant range of environmental, social and recreation opportunities. Whilst generally publicly accessible for active and passive recreation, the Open Space Precinct includes areas set aside for active conservation and rehabilitated and revegetated riparian areas. A proposed Environment Centre located adjacent to the main boulevard on the edge of the environmentally sensitive areas along Raff Creek, would provide an educational experience to visitors with links to the conservation areas and the environmental trail network. The buffer zone between the marina basin and the river is proposed to be developed as a riverside parkland providing a more naturally themed contrast and open space alternative to the adjacent urbanised open space components on the other side of the Marina. It will provide significant access to the river for both residents and visitors. An extensive network of cycle and walking tracks is proposed throughout the open space areas providing recreational opportunities and links between the various destinations and attractions. A series of canoe trails proposed by the Caboolture Shire Council integrates with proposed river access to the open space destinations including landing points at the Heritage Park and near the Marina, providing another recreational option and encouraging access to the parklands by water.

Precinct 4(2) Golf Course – This precinct occupies over 148 ha, or 19%, of the site. Upon completion, the NBP Golf Course will comprise 18 holes, and is laid out in a manner which allows for it to be developed in two stages. The golf course design allows pedestrian and cyclist connectivity across the course, enhancing the movement networks with the NEBP. The NEBP golf course utilises the significant waterway corridors of Raff Creek and the minor watercourses between the Marina Precincts and the Residential Precincts. The course includes water features which are part of the broader integrated water management system throughout the NEBP. The inclusion of the golf course and its water features allow water quality enhancement and flow quantity management to limit adverse effects on the riparian environment.

An indication of the nature of the final landform intent for the NEBP, following the completion of development works and habitat enhancement works within the public open space precincts, is provided in Figure 7.

The NEBP development will be a staged development with the majority of activity anticipated to occur over the period from 2008 to 2021.

6.2 Terrestrial Ecosystems Impacts

From a terrestrial ecology perspective, key aspects of the NEBP site and the proposed plan of development are as follows.

1. The NEBP site, situated on the southern bank of the Caboolture River, has an area of approximately 769ha.
2. The majority of the NEBP site (approximately 78%) has been cleared of native vegetation and associated fauna habitat and has historically been used for livestock grazing and plantation pine cultivation.
3. Major landform adjustments that will be required to establish NEBP development, including excavation of the marina basin and a balanced cut/fill operation within the site's Caboolture River flood plain to achieve required flood immunity outcomes for the NEBP development and adjacent properties located within the Caboolture River floodplain.
4. The proposed plan of development will have direct physical impacts on most of the site's terrestrial ecosystems and associated species of native flora and fauna as a consequence of the clearance of native vegetation communities and associated development works. In this respect the relationship between the site's vegetation communities and the patterns of land use proposed within the NEBP Structure Plan is illustrated in Figure 8. Also shown on Figure 8 are the locations of areas where flood mitigation earthworks are required based on the results of a flood study carried out by Parsons Brinckerhoff Australia Pty Ltd.
5. The impact of the NEBP development upon the site's terrestrial ecosystems is variable, with the majority of development occurring with disturbed grassland area, with very limited impact upon some vegetation communities and the complete removal of others. Based on the relationships illustrated in Figure 8, a summary of the impact of the NEBP development upon each of the identified vegetation communities is in Table 3.

Table 3 Extent of vegetation community removal/modification and retention

Vegetation Community	Current Extent (Ha)	Extent to be Removed/Modified	% to be Retained
Mixed Marine Vegetation	38.7	2.9	92.5
Paperbark Open Forest	19.9	2.7	86.6
Disturbed Grassland	598.5	394.6	34.1
Cypress Pine Woodland	1.8	1.8	0.00
Disturbed Saltwater Couch Grassland	7.7	2.0	74.0
Swamp Oak Woodland	5.0	5.0	100
Disturbed Mixed Species Woodland	7.1	6.0	15.0
Swampy Heathland	1.5	1.5	0.00
Riparian Vegetation	34.5	0.2	99.3
Cultivated Vegetation	12.9	2.0	84.5
Scribbly Gum Shrubby Open Forest	15.5	12.2	21.3
Regenerating Paperbark Forest	12.6	12.6	0.00
Regenerating *Acacia* dominated woodland	13.4	0.6	95.0
TOTAL	**769**	**442**	**42.5**

6. The proposed plan of development makes provision for the establishment of a network of Open Space Precincts, encompassing 419 hectares or 55% of the site area. The Open Space Precincts will encompasses the majority of the site's open forest, woodland, riparian and wetland habitats. Within these Open Space Precincts there is a commitment to undertake significant ecological rehabilitation and restoration works that are designed to offset the loss, or modification, of ecosystem values that will occur as a consequence of the NEBP development.

6.3 Impact Mitigation and Management Strategies

A number of impact mitigation and management strategies are proposed for implementation as part of the NEBP development. A summary of these strategies is provided below.

6.3.1 Land Use Design and Assessment Processes

The NEBP is proposed to be developed under Community Title, guided by a Community Management Scheme. Community Title provides a legal structure allowing for stakeholders in the development to provide detailed local control and management measures tailored to the needs of the development. Such a structure allows for long term control and management of community and environmental assets, allowing them to be maintained to a standard in keeping with the intent of the development.

The NEBP Area Plan, which has been prepared by PMM, is the statutory basis to guide and control development of the NEBP over the lifespan of the project. The NEBP Area Plan is specifically tailored to the NEBP site and comprises a Structure Plan that indicatively designates development precincts. The NEBP Area Plan specifies the development intent for each precinct, overall outcomes, preferred uses, the level of assessment required for future applications, relevant codes and development standards.

6.3.2 Vegetation and Habitat Off-sets

An integral component of the NEBP development is the provision of environmental off-sets to compensate for the clearance of some areas of existing vegetation and fauna habitat that is required for the NEBP development to proceed. Vegetation and habitat offset that form part of the NEBP proposal include the following.

a. The provision of a vegetation offset in accordance with Department of Natural Resources and Water's *Policy for Vegetation Management Offsets - 23 August 2007* in respect of the clearance of approximately 13 ha of remnant vegetation in the south-western sector of the site. In this respect North East Business Park Pty Ltd have, in consultation with the Department of Natural Resources and Water, secured an appropriate off-set that satisfies the policy requirements.

b. The establishment and on-going maintenance of substantial revegetation and habitat enhancement works within the NEBP Open Space precincts. These works will be carried out in general accord with the Landscape Master Plan Report (LMPR), prepared by PLACE Planning and Design. The LMPA provides a conceptual framework for the Open Space and Recreation Areas included in the NEBP development. The LMPR aims to achieve considerable benefits to the environment and community through the:

   - extensive rehabilitation of degraded habitats within the site, including the Caboolture River riparian zone;
   - enhancement of the ecological values and health of open space areas;

- protection on ecological values and function of the Caboolture River and ultimately Moreton Bay;
- weed control and management;
- controlled public access for the enjoyment of the environmentally sensitive areas (i.e. Caboolture River);
- provision of local job opportunities in the fields of landscape construction, landscape maintenance, revegetation and environmental rehabilitation;
- provision of cooperative partnership arrangements and other opportunities for community based groups such as Caboolture Regional Environmental Education Centre (CREEC) to contribute in a mutually beneficial way to the development of the site; and
- the implementation of Water Sensitive design (WSUD) and Crime Prevention Through Environmental Design (CPTED) principles.

In addition to these measures, the potential use of material dredged from the Caboolture River navigation channel to create additional high tide roost sites for migratory wading birds will be investigated in consultation with the EPA.

6.3.3 Mosquito and Biting Midge Management

The site is located adjacent to the Caboolture River and associated wetlands which contain substantial areas of suitable breeding habitat for various species of biting midge and mosquito. Whilst the NEBP development would reduce the extent of available mosquito breeding habitat, through the removal of some ephemeral waterbodies and constructed drainage channels, substantial areas of biting insect breeding habitat would be retained due to their recognised environmental values. To ensure that retained areas of mosquito and biting midge habitat within and external to the site do not have an unacceptable impact upon existing and future residents of the locality a number of management measures will be adopted. These management measures are described below.

1. Mosquito Management Code of Practice - The management of mosquito and biting midge incursions from naturally occurring habitats is a public health matter and addressed by Caboolture Shire Council and other relevant governing agency that have a role to play in the management of areas containing biting insect breeding habitats (e.g. DPI&F and the EPA). At present, Caboolture Shire Council manages mosquito in accordance with guidelines set down in the Mosquito Management Code of Practice prepared by the Australian Institute of Environmental Health. The Code was developed under the *Environmental Protection Act 1994* and is currently used by Councils during the undertaking of mosquito management work. The NEBP Body Corporate would work with Council, and other relevant agencies, to ensure the effective continuation of existing mosquito and biting midge management programs.
2. Artificial Waterbody Management - The NEBP marina and any other waterbodies that are constructed for stormwater quality management purposes would be designed to minimise the potential for such water bodies to become breeding habitats for mosquito or biting midge. In this respect all artificial waterbodies to be established within the NEBP would achieve compliance with the design specifications of Section 4.3.2.2 – Artificial wetlands/water impoundments of Queensland Health's Guidelines to Minimise Mosquito and Biting Midge Problems in New Development Areas.
3. Buildings Design and Materials – Building constructed at the NEBP are intended to have a contemporary and sustainable design. Consistent with this philosophy inhabited buildings would be fitted with screens on windows and doorways to minimise the potential for adverse amenity and/or health impacts associated with exposure to mosquito and biting midge.

4. Community Education - Knowledge that mosquito and biting midge occur in the area and knowledge of personal and household protection measures that can be taken, is an important aspect of any effective mosquito and biting midge management strategy. The NEBP Body Corporate, in consultation with Council and Qld Health, will develop and implement a program of community awareness and education concerning mosquito and biting midge.

6.3.4 General Environmental Management

The NEBP development will be managed in accordance with a number of management plans that have been prepared in respect of specific aspects and/or phases of the development. These management plans include the following.

1. A Construction Environmental Management Plan (CEMP), that has been prepared as part of the NEBP EIS to detail the environmental management measures which will be adopted during the construction of the NEBP. The CEMP incorporates the mitigation measures that have been recommended in the EIS technical reports. In particular, the CEMP provides mechanisms in which the environmental performance of the NEBP construction works can be measured and, if required, provides procedures for identifying and implementing corrective actions. The CEMP considers a number of issues including:

    - Earthworks Management;
    - Erosion and Sedimentation Control;
    - Water Quality Management;
    - Flora and Fauna Management;
    - Weed Control;
    - Mosquito and Biting Midge Management;
    - Waste Management;
    - Dangerous and Hazardous Materials Management; and
    - Traffic Management.

2. An Acid Sulfate Soil Management Plan (ASSMP), which has been prepared to detail the procedures for the management of acid sulfate soils likely to be disturbed through civil bulk earthworks and Caboolture River dredging associated with the NEBP development proposal. The ASSMP specifies management performance objectives, control measures and monitoring requirements based on the findings of the geotechnical investigations. The ASSMP has been designed to ensure that no significant adverse impact on the receiving environment occur as a result of the disturbance of actual or potential acid sulfate soils.

3. A Dredging Site Based Management Plan (Dredging SBMP), which outlines the potential impacts of Caboolture Rive navigation channel dredging activities and specifies mechanisms that will be incorporated to ensure environmental impacts associated with the dredging and spoil disposal are minimised as far as practicable.

4. A Site Based Management Plan (SBMP) for various environmentally relevant activities (ERAs), associated with the NEBP marina and marine industry precincts, including ERA 11 ‘crude oil or petroleum product storing’, ERA 19 ‘dredging’ (i.e. maintenance dredging), and ERA 73 ‘marina or seaplane mooring’. The SBMP also provides an overarching framework for best practice environmental management for other ERAs that may be undertaken within the NEBP’s marine industries precinct such as abrasive blasting (ERA 23), metal surface coating (ERA 25) and motor vehicle workshop (ERA 28).

5. A Stormwater Management Plan, prepared by Parsons Brinckerhoff Australia Pty Ltd, which provides a stormwater quality management strategy to be adopted to achieve the Caboolture Shire Council's pollution reduction targets and the Queensland Water Quality Objectives (WQO) for the Caboolture River.

6. A Landscape Master Plan Report, prepared by PLACE Planning and Design, which provides a conceptual framework for the Open Space and Recreation Areas included in the NEBP development.

7. COMPLIANCE WITH BIODIVERSITY CONSERVATION REGULATIONS

7.1 Environment Protection and Biodiversity Conservation Act 1999

The *EPBC Act* requires that a person must receive Commonwealth approval for any action that has, will have, or is likely to have a significant impact on matters of National Environmental Significance. Matters of National Environmental Significance that are recognised by the *EPBC Act* and which can act as a trigger for the Commonwealth assessment and approval process include:

- World Heritage properties;
- National Heritage Places;
- Ramsar wetlands of international significance;
- Threatened species and ecological communities;
- Migratory species;
- Nuclear actions, including uranium mining; and
- The Commonwealth marine environment.

The NEBP development has been referred to the Commonwealth Minister for the Department of Environment and Water Resources. A decision was made on the 12 July 2006 by the Commonwealth Minister that the NEBP proposal be deemed to be a controlled action with the controlling provisions being:

- Wetlands of international importance;
- Listed threatened species and communities; and
- Listed migratory species.

In accordance with the Terms of Reference for the NEBP EIS, a separate report has been prepared by Cardno (QLD) Pty Ltd which addresses the impact of the NEBP development on these matters of National Environmental Significance. This report also identifies mitigation measures that will be adopted in order to minimise the impact of the development on matters of National Environmental Significance that occur within the vicinity of the site.

7.2 Nature Conservation Act 1992

The *Nature Conservation Act 1992* and associated *Nature Conservation (Wildlife) Regulation 1994* provide a framework for the conservation of nature. One of the primary mechanisms by which this objective is to be achieved is through the declaration of and the specification of management principles and intents for wildlife species of particular conservation significance.

It is also relevant to note that the *Nature Conservation (Koala) Conservation Plan 2006* (the *Koala Plan*) is subordinate legislation made under the *NC Act*.

7.2.1 Recognised Values

The site locality provides habitat resources for a number of native wildlife species of formal significance pursuant to the *NC Act*. Details concerning listed wildlife species that are considered to have a high to moderate probability of occurring on the site are provided in Section 4.3.1 – Threatened Flora and Section 5.5.1 – Threatened Fauna.

The site does not form part of a Koala Habitat Area pursuant to the *Koala Plan*.

7.2.2 Compliance Assessment

Specific constraints to the development or use of the site, associated with the *NC Act* and the associated *Nature Conservation (Wildlife) Regulation 2006,* include a requirement that such development or use be consistent with the Declared Management Intent for *Endangered*, *Vulnerable* and *Rare* wildlife species.

Relevant aspects of the *Nature Conservation (Wildlife) Regulation 2006* Declared Management Intents for Endangered, Vulnerable or Rare wildlife species are as follows:

- to take action to ensure viable populations of the wildlife in the wild are preserved or re-established;
- to protect the critical habitat, or the areas of major interest for endangered, vulnerable and rare wildlife; and
- to monitor and review the adequacy of environmental impact assessment procedures to ensure that they take into account the need to accurately assess the extent of the impact on endangered, vulnerable and rare wildlife and develop effective mitigation measures.

Pursuant to the *Nature Conservation (Wildlife) Regulation 2006* governments should, when dealing with land use planning issues, have regard to the occurrence of significant species and the management requirements needed to conserve existing populations of such wildlife.

It is considered that the NEBP development makes provisions for the management of threatened wildlife species that are consistent with the Declared Management Intent for *Endangered*, *Vulnerable* and *Rare* wildlife species. Whilst the NEBP development will have some negative impacts upon some species (e.g. the loss of forage habitat for Koala) appropriate impact mitigation measures (refer Section 6.3) are proposed and the development is unlikely to threaten the viability of any local populations of a threatened wildlife species.

Whilst the site does not form part of a Koala Habitat Area and as such the NEBP development is not formally subject to the provisions of the *Koala Plan*, the NEBP development is generally consistent with the objectives of the *Koala Plan* in that it:

a. does not involve any development within a formally recognised Koala Habitat Area;

b. provides for the protection of a connected network of on-site Koala habitat, within the open space reserves, that has a limited number of road crossings and with linkages to external habitat areas;

c. provides substantial opportunities for Koala habitat rehabilitation and enhancement within the open space reserves;

d. provides, via its Community Title Structure, opportunities to regulate the keeping of dogs to mitigate the threat to Koala posed by domestic dogs;

e. provides opportunities, through the NEBP Area Plan, opportunities to implement a range of Koala sensitive design features including:

- the use of koala friendly fencing within areas of Public Open Space;
- koala exclusion fencing where appropriate (i.e. along the western boundary of the site);
- landscaping with native vegetation, including locally occurring koala habitat trees;
- retention of koala habitat within road verges, district, local and pocket parks and residential lots; and
- road design, alignment and construction that aims to, where appropriate, reduce speed, increase visibility and provide for safe road crossings.

In summary it is considered that the NEBP development is not contrary to the objectives of the *NC Act*.

7.3 Vegetation Management Act 1999

The *VM Act* and associated State Policy for Vegetation Management on Freehold Land 2004 ("VM Policy") provide a formal framework for the recognition and management of the biodiversity values of vegetation in Queensland.

7.3.1 Recognised Values

The current and certified Regional Ecosystem Map generated for the site indicates that the majority of the site is mapped as a non-remnant "Plantation Forest" with a small area of mapped remnant vegetation occurring in the south-western sector of the site (i.e. Lot 2 on RP902075 and Lot 10 on RP902079). The remnant vegetation is briefly described as follows:

RE 12.5.3 Eucalyptus tindaliae and/or E. racemosa open forest on remnant Tertiary surfaces. This RE type has an *Endangered* status pursuant to the VM Act.

RE 12.3.5 *Melaleuca quinquenervia* open forest on coastal alluvium. This RE type has a *Not Of Concern* status pursuant to the *VM Act*.

7.3.2 Compliance Assessment

The NEBP proposal provides for the retention of approximately 7.4 ha of remnant *Endangered* and *Not of Concern* vegetation that occurs in the south-west corner of the site. However, the NEBP development will result in the removal of approximately 12.2 ha of RE 12.5.3 and 0.81 ha of RE 12.3.5 from the site.

Vegetation clearance in urban areas is exempt from the provisions of the *VM Act* unless the vegetation is mapped as an *Endangered* regional ecosystem, or has been declared by the Minister as an area of high nature conservation value. In this regard, it is relevant to note that an urban area, under the provisions of the *Integrated Planning Act 1997* ("*IPA*"), means:

a) an area identified as a priority infrastructure area in a priority infrastructure plan; or

b) if no priority infrastructure area exists, an area identified in a gazette notice by the chief executive under VM Act as an urban area; or

c) if no priority infrastructure area exists or gazette notice has been published— an area identified on a map in a planning scheme as an area for urban

purposes, including future urban purposes, but not rural residential or future rural residential purposes.

With regard to (c) above, sections of the NEBP site that support remnant vegetation also have a District Industry designation pursuant to the Caboolture Planning Scheme and as such classify as an urban area, given that pursuant to *IPA* urban purposes means –

purposes for which land is to be used in cities, towns, including residential, industrial, sporting, recreation and commercial purposes, but not including environmental, conservation, rural, natural or wilderness area purposes.

As such, the clearance of approximately 0.81 ha of remnant *Not of Concern* vegetation on Lot 2 on RP902075 is not contrary to the purpose of the *VM Act*.

The clearance of approximately 12.2 ha of remnant *Endangered* vegetation on Lot 2 on RP902075 is not be covered by an Exemption for clearing defined in the *IPA*, Schedule 8, Part 1. As such, under the provisions of the *Integrated Planning Regulation 1997*, the NEBP development should be assessed against *Part S: Requirements for clearing for significant projects* of DNRW's *Regional vegetation Management Code: South East Queensland* ("*RVM Code*"). *Part S* of the *RVM Code* contains a total of ten Performance Requirements (PR) that, if satisfied by the NEBP development, would ensure that the purpose of the *VM Act* is achieved. It is relevant to note that a proposal can achieve compliance with a PR through meeting the nominated Acceptable Solutions or through providing alternative solutions. One PR in particular poses a substantial constraint to the NEBP development in accordance with the Structure Plan, namely **PR S.7**, which regulates the clearance of *Endangered* and *Of Concern* REs.

PR S.7 states:

To regulate the clearing of vegetation in a way that conserves remnant endangered regional ecosystems and remnant of concern regional ecosystems – maintain the current extent of endangered regional ecosystems and remnant of concern regional ecosystems.

The nominated Acceptable Solution (AS) for **PR S.7,** is **AS S.7.1** which states –

Clearing only occurs in endangered regional ecosystems or of concern regional ecosystems that are not listed in Table 1 and where the clearing within those regional ecosystems is less than –

a) 10 metres wide; or

b) 0.5 hectares.

The NEBP proposal does not achieve compliance with **AS S.7.1** due to the extent of remnant *Endangered* vegetation clearance that is proposed to occur. As such, Northeast Business Park Pty Ltd propose to satisfy **PR S.7** though the provision of a vegetation offset in accordance with DNRW's *Policy for Vegetation Management Offsets - 23 August 2007.* Pursuant to the *RVM Code* provision of an offset in accordance with DNRW's Policy is one way a proposal can "*maintain the current extent*" of remnant vegetation, satisfy **PR S.7** and thereby achieve the purpose of the *VM Act*.

In summary, the NEBP development achieves compliance with the purpose of the VM Act by providing an appropriate offset to the proposed clearance of remnant vegetation, including areas of remnant Endangered vegetation.

7.4 Coastal Protection and Management Act 1995

The *Coastal Protection and Management Act 1995* ("*CPM Act*") and the associated *State Coastal Management Plan 2001* ("State Coastal Plan") provides for the management and protection of the state's coastal zone and its economic, social and ecological resources. One of the primary objectives of the State Coastal Plan is to provide a set of key management topics with an associated framework of principles and policies for the achievement of sustainable management of the zone.

The NEBP site is also subject to the provisions of the South East Queensland Regional Coastal Management Plan 2006 ("SEQ Coastal Management Plan"). This plan is used in conjunction with the State Coastal Plan to provide a regional framework to manage and regulate future development in the area whilst protecting the coastal zone. The SEQ Coastal Management Plan includes policies to help implement and achieve the coastal management outcomes, principles and policies of the State Coastal Plan.

7.4.1 Recognised Values

Certain areas and aspects of the NEBP site possess values recognised by the SEQ Coastal Management Plan that warrant consideration as part of this TEAR. In this respect the following features of the site locality are noted.

1. The northern and south-western sectors of the site are mapped as supporting areas of "Significant Coastal Wetlands" pursuant to Map 8: Areas of State Significance (Natural Resources) of the SEQ Coastal Management Plan. The mapped areas of "Significant Coastal Wetlands" along the northern boundary of the site encompass areas identified during field surveys as supporting riparian, mixed marine and disturbed Saltwater couch grassland communities (refer Section 4 and Figure 4). The mapped area of "Significant Coastal Wetlands" in the southern sector of the site supports Paperbark (*Melaleuca quinquenervia*) open forest (refer Section 4 and Figure 4).
2. The south-western sector is mapped as supporting "Endangered Regional Ecosystems" pursuant to Map 8 Areas of State Significance (Natural Resources) of the SEQ Coastal Management Plan. The extent of this mapped area is generally analogous to area described as the Scribbly gum woodland in Section 4 and in Figure 4.
3. Whilst no part of the NEBP site is classified as being Shore Bird Habitat on Map 10A: Areas of Coastal Biodiversity Significance (Marine) of the SEQ Coastal Management Plan, areas of Shore Bird Habitat do occur on adjacent land to the east and within the downstream sectors of the Caboolture River and Moreton Bay. Recognised Critical Shore Bird Habitat occur adjacent to the mouth of the Caboolture River.

It is also noted that past land uses have resulted in the degradation of the natural environment of the site and in this respect opportunities for rehabilitation of degraded coastal resources are available at the site.

7.4.2 Compliance Assessment

The SEQ Coastal Management Plan provides a number of relevant policies against which it is relevant to assess the NEBP proposal. Brief descriptions of these policies and the manner in which the NEBP responds to same are provided below.

Policy 2.8.1 - Areas of State Significance (Natural Resources)

This policy states that "*land identified to be developed in the future for urban, maritime and rural land uses in regional plans, planning schemes and port land use plans is to be located outside of 'areas of state significance (natural resources)'. Existing urban, maritime and rural land uses within 'areas of state significance (natural resources)' will not expand in these areas unless it can be demonstrated that there will be no adverse impacts on coastal resources and their values…*"

In this regard, areas of state significance (natural resources) that occur on the NEBP site are:

- significant coastal wetlands; and
- endangered regional ecosystems.

The NEBP development will involve some disturbance to vegetation identified as significant coastal wetlands (i.e. approximately 2.0 ha of disturbed saltwater couch grassland) for the purposes of establishing the marina. However the NEBP Structure Plan also provides for the retention and enhancement of areas of coastal wetland associated with Raff Creek. Whilst these wetland areas have not been mapped as significant coastal wetlands they are, fro an ecological perspective, of greater conservation value than the mapped area of significant coastal wetland proposed for disturbance.

The NEBP development will also involve the clearance of some areas of endangered regional ecosystems from the south-western sector of the site. In respect of this clearance it is noted that appropriate offsets are proposed in accordance with NRW's *Policy for Vegetation Management Offsets - 23 August 2007.* The NEBP proposal also provides for substantial on-site revegetation and enhancement works that will provide additional compensation for the loss of areas of endangered regional ecosystems in the south-west of the site.

It is also noted that the NEBP development will result in changes to the volume and composition of boating traffic that currently utilises the Caboolture River. This will create a need for additional dredging of the existing Caboolture River navigation channel. These aspects of the NEBP proposal have the potential to impact upon coastal wetland and shore bird habitat values of affected sectors of the Caboolture River and Moreton Bay. In this respect it is important that appropriate impact avoidance and mitigation strategies are implemented to preserve the values of the Caboolture River and Moreton Bay. Such measures are also required independently of the NEBP development.

Policy 2.8.3 - Biodiversity

This policy states that "*key issues affecting the ongoing ecological and ecosystem functioning of SEQ's biodiversity are the loss, fragmentation and degradation of coastal resources, in particular:*

- *riparian vegetation;*
- *coastal wetlands;*
- *shorebird habitat;*
- *fish habitat and fish migratory pathways;*
- *marine species habitat; and*
- *benthic communities."*

Policy 2.8.3 is of relevance to this assessment of the NEBP development, given that the site supports:

- riparian vegetation along the Caboolture River, Raff Creek and drainage lines that traverse the site;
- areas of freshwater and tidal wetlands; and
- suitable habitat resources for shorebirds.

(Note: Consideration of fish habitat, fish migratory pathway, marine species habitat and benthic communities are not considered in this terrestrial ecology assessment report. Such issues are addressed in the aquatic ecology assessment prepared by the Ecology Lab).

In respect of these issues, the NEBP development makes provision for

- the retention of approximately 55% of the site within the Open Space network, which encompasses the majority of the site's riparian vegetation, wetlands and shorebird habitats;
- the removal of livestock from the site and the management of weeds and feral pests;
- extensive rehabilitation of degraded habitats within the site, including the Caboolture River riparian zone, wetlands and shorebird habitats;
- protection on ecological values and function of the Caboolture River and ultimately Moreton Bay through appropriate buffering, stormwater management and environmental management practices; and
- improved environmental awareness through the establishment and operation of an Environment Centre.

The NEBP development, as described in Section 6.0 herein, is also consistent with the following coastal management policies:

> Policy 2.8.4 - Rehabilitation of Coastal Resources - This policy encourages the rehabilitation of degraded coastal areas and resources, with the priority being the restoration of degraded coastal ecosystems to their natural ecological, physical and aesthetic condition.
>
> Policy 2.8.5 - Pest Species Management - The focus of this policy is to minimise the risk of introducing new pest species and reducing or at least controlling the impact of pest species infestations.

In summary, the NEBP proposal is considered to provide appropriate responses to the SEQ Coastal Management Plan's policies that deal with matters of a terrestrial ecology nature. Whilst the NEBP will have some negative impacts on coastal resources and biodiversity values, substantial positive impacts would also be derived from the proposal.

7.5 Caboolture Shire Planning Scheme

The Caboolture Shire Planning Scheme (the Caboolture Shire Plan) provides a framework for managing development whilst addressing key issues, such as the environment, which may require protection or which may constrain development. In this respect, key attributes are identified on the Overlay Maps contained within the Caboolture Shire Plan. The presence of an important attribute within a site triggers assessment of the development against the relevant Overlay Codes.

7.5.1 Recognised Values

The Overlay Maps contained within the Caboolture Shire Plan identify the following ecological attributes within the site.

1. Various sectors of the site are mapped as supporting Nature Conservation Areas of State, Regional and Local significance pursuant to the Central Planning Area Overlay Map CO10: Nature Conservation. In this respect, it is relevant to note that some of the mapping provided in Overlay Map CO10: Nature Conservation does not accurately reflect the on-ground extent and integrity of some of the native vegetation communities that currently exist within the site.
2. The Central Planning Area Overlay Map CO10: Nature Conservation also identifies the northern sectors of the site as contributing to an "Ecological Corridor".
3. The Central Planning Area Map CO3: Catchment Protection also identifies "Wetland Protection Areas", "Catchment Protection Major Waterways" and "Catchment Protection Minor Waterways" within the site.
4. It is relevant to note that although a Koala was recorded within the site, the site does not contain a "Koala Conservation Area" pursuant to the Central Planning Area Overlay Map CO8: Koala Conservation.

7.5.2 Compliance Assessment

The above listed features identified on the Overlay Maps of the Caboolture Shire Plan trigger assessment against the Nature Conservation Overlay Code and the Catchment Protection Overlay Code respectively. An assessment of the degree of compliance that the NEBP proposal achieves with each of these Codes is presented in Appendix F.

In summary, the NEBP development generally provides appropriate responses to the following relevant Specific Outcomes sought by the Nature Conservation Overlay Code:

> ***SO1*** *- Development does not adversely affect Significant Vegetation, Wetlands, ecological corridors or habitat for endangered, vulnerable or rare species and other values of biodiversity significance.*
>
> ***SO2*** *- Development layout and planning maximises the functioning of ecological corridors which:*
>
> - *ensures low intensity land uses are situated directly adjacent to the corridor;*
> - *ensures viability and*
> - *functionality of the corridor;*
> - *maximises connectivity to neighbouring ecological corridors;*
> - *maximises connectivity to other large areas of habitat retained on-site or on neighbouring sites;*
> - *ensures retained vegetation is configured to provide low edge to area ratios and avoid narrowing or bottlenecks within the corridor; and*
> - *ensure road infrastructure avoids core corridor vegetation, or where not possible, provides for wildlife under / overpasses and minimises the intrusion, length and width.*
>
> ***SO3*** *- Ecological corridors are retained and protected from development to facilitate wildlife movement and link significant vegetation, wetlands, habitat for endangered, vulnerable or rare species and other values of biodiversity significance.*

SO4 *- Separation buffers are provided to protect Nature Conservation Areas, ecological corridors and areas of coastal hazard from the edge effects of development.*

In summary, the NEBP development generally provides appropriate responses to the following relevant Specific Outcomes sought by the Catchment Protection Overlay Code:

SO1 *- Significant Vegetation is retained and consolidated so as to:*

- *Protect the Shire's nature conservation and aesthetic values;*
- *Maintain a healthy and productive agricultural environment including protection from salinity, erosion and land degradation;*
- *Maintain and enhance water quality, in-stream and riparian habitat, to protect Potable Water Catchments;*
- *Maintain and enhance water quality and riparian vegetation in order to protect freshwater aquatic ecosystems and receiving systems, particularly estuarine and marine environments;*
- *Provide a linkage with existing Nature Conservation areas; and*
- *Maintain natural ecosystem functions and assist in the control of weeds and pests.*

SO2 *- The environmental values of Significant Vegetation, Wetlands and Waterways are maintained by:*

- *retention of Significant Vegetation and vegetation associated with Wetlands and Waterways;*
- *consolidating and linking existing Significant Vegetation.*

SO3 *- Bank stability and in-stream habitat is protected from degradation and maintained or improved at a standard commensurate with pre-development environmental conditions.*

S04 *- Protect and maintain waterway corridors and their hydrologic, water quality and ecological function by:*

- *providing adequate buffers to waterways; and*
- *protecting natural drainage*
- *channels and riparian habitat; and*
- *providing adequate habitat connectivity between waterways.*

SO9 *- Significant Vegetation and Wetlands are retained.*

SO10 *- The biodiversity of specific vegetation types associated habitat values, in particular endangered, vulnerable or rare species is protected or enhanced.*

SO11 *- Natural coastal processes are able to be managed and life and property are protected from development by ensuring that:*

- *development does not occur within Erosion Prone Areas, except for temporary or relocatable structures for safety or recreational purposes (eg. picnic tables, barbeques, walking trails, bikeways, lookouts and elevated decks) associated with a development can be located within erosion prone areas;*
- *existing intensities of development are not exceeded; and*
- *existing building alignments of neighbouring properties are not exceeded.*

To the extent that the NEBP does not achieve a Specified Outcome sought by either the Nature Conservation Overlay Code or the Catchment Protection Overlay Code, it would be necessary to consider the broader community and environmental benefits that would be derived from the NEBP development.

8. CONCLUSIONS

This terrestrial ecological assessment has been carried out for a number of purposes including:

- to identify and describe the general terrestrial ecological values of the proposed NEBP site;
- to assess the impact of the proposed NEBP development upon the general terrestrial ecology of the site and areas and aspects of ecological significance as defined by reference to relevant State and Commonwealth government regulations; and
- to assess the degree of compliance that the proposed plan of development achieves with the requirements of legislation having a terrestrial biodiversity conservation and/or management focus.

The conclusions of this assessment are as follows.

1. The NEBP site encompasses a total of 769 ha of land located to the south of the Caboolture River and east of the Bruce Highway. The majority of the NEBP site is highly degraded due to the impact of past and existing land uses, with over 78% of the site currently supporting disturbed grassland communities. The balance of the site area supports a complex of open forest, woodland, riparian and marine vegetation communities. Substantial levels of weed infestation occur throughout the site. Whilst the site contains potential habitat for several threatened flora species none were observed during field surveys or otherwise considered to have a high likelihood of occurrence due to the effect of past and current land use practices.
2. The NEBP site provides habitat resources that are exploited by a relatively high diversity of native terrestrial fauna. This circumstance is a function of a number of factors including the diversity of vegetation and fauna habitat types that occur within the site, the site's location on the banks of the Caboolture River and proximity to Moreton Bay to the east and the D'Aguliar Ranges to the west. Several species of fauna of formal conservation significance at the State and Commonwealth levels inhabit or periodically utilise the site. The site also supports populations of non-native terrestrial fauna that are a cause of on-going environmental degradation.
3. The proposed NEBP development is a multi-use marina and business park concept that integrates industry, marina facilities, commercial, residential, heritage and recreational open space precincts. The NEBP development is recognised by the Queensland State Government as being a project of state significance.
4. The NEBP development will involve:
    - the selective clearance of existing vegetation communities and fauna habitats, to accommodate the land uses proposed for different sectors of the site;
    - major landform adjustments, including excavation of the marina basin and a balanced cut/fill operation within the site's Caboolture River flood plain to achieve required flood immunity outcomes for the NEBP development and adjacent properties located within the Caboolture River floodplain; and
    - a substantial increase in the site's human population densities and activity levels.
5. The NEBP makes provision in its layout for substantial Public Open Space dedications that encompass 420 ha (or 55%) of the site area and will encompass the majority of the site's move ecologically valuable vegetation and fauna habitat types. The Public Open Space precincts will encompass over 125 ha (or 74% of the combined extent) of all vegetation and fauna habitat types excluding areas of

disturbed grassland. A substantial proportion of the balance 295 ha of the Public Open Space precincts, which currently disturbed grassland, will be revegetated to enhance existing and create additional fauna habitat. This aspect of the NEBP proposal will help offset the loss and/or modification of approximately 45 ha of existing habitat that is not comprised on disturbed grassland.

6. The NEBP development also makes provision for a number of impact mitigation and management strategies, such as:
   - the NEBP Area Plan which provides a statutory basis to guide and control development of the NEBP over the lifespan of the project;
   - a combination of on-site and off-site habit offsets;
   - appropriate pest, including mosquito and biting midge, management strategies; and
   - a comprehensive array of environmental management plans that will be implemented during both the construction and operational phases of the NEBP development.
7. In accordance with the Terms of Reference for the NEBP EIS, a separate report has been prepared by Cardno (QLD) Pty Ltd which addresses the impact of the NEBP development on these matters of National Environmental Significance. This report also identifies mitigation measures that will be adopted in order to minimise the impact of the development on matters of National Environmental Significance that occur within the vicinity of the site.
8. The design of the NEBP development in combination with the proposed impact mitigation and management strategies enables the NEBP proposal to achieve general compliance with relevant performance requirements of the following legislation that regulates the impact of development upon terrestrial ecosystems and the wildlife species they support:
   - *Nature Conservation Act 1992;*
   - *Vegetation Management Act 1999;*
   - *Coastal Protection and Management Act 1995;* and
   - Caboolture Shire Planning Scheme.

9. INFORMATION SOURCES

Queensland Environmental Protection Agency's (EPA) Wildlife Online database.

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Pizzey, G. & Doyle, R. (1997). A Field Guide to the Birds of Australia. Angus & Robertson, Sydney.

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Yurrah Pty Ltd (June 2004) - Ecological Assessment Report at (a) Lot 10 on RP902079, & (b) Lot 2 on RP 902075 Nolan Drive & Buckley Road, Morayfield for Lensworth Group Limited.

FIGURES

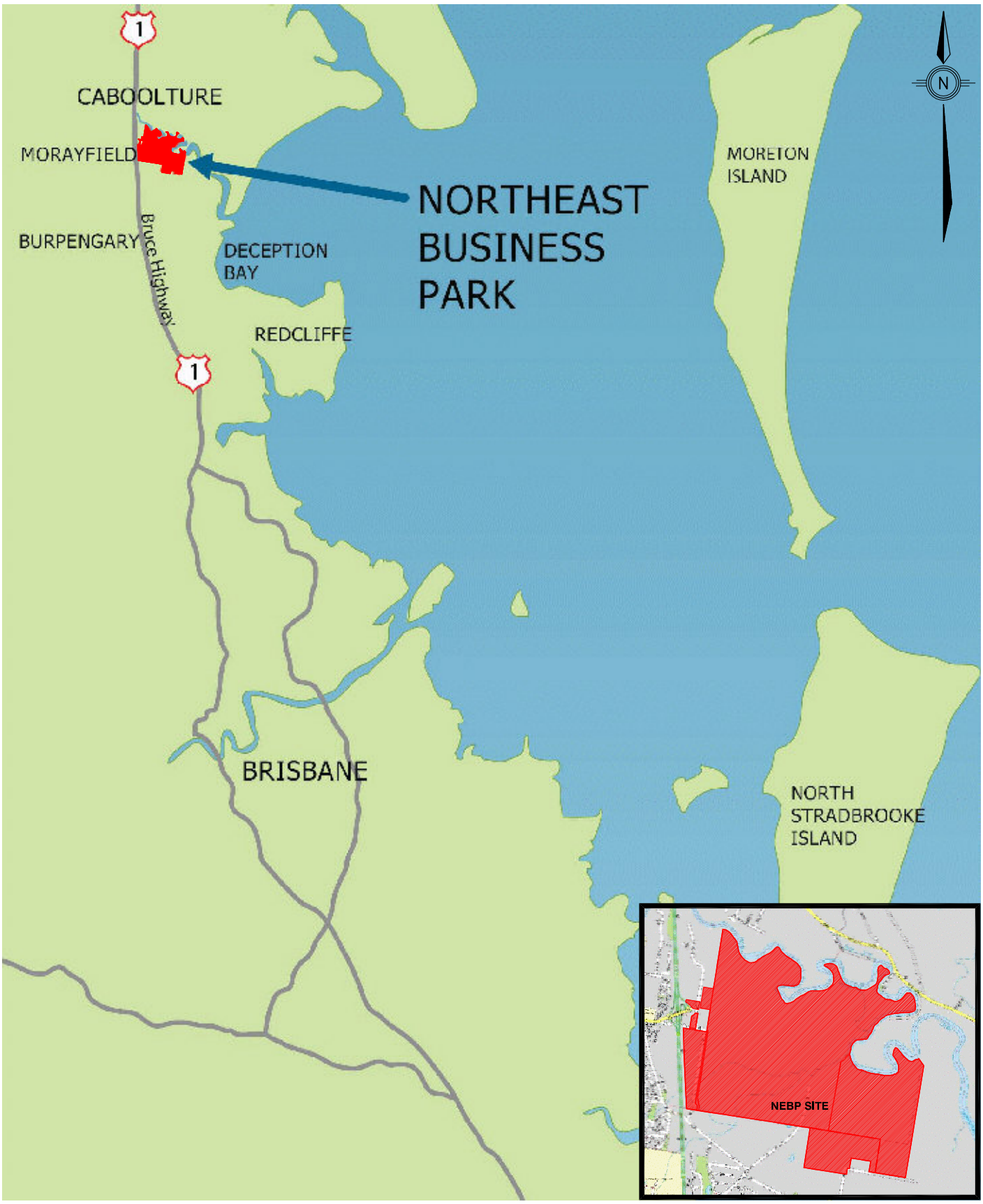


Image sourced from KINGFISHER CREATIVE, October 2007

Not To Scale

FIGURE 1
LOCALITY PLAN

Rev: Orig. Date: 26 October 2007

Project No.: 7800/40

Northeast Business Park Pty Ltd

CAD FILE: I:\7800-40\ACAD\Terrestrial Ecology\Figure 1 - Locality Plan.dwg
XREF's: Caboolture_mga94

PRINT DATE: 13 November, 2007 - 9:09am

Date of Aerial Photograph - July 2007

LEGEND

Site Boundary

200 0 200 400 600 800 1000m
1:20,000

Scale 1:20,000 (A3)

FIGURE 2
AERIAL PHOTOGRAPH OF SITE

Rev: Orig. Date: 26 October 2007

Project No.: 7800/40

Northeast Business Park Pty Ltd

CAD FILE: I:\7800-40\ACAD\Terrestrial Ecology\Figure 2 - Aerial Photograph of Site.dwg
XREF's:

PRINT DATE: 13 November, 2007 - 9:18am

N

LEGEND

Site Boundary

REGIONAL ECOSYSTEMS

Endangered - Dominant

Not of Concern

Date of Aerial Photograph - July 2007

200 0 200 400 600 800 1000m
1:20,000

Scale 1:20,000 (A3)

FIGURE 3
OVERLAY OF CERTIFIED REGIONAL ECOSYSTEM MAPPING ON AERIAL PHOTOGRAPH OF SITE

Rev: Orig. Date: 26 October 2007

Project No.: 7800/40

Northeast Business Park Pty Ltd

CAD FILE: I:\7800-40\ACAD\Terrestrial Ecology\Figure 3 - Overlay of Certified Regional Ecosystem Mapping on Aerial Photograph of Site.dwg
XREF's: redata

PRINT DATE: 13 November, 2007 - 9:19am

LEGEND

- Site Boundary
- 1 Mixed marine vegetation
- 2 Paperbark (*Melaleuca quinquenervia*) open forest
- 3 Disturbed grassland
- 4 Cypress pine (*Callitris columellaris*) woodland
- 5 Disturbed Saltwater couch (*Sporobolus virginicus*) grassland
- 6 Swamp oak (*Casuarina glauca*) woodland
- 7 Disturbed mixed species woodland
- 8 Swampy heathland
- 9 Riparian vegetation
- 10 Cultivated Vegetation
- 11 Scribbly gum (*Eucalyptus racemosa*) shrubby open forest
- 12 Regenerating paperbark forest
- 13 Regenerating *Acacia* dominated woodland
- * White-bellied Sea-eagle Nest

N

200 0 200 400 600 800 1000m
1:20,000

Rev: Orig. Date: 8 October 2007

Port Binnli Pty Ltd

CAD FILE: I:\7800-40\ACAD\Terrestrial Ecology\Figure 4 Major Vegetation Communities.dwg
XREF's:

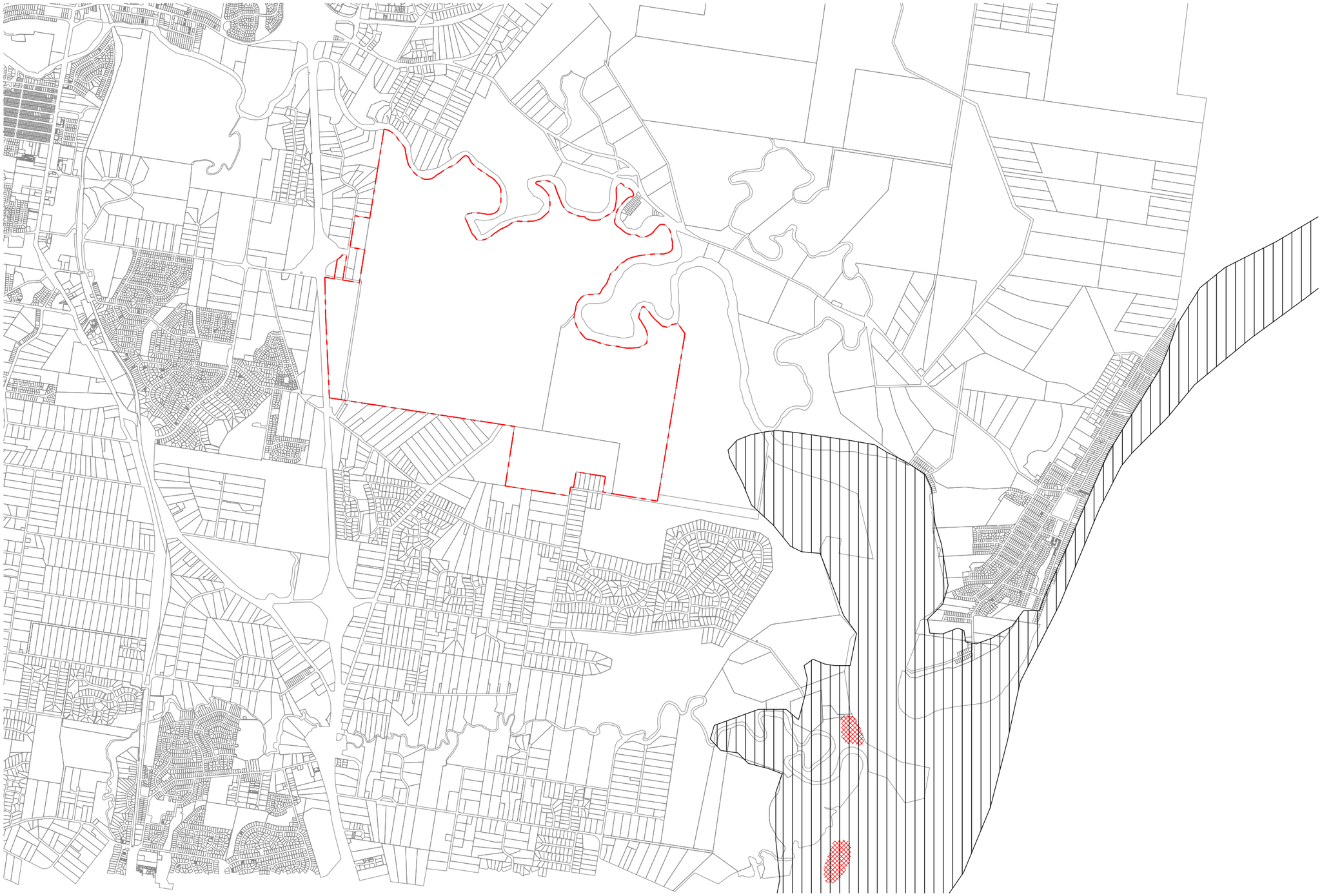
Scale 1:20,000 (A3)

FIGURE 4
MAJOR VEGETATION COMMUNITIES MAP

Project No.: 7800/40

PRINT DATE: 13 November, 2007 - 9:19am

Cardno



N

LEGEND

- Site Boundary
- Cadastral Boundaries

Shore Bird Habitat Categories

- Critical High Tide Roosts
- General Habitat
- High Tide Roosts
- High Tide Staging Areas
- Low Tide Feeding Areas

Map disclaimer: 2003 Regional Ecosystem Map. Date: 21-06-07. Regional ecosystem linework reproduced at scale greater than 1:100,000, except in designated areas, should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100,000 is +/-100 metres. Regional ecosystem mapping reproduced with permission of Environmental Protection Agency 2007.
While every care is taken to ensure the accuracy of the Information Product, the Environmental Protection Agency makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the product being inaccurate or incomplete in any way and for any reason

200 0 200 400 600 800 1000m
1:20,000

Rev: Orig. Date: November 2007

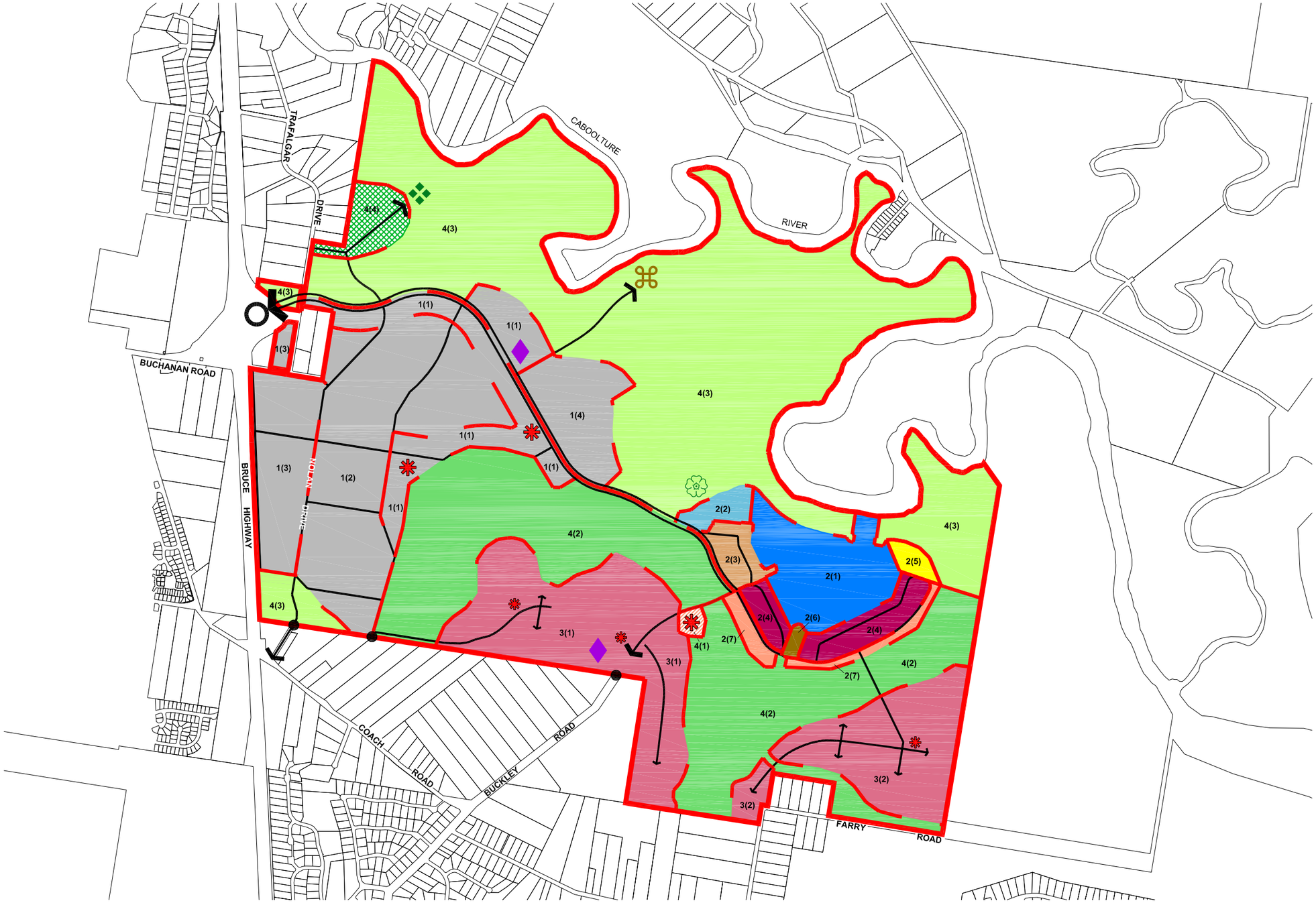
Northeast Business Park Pty Ltd
CAD FILE: I:\7800-40\ACAD\Terrestrial Ecology\Figure 5 Shore Bird Habitat Map.dwg
XREF's: Caboolture_mga94

Scale 1:20,000 (A3)

FIGURE 5
SHORE BIRD HABITAT MAP

Project No.: 7800/40

PRINT DATE: 13 November, 2007 - 9:14am



Plan sourced from PMM Brisbane Pty Ltd, Dwg name 20430STRUCTURE,
Plan Ref 20430-10F, 25 September 2007.

200 0 200 400 600 800 1000m
1:20,000

Scale 1:20,000 (A3)

FIGURE 6
NORTHEAST BUSINESS PARK STRUCTURE PLAN

Rev: Orig. Date: 26 October 2007

Project No.: 7800/40

Northeast Business Park Pty Ltd

CAD FILE: I:\7800-40\ACAD\Terrestrial Ecology\Figure 6 - Northeast Business Park Structure Plan.dwg
XREF's:

PRINT DATE: 13 November, 2007 - 9:15am

Not To Scale

FIGURE 7

NEBP LANDSCAPE VISUALISATION

Rev: Orig. Date: 26 October 2007

Project No.: 7800/40

Northeast Business Park Pty Ltd

CAD FILE: I:\7800-40\ACAD\Terrestrial Ecology\Figure 7 Northeast Business Park Landscape Visualisation.dwg
XREF's: Caboolture_mga94

PRINT DATE: 13 November, 2007 - 9:18am

1 Mixed marine vegetation
2 Paperbark (*Melaleuca quinquenervia*) open forest
3 Disturbed grassland
4 Cypress pine (*Callitris columellaris*) woodland
5 Disturbed Saltwater couch (*Sporobolus virginicus*) grassland
6 Swamp oak (*Casuarina glauca*) woodland
7 Disturbed mixed species woodland
8 Swampy heathland
9 Riparian vegetation
10 Cultivated Vegetation
11 Scribbly gum (*Eucalyptus racemosa*) shrubby open forest
12 Regenerating paperbark forest
13 Regenerating *Acacia* dominated woodland
* White-bellied Sea-eagle Nest

Areas of cut for flood mitigation purposes

LEGEND
STRUCTURE PLAN BOUNDARY
PRECINCT BOUNDARY
1 MIBA PRECINCTS
1(1) MIBA ESPLANADE
1(2) MIBA CORE
1(3) MIBA HIGHWAY
1(4) MIBA MARINE INDUSTRY
2 MARINA PRECINCTS
2(1) MARINA BASIN
2(2) SHIPYARD
2(3) MARINA VILLAGE
2(4) MARINA RESIDENTIAL
2(5) HOTEL
2(6) MARINA PAVILION
2(7) GOLF RESIDENTIAL
3 RESIDENTIAL PRECINCTS
3(1) RESIDENTIAL WEST
3(2) RESIDENTIAL EAST
4 OPEN SPACE PRECINCTS
4(1) GOLF CLUB
4(2) GOLF COURSE
4(3) OPEN SPACE
4(4) COMMUNITY MULTI USE
COMMUNITY NODE
HERITAGE PARK
SPORTING FIELDS
EDUCATION & TRAINING
ENVIRONMENT CENTRE
ARTERIAL
SUB ARTERIAL
COLLECTOR
POSSIBLE FUTURE PUBLIC TRANSPORT ROUTE
LOAD LIMITED THRESHOLD

Plan sourced from PMM Brisbane Pty Ltd, Dwg name 20430STRUCTURE, Plan Ref 20430-10F, 25 September 2007.

200 0 200 400 600 800 1000m
1:20,000

Scale 1:20,000 (A3)

FIGURE 8
OVERLAY OF VEGETATION COMMUNITIES ON THE NORTHEAST BUSINESS PARK STRUCTURE PLAN

Rev: Orig. Date: 26 October 2007

Project No.: 7800/40

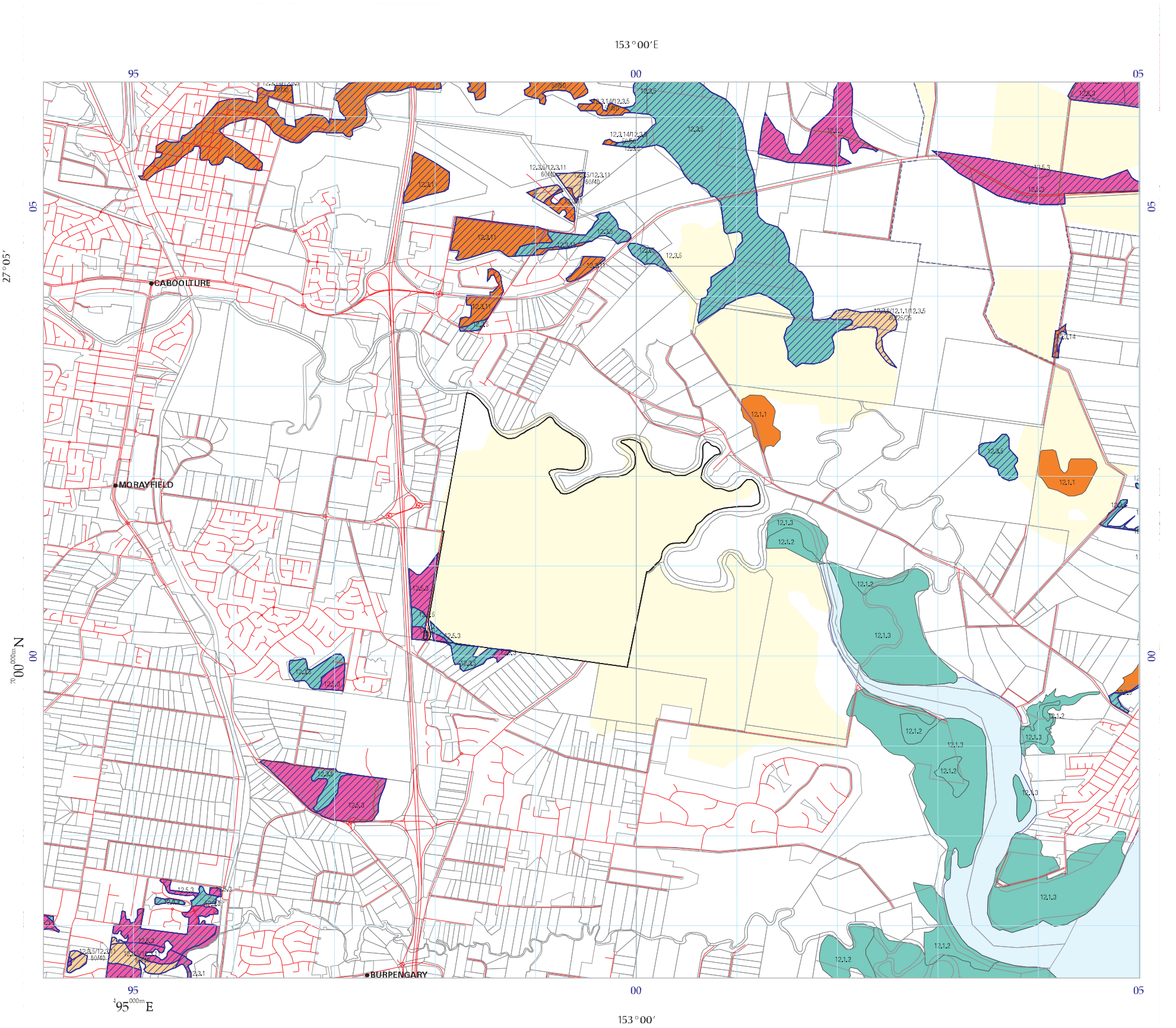
Northeast Business Park Pty Ltd

CAD FILE: I:\7800-40\ACAD\Terrestrial Ecology\Figure 8 - Overlay of Vegetation Communities on the NEBP Structure Plan.dwg
XREF's:

PRINT DATE: 13 November, 2007 - 9:16am

APPENDIX A

Copy of Certified Regional Ecosystem Map



2003 REGIONAL ECOSYSTEM MAP

Based on 2003 Landsat TM imagery

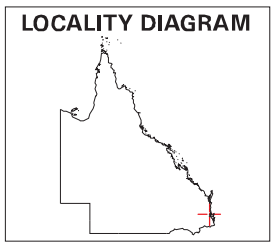
Requested By: JULIE.WHELAN@CARDNO.COM.AU
Date: 05 Jan 07 Time: 12.06.33

Centered on Lot on Plan:
10 RP902079

This is a copy of the certified regional ecosystem map defined by the map extent for the purpose of the *Vegetation Management Act 1999*. Areas of property maps of assessable vegetation (PMAVs) are not shown on this map.

Queensland Government

LOCALITY DIAGRAM



1000 0 1000 m

Horizontal Datum: Geocentric Datum of Australia 1994 (GDA94)

2003 Remnant endangered regional ecosystem
- Dominant
- Sub-dominant

2003 Remnant of concern regional ecosystem
- Dominant
- Sub-dominant

- 2003 Remnant not of concern regional ecosystem
- Non-remnant
- Plantation Forest
- Dam or Reservoir
- 2003 Remnant Vegetation Cover (RVC)
- Vegetation Management Act Essential Habitat
  Area identified as essential habitat by the EPA for a species of wildlife listed as endangered, vulnerable, near threatened or rare under the *Nature Conservation Act 1992*.
  For further information on VMA Essential Habitat, please see the attached VMA Essential Habitat map.
- Subject Lot
- Certified Map Amendment area
- Roads
  © MapInfo Australia Pty Ltd 2003
- Bioregion boundary
- National Park, Conservation Area State Forest and other reserves
- Cadastre line
  The maximum spatial error of parcels extracted for this map from the Digital Cadastral Data Base(DCDB) range from: 14m to 251m at a 95% confidence level. Property boundaries shown are provided as a locational aid only.
- Towns

Defined map areas are labelled with the regional ecosystem (RE) code along with the percentage breakdown if more than one RE occurs within the area. Detailed definitions of regional ecosystems are available from www.epa.qld.gov.au/REDD. Defined map areas smaller than 5ha may not be labelled.

Regional ecosystem linework has been compiled at a scale of 1:100 000, except in designated areas where a compilation scale of 1:50 000 is available. Linework should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100 000 is +/-100 metres. The extent of remnant regional ecosystems as of 2003, depicted on this map is based on rectified 2003 Landsat TM imagery (supplied by SLATS, Department of Natural Reources and Water).

Disclaimer:
While every care is taken to ensure the accuracy of this product, the Department of Natural Resources and Water, the Environmental Protection Agency and MapInfo Australia Pty Ltd, makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the product being inaccurate or incomplete in any way and for any reason.

All datasets are updated as they become available to provide the most current information as of the date shown on this map.

Additional information is required for the purposes of land clearing or assessment of a regional ecosystem map or PMAV applications. For further information go to the web site: www.nrw.qld.gov.au/vegetation or contact the Department of Natural Resources and Water.

Digital regional ecosystem data is available in shapefile format, for Lot on Plans from www.epa.qld.gov.au/REDATA or from the Queensland Herbarium for larger areas.
Email: regional.ecosystem@epa.qld.gov.au

153°00′E

95 00 05

27°05′S

CABOOLTURE

MORAYFIELD

BURPENGARY

29186 686 686 29186 686 29186 686 29186 686 29186 686 29186

95 00 05

7000000mN

4095000mE

153°00′

VEGETATION MANAGEMENT ACT
ESSENTIAL HABITAT MAP

Requested By: JULIE.WHELAN@CARDNO.COM.AU
Date: 05 Jan 07 Time: 12.06.51

Centered on Lot on Plan:
10 RP902079

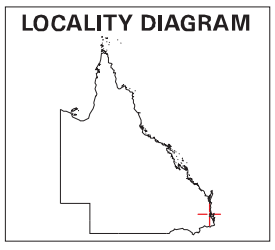
2003 Remnant endangered regional ecosystem
- Dominant
- Sub-dominant

2003 Remnant of concern regional ecosystem
- Dominant
- Sub-dominant

- 2003 Remnant not of concern regional ecosystem
- Non-remnant
- Plantation Forest
- Dam or Reservoir
- 2003 Remnant Vegetation Cover (RVC)
- Vegetation Management Act Essential Habitat
  Area identified as essential habitat by the EPA for a species of wildlife listed as endangered, vulnerable, near threatened or rare under the *Nature Conservation Act 1992.*
- Vegetation Management Act Essential Habitat Species Records
- Subject Lot
- Roads
  © MapInfo Australia Pty Ltd 2003
- Bioregion boundary
- National Park, Conservation Area State Forest and other reserves
- Cadastre line
  The maximum spatial error of parcels extracted for this map from the Digital Cadastral Data Base(DCDB) range from: 14m to 251m at a 95% confidence level. Property boundaries shown are provided as a locational aid only.
- Towns

Queensland Government

LOCALITY DIAGRAM



1000 0 1000 m

Horizontal Datum: Geocentric Datum of Australia 1994 (GDA94)

Labels for Vegetation Management Act Essential Habitat are centred on the area of interest (1.1km surrounding and including a Lot on Plan or 2.2km around the selected coordinates). Labels relate to the attached species list.

Regional ecosystem linework has been compiled at a scale of 1:100 000, except in designated areas where a compilation scale of 1:50 000 is available. Linework should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100 000 is +/-100 metres. The extent of remnant regional ecosystems as of 2003, depicted on this map is based on rectified 2003 Landsat TM imagery (supplied by SLATS, Department of Natural Reources and Water).

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All datasets are updated as they become available to provide the most current information as of the date shown on this map.

Additional information is required for the purposes of land clearing or assessment of a regional ecosystem map or PMAV applications. For further information go to the web site: www.nrw.qld.gov.au/vegetation or contact the Department of Natural Resources and Water.

Digital regional ecosystem data is available in shapefile format, for Lot on Plans from www.epa.qld.gov.au/REDATA or from the Queensland Herbarium for larger areas.
Email: regional.ecosystem@epa.qld.gov.au

APPENDIX B

EPBC Act Online Protected Matters Search Tool Results

EPBC Act Protected Matters Report

Matters Search Tool

EPBC Act Protected Matters Report2 October 2007 14:25
This report provides general guidance on matters of national environmental

significance and other matters protected by the EPBC Act in the area you have selected. Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.
You may wish to print this report for reference before moving to other pages or websites.
The Australian Natural Resources Atlas at http://www.environment.gov.au/atlas may provide further environmental information relevant to your selected area. Information about the EPBC Act

including significance guidelines, forms and application process details can be found at http://www.environment.gov.au/epbc/assessmentsapprovals/index.html

Search Type:Area
Buffer:10 km
Coordinates:-27.097777,152.986704, -27.124074,152.986704, -27.124074,153.018885, -27.09777,153.018885

Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance - see

http://www.environment.gov.au/epbc/assessmentsapprovals/guidelines/index.html.

World Heritage Properties:None
National Heritage Places: None
Wetlands of International Significance:
(Ramsar Sites)1
Commonwealth Marine Areas:None
Threatened Ecological Communities:None
Threatened Species:37

Migratory Species:46
Other Matters Protected by the EPBC Act
This part of the report summarises other matters protected under the

Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage

values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate. Information on the new heritage

laws can be found at
http://www.environment.gov.au/heritage/index.html.

Please note that the current dataset on Commonwealth land is not complete. Further information on Commonwealth land would need to be obtained from relevant sources including Commonwealth agencies, local agencies, and land tenure maps.

A permit may be required for activities in or on a Commonwealth area

that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales

and other cetaceans, or a member of a listed marine species. Information on EPBC Act permit requirements and application forms can be found at
http://www.environment.gov.au/epbc/permits/index.html.
Commonwealth Lands:None
Commonwealth Heritage Places: None
Places on the RNE:4
Listed Marine Species:69
Whales and Other Cetaceans:13
Critical Habitats:None
Commonwealth Reserves:None
Extra Information
This part of the report provides information that may also be relevant to the area you have nominated.
State and Territory Reserves:8
Other Commonwealth Reserves:None
Regional Forest Agreements:1

Details
Matters of National Environmental Significance
Wetlands of International Significance [Dataset Information]
(Ramsar Sites)
MORETON BAY
Threatened Species [Dataset Information] StatusType of Presence
Birds
Cyclopsitta diophthalma coxeni*
Coxen's Fig-Parrot EndangeredSpecies or species habitat likely to occur within area
Erythrotriorchis radiatus *
Red Goshawk VulnerableSpecies or species habitat likely to occur within

area
Geophaps scripta scripta*
Squatter Pigeon (southern) VulnerableSpecies or species habitat likely to occur within area
Lathamus discolor *
Swift Parrot EndangeredSpecies or species habitat may occur within area
Macronectes giganteus *
Southern Giant-Petrel EndangeredSpecies or species habitat may occur within area
Macronectes halli *
Northern Giant-Petrel VulnerableSpecies or species habitat may occur within area
Pterodroma neglecta neglecta*
Kermadec Petrel (western) VulnerableSpecies or species habitat may occur within area
Rostratula australis *
Australian Painted Snipe VulnerableSpecies or species habitat may occur within area
Thalassarche impavida *
Campbell Albatross VulnerableSpecies or species habitat may occur within area
Turnix melanogaster *
Black-breasted Button-quail VulnerableSpecies or species habitat likely to occur within area
Xanthomyza phrygia *
Regent Honeyeater EndangeredSpecies or species habitat may occur within area
Frogs
Litoria olongburensis *
Wallum Sedge Frog VulnerableSpecies or species habitat likely to occur within area
Mixophyes iteratus *
Southern Barred Frog, Giant Barred Frog EndangeredSpecies or species habitat likely to occur within area
Mammals
Chalinolobus dwyeri *
Large-eared Pied Bat, Large Pied Bat VulnerableSpecies or species habitat may occur within area
Eubalaena australis *
Southern Right Whale EndangeredSpecies or species habitat likely to occur within area
Megaptera novaeangliae *
Humpback Whale VulnerableBreeding known to occur within area
Potorous tridactylus tridactylus*
Long-nosed Potoroo (SE mainland) VulnerableSpecies or species habitat may occur within area
Pteropus poliocephalus *
Grey-headed Flying-fox VulnerableRoosting known to occur within area
Xeromys myoides *
Water Mouse, False Water Rat VulnerableSpecies or species habitat likely to occur within area
Ray-finned fishes
Nannoperca oxleyana *
Oxleyan Pygmy Perch EndangeredSpecies or species habitat likely to occur within area
Reptiles
Caretta caretta *
Loggerhead Turtle EndangeredBreeding may occur within area
Chelonia mydas *
Green Turtle VulnerableSpecies or species habitat may occur within area
Coeranoscincus reticulatus *
Three-toed Snake-tooth Skink VulnerableSpecies or species habitat may occur within area
Dermochelys coriacea *
Leathery Turtle, Leatherback Turtle, Luth VulnerableSpecies or species habitat may occur within area
Lepidochelys olivacea *

Pacific Ridley, Olive Ridley EndangeredSpecies or species habitat may occur within area
Sharks
Carcharias taurus (east coast population)*
Grey Nurse Shark (east coast population) Critically EndangeredSpecies or species habitat may occur within area
Carcharodon carcharias *
Great White Shark VulnerableSpecies or species habitat may occur within area
Rhincodon typus *
Whale Shark VulnerableSpecies or species habitat may occur within area
Plants
Acacia attenuata * VulnerableSpecies or species habitat likely to occur within area
Arthraxon hispidus *
Hairy-joint Grass VulnerableSpecies or species habitat likely to occur within area
Bosistoa selwynii *
Heart-leaved Bosistoa VulnerableSpecies or species habitat likely to occur within area
Bosistoa transversa *
Three-leaved Bosistoa VulnerableSpecies or species habitat likely to occur within area
Cryptostylis hunteriana *
Leafless Tongue-orchid VulnerableSpecies or species habitat may occur within area
Dodonaea rupicola * VulnerableSpecies or species habitat likely to occur within area
Macadamia integrifolia *
Macadamia Nut, Queensland Nut, Smooth-shelled Macadamia, Bush Nut, Nut Oak VulnerableSpecies or species habitat likely to occur within area
Macadamia ternifolia *
Small-fruited Queensland Nut VulnerableSpecies or species habitat likely to occur within area
Phaius australis *
Lesser Swamp-orchid EndangeredSpecies or species habitat likely to occur within area
Migratory Species [Dataset Information] StatusType of Presence
Migratory Terrestrial Species
Birds
Cyclopsitta diophthalma coxeni*
Coxen's Fig-Parrot MigratorySpecies or species habitat likely to occur within area
Haliaeetus leucogaster
White-bellied Sea-Eagle MigratorySpecies or species habitat likely to occur within area
Hirundapus caudacutus
White-throated Needletail MigratorySpecies or species habitat may occur within area
Merops ornatus *
Rainbow Bee-eater MigratorySpecies or species habitat may occur within area
Monarcha melanopsis
Black-faced Monarch MigratoryBreeding may occur within area
Monarcha trivirgatus
Spectacled Monarch MigratoryBreeding likely to occur within area
Myiagra cyanoleuca
Satin Flycatcher MigratoryBreeding likely to occur within area
Rhipidura rufifrons
Rufous Fantail MigratoryBreeding may occur within area
Xanthomyza phrygia
Regent Honeyeater MigratorySpecies or species habitat may occur within area
Migratory Wetland Species
Birds

Ardea alba
Great Egret, White Egret MigratorySpecies or species habitat may occur within area
Ardea ibis
Cattle Egret MigratoryBreeding likely to occur within area
Arenaria interpres
Ruddy Turnstone MigratorySpecies or species habitat likely to occur within area
Calidris ferruginea
Curlew Sandpiper MigratorySpecies or species habitat likely to occur within area
Charadrius mongolus
Lesser Sand Plover, Mongolian Plover MigratorySpecies or species habitat likely to occur within area
Gallinago hardwickii *
Latham's Snipe, Japanese Snipe MigratorySpecies or species habitat may occur within area
Heteroscelus brevipes
Grey-tailed Tattler MigratorySpecies or species habitat likely to occur within area
Limosa lapponica
Bar-tailed Godwit MigratorySpecies or species habitat likely to occur within area
Nettapus coromandelianus albipennis
Australian Cotton Pygmy-goose MigratorySpecies or species habitat may occur within area
Numenius madagascariensis
Eastern Curlew MigratorySpecies or species habitat likely to occur within area
Numenius phaeopus
Whimbrel MigratorySpecies or species habitat likely to occur within area
Pluvialis fulva
Pacific Golden Plover MigratorySpecies or species habitat likely to occur within area
Rostratula benghalensis s. lat.
Painted Snipe MigratorySpecies or species habitat may occur within area
Xenus cinereus
Terek Sandpiper MigratorySpecies or species habitat likely to occur within area
Migratory Marine Birds
Apus pacificus
Fork-tailed Swift MigratorySpecies or species habitat may occur within area
Ardea alba
Great Egret, White Egret MigratorySpecies or species habitat may occur within area
Ardea ibis
Cattle Egret MigratoryBreeding likely to occur within area
Calonectris leucomelas
Streaked Shearwater MigratorySpecies or species habitat may occur within area
Macronectes giganteus
Southern Giant-Petrel MigratorySpecies or species habitat may occur within area
Macronectes halli
Northern Giant-Petrel MigratorySpecies or species habitat may occur within area
Puffinus leucomelas
Streaked Shearwater MigratorySpecies or species habitat may occur within area
Sterna albifrons
Little Tern MigratorySpecies or species habitat may occur within area
Thalassarche impavida
Campbell Albatross MigratorySpecies or species habitat may occur within

area
Migratory Marine Species
Mammals
Balaenoptera edeni
Bryde's Whale MigratorySpecies or species habitat may occur within area
Dugong dugon
Dugong MigratorySpecies or species habitat likely to occur within area
Eubalaena australis *
Southern Right Whale MigratorySpecies or species habitat likely to occur within area
Lagenorhynchus obscurus
Dusky Dolphin MigratorySpecies or species habitat may occur within area
Megaptera novaeangliae *
Humpback Whale MigratoryBreeding known to occur within area
Orcaella brevirostris
Irrawaddy Dolphin MigratorySpecies or species habitat may occur within area
Orcinus orca
Killer Whale, Orca MigratorySpecies or species habitat may occur within area
Sousa chinensis
Indo-Pacific Humpback Dolphin MigratorySpecies or species habitat may occur within area
Reptiles
Caretta caretta *
Loggerhead Turtle MigratoryBreeding may occur within area
Chelonia mydas *
Green Turtle MigratorySpecies or species habitat may occur within area
Dermochelys coriacea *
Leathery Turtle, Leatherback Turtle, Luth MigratorySpecies or species habitat may occur within area
Lepidochelys olivacea *
Pacific Ridley, Olive Ridley MigratorySpecies or species habitat may occur within area
Sharks
Carcharodon carcharias
Great White Shark MigratorySpecies or species habitat may occur within area
Rhincodon typus
Whale Shark MigratorySpecies or species habitat may occur within area

Other Matters Protected by the EPBC Act
Listed Marine Species [Dataset Information] StatusType of Presence
Birds
Anseranas semipalmata
Magpie Goose Listed - overfly marine areaSpecies or species habitat may occur within area
Apus pacificus
Fork-tailed Swift Listed - overfly marine areaSpecies or species habitat may occur within area
Ardea alba
Great Egret, White Egret Listed - overfly marine areaSpecies or species habitat may occur within area
Ardea ibis
Cattle Egret Listed - overfly marine areaBreeding likely to occur within area
Arenaria interpres
Ruddy Turnstone ListedSpecies or species habitat likely to occur within area
Calidris ferruginea
Curlew Sandpiper Listed - overfly marine areaSpecies or species habitat likely to occur within area
Calonectris leucomelas
Streaked Shearwater ListedSpecies or species habitat may occur within area
Charadrius mongolus
Lesser Sand Plover, Mongolian Plover ListedSpecies or species habitat likely to occur within area

Gallinago hardwickii *
Latham's Snipe, Japanese Snipe Listed - overfly marine areaSpecies or species habitat may occur within area
Haliaeetus leucogaster
White-bellied Sea-Eagle ListedSpecies or species habitat likely to occur within area
Heteroscelus brevipes
Grey-tailed Tattler ListedSpecies or species habitat likely to occur within area
Hirundapus caudacutus
White-throated Needletail Listed - overfly marine areaSpecies or species habitat may occur within area
Lathamus discolor *
Swift Parrot Listed - overfly marine areaSpecies or species habitat may occur within area
Limosa lapponica
Bar-tailed Godwit ListedSpecies or species habitat likely to occur within area
Macronectes giganteus
Southern Giant-Petrel ListedSpecies or species habitat may occur within area
Macronectes halli
Northern Giant-Petrel ListedSpecies or species habitat may occur within area
Merops ornatus *
Rainbow Bee-eater Listed - overfly marine areaSpecies or species habitat may occur within area
Monarcha melanopsis
Black-faced Monarch Listed - overfly marine areaBreeding may occur within area
Monarcha trivirgatus
Spectacled Monarch Listed - overfly marine areaBreeding likely to occur within area
Myiagra cyanoleuca
Satin Flycatcher Listed - overfly marine areaBreeding likely to occur within area
Nettapus coromandelianus albipennis
Australian Cotton Pygmy-goose Listed - overfly marine areaSpecies or species habitat may occur within area
Numenius madagascariensis
Eastern Curlew ListedSpecies or species habitat likely to occur within area
Numenius phaeopus
Whimbrel ListedSpecies or species habitat likely to occur within area
Pluvialis fulva
Pacific Golden Plover ListedSpecies or species habitat likely to occur within area
Rhipidura rufifrons
Rufous Fantail Listed - overfly marine areaBreeding may occur within area
Rostratula benghalensis s. lat.
Painted Snipe Listed - overfly marine areaSpecies or species habitat may occur within area
Sterna albifrons
Little Tern ListedSpecies or species habitat may occur within area
Thalassarche impavida
Campbell Albatross ListedSpecies or species habitat may occur within area
Xenus cinereus
Terek Sandpiper Listed - overfly marine areaSpecies or species habitat likely to occur within area
Mammals
Dugong dugon
Dugong ListedSpecies or species habitat likely to occur within area
Ray-finned fishes
Acentronura tentaculata
Hairy Pygmy Pipehorse ListedSpecies or species habitat may occur within area
Campichthys tryoni
Tryon's Pipefish ListedSpecies or species habitat may occur within area

Corythoichthys amplexus
Fijian Banded Pipefish, Brown-banded Pipefish ListedSpecies or species habitat may occur within area
Corythoichthys ocellatus
Orange-spotted Pipefish, Ocellated Pipefish ListedSpecies or species habitat may occur within area
Festucalex cinctus
Girdled Pipefish ListedSpecies or species habitat may occur within area
Filicampus tigris
Tiger Pipefish ListedSpecies or species habitat may occur within area
Halicampus grayi
Mud Pipefish, Gray's Pipefish ListedSpecies or species habitat may occur within area
Hippichthys cyanospilos
Blue-speckled Pipefish, Blue-spotted Pipefish ListedSpecies or species habitat may occur within area
Hippichthys heptagonus
Madura Pipefish, Reticulated Freshwater Pipefish ListedSpecies or species habitat may occur within area
Hippichthys penicillus
Beady Pipefish, Steep-nosed Pipefish ListedSpecies or species habitat may occur within area
Hippocampus kelloggi
Kellogg's Seahorse ListedSpecies or species habitat may occur within area
Hippocampus kuda
Spotted Seahorse, Yellow Seahorse ListedSpecies or species habitat may occur within area
Hippocampus planifrons
Flat-face Seahorse ListedSpecies or species habitat may occur within area
Hippocampus whitei
White's Seahorse, Crowned Seahorse, Sydney Seahorse ListedSpecies or species habitat may occur within area
Lissocampus runa
Javelin Pipefish ListedSpecies or species habitat may occur within area
Maroubra perserrata
Sawtooth Pipefish ListedSpecies or species habitat may occur within area
Micrognathus andersonii
Anderson's Pipefish, Shortnose Pipefish ListedSpecies or species habitat may occur within area
Micrognathus brevirostris
Thorn-tailed Pipefish ListedSpecies or species habitat may occur within area
Microphis manadensis
Manado River Pipefish, Manado Pipefish ListedSpecies or species habitat may occur within area
Solegnathus dunckeri
Duncker's Pipehorse ListedSpecies or species habitat may occur within area
Solegnathus hardwickii
Pipehorse ListedSpecies or species habitat may occur within area
Solegnathus spinosissimus
Spiny Pipehorse, Australian Spiny Pipehorse ListedSpecies or species habitat may occur within area
Solenostomus cyanopterus
Blue-finned Ghost Pipefish, Robust Ghost Pipefish ListedSpecies or species habitat may occur within area
Solenostomus paradoxus
Harlequin Ghost Pipefish, Ornate Ghost Pipefish ListedSpecies or species habitat may occur within area
Stigmatopora nigra
Wide-bodied Pipefish, Black Pipefish ListedSpecies or species habitat may occur within area
Syngnathoides biaculeatus
Double-ended Pipehorse, Alligator Pipefish ListedSpecies or species habitat may occur within area
Trachyrhamphus bicoarctatus
Bend Stick Pipefish, Short-tailed Pipefish ListedSpecies or species habitat may occur within area

Urocampus carinirostris
Hairy Pipefish ListedSpecies or species habitat may occur within area
Vanacampus margaritifer
Mother-of-pearl Pipefish ListedSpecies or species habitat may occur within area
Reptiles
Aipysurus laevis
Olive Seasnake ListedSpecies or species habitat may occur within area
Astrotia stokesii
Stokes' Seasnake ListedSpecies or species habitat may occur within area
Caretta caretta *
Loggerhead Turtle ListedBreeding may occur within area
Chelonia mydas *
Green Turtle ListedSpecies or species habitat may occur within area
Dermochelys coriacea *
Leathery Turtle, Leatherback Turtle, Luth ListedSpecies or species habitat may occur within area
Emydocephalus annulatus
Turtle-headed Seasnake ListedSpecies or species habitat may occur within area
Hydrophis elegans
Elegant Seasnake ListedSpecies or species habitat may occur within area
Laticauda laticaudata
a sea krait ListedSpecies or species habitat may occur within area
Lepidochelys olivacea *
Pacific Ridley, Olive Ridley ListedSpecies or species habitat may occur within area
Pelamis platurus
Yellow-bellied Seasnake ListedSpecies or species habitat may occur within area
Whales and Other Cetaceans [Dataset Information] StatusType of Presence
Balaenoptera acutorostrata
Minke Whale CetaceanSpecies or species habitat may occur within area
Balaenoptera edeni
Bryde's Whale CetaceanSpecies or species habitat may occur within area
Delphinus delphis
Common Dolphin CetaceanSpecies or species habitat may occur within area
Eubalaena australis *
Southern Right Whale CetaceanSpecies or species habitat likely to occur within area
Grampus griseus
Risso's Dolphin, Grampus CetaceanSpecies or species habitat may occur within area
Lagenorhynchus obscurus
Dusky Dolphin CetaceanSpecies or species habitat may occur within area
Megaptera novaeangliae *
Humpback Whale CetaceanBreeding known to occur within area
Orcaella brevirostris
Irrawaddy Dolphin CetaceanSpecies or species habitat may occur within area
Orcinus orca
Killer Whale, Orca CetaceanSpecies or species habitat may occur within area
Sousa chinensis
Indo-Pacific Humpback Dolphin CetaceanSpecies or species habitat may occur within area
Stenella attenuata
Spotted Dolphin, Pantropical Spotted Dolphin CetaceanSpecies or species habitat may occur within area
Tursiops aduncus
Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin CetaceanSpecies or species habitat likely to occur within area
Tursiops truncatus s. str.
Bottlenose Dolphin CetaceanSpecies or species habitat may occur within area
Places on the RNE [Dataset Information]

Note that not all Indigenous sites may be listed.
Indigenous
Toorbul Point Bora Ground QLD
Natural
Pumicestone Passage - Bribie Island QLD
Redcliffe National Park QLD
Sheep Station Creek Environmental Park QLD

Extra Information
State and Territory Reserves [Dataset Information]
Beachmere Conservation Park, QLD
Deception Bay Fish Habitat Area, QLD
Freshwater National Park, QLD
Kippa-Ring Fish Habitat Area, QLD
Moreton Bay Marine Park, QLD
Pumicestone Channel Fish Habitat Area, QLD
Sheep Station Creek Conservation Park, QLD
Toorbul Conservation Park, QLD
Regional Forest Agreements [Dataset Information]
Note that all RFA areas including those still under consideration have been included.
South East Queensland RFA, Queensland

Caveat
The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.
This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World Heritage and Register of National Estate properties, Wetlands of International Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities.
Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.
Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.
For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under "type of presence". For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.
Only selected species covered by the migratory and marine provisions of the Act have been mapped.
The following species and ecological communities have not been mapped and do not appear in reports produced from this database:
- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small

numbers.
The following groups have been mapped, but may not cover the complete distribution of the species:
- non-threatened seabirds which have only been mapped for recorded breeding sites;
- seals which have only been mapped for breeding sites near the Australian continent.

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Acknowledgments

This database has been compiled from a range of data sources. The Department acknowledges the following custodians who have contributed valuable data and advice:
- New South Wales National Parks and Wildlife Service
- Department of Sustainability and Environment, Victoria
- Department of Primary Industries, Water and Environment, Tasmania
- Department of Environment and Heritage, South Australia Planning SA
- Parks and Wildlife Commission of the Northern Territory
- Environmental Protection Agency, Queensland
- Birds Australia
- Australian Bird and Bat Banding Scheme
- Australian National Wildlife Collection
- Natural history museums of Australia
- Queensland Herbarium
- National Herbarium of NSW
- Royal Botanic Gardens and National Herbarium of Victoria
- Tasmanian Herbarium
- State Herbarium of South Australia
- Northern Territory Herbarium
- Western Australian Herbarium
- Australian National Herbarium, Atherton and Canberra
- University of New England
- Other groups and individuals

ANUCliM Version 1.8, Centre for Resource and Environmental Studies, Australian National University was used extensively for the production of draft maps of species distribution. Environment Australia is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

APPENDIX C

Wildlife Online Database Search Results

Queensland Government
Environmental Protection Agency
Queensland Parks and Wildlife Service

Wildlife Online Extract

Search Criteria: Species List for a Specified Point
Species: All
Type: All
Status: All
Records: All
Date: All
Latitude: 27.12
Longitude: 152.98
Distance: 10
Email: monica.campbell@cardno.com.au
Date submitted: Tuesday 02 Oct 2007 14:31:10
Date extracted: Tuesday 02 Oct 2007 14:46:02

The number of records retrieved = 1054

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Bufonidae	*Bufo marinus*	cane toad	Y			48
animals	amphibians	Hylidae	*Litoria fallax*	eastern sedgefrog		C		41
animals	amphibians	Hylidae	*Litoria nasuta*	striped rocketfrog		C		26
animals	amphibians	Hylidae	*Litoria tyleri*	southern laughing treefrog		C		4
animals	amphibians	Hylidae	*Litoria rubella*	ruddy treefrog		C		14
animals	amphibians	Hylidae	*Litoria peronii*	emerald spotted treefrog		C		5
animals	amphibians	Hylidae	*Litoria dentata*	bleating treefrog		C		5
animals	amphibians	Hylidae	*Litoria caerulea*	common green treefrog		C		53
animals	amphibians	Hylidae	*Litoria gracilenta*	graceful treefrog		C		19
animals	amphibians	Hylidae	*Litoria lesueuri sensu lato*	stony creek frog		C		1
animals	amphibians	Hylidae	*Litoria latopalmata*	broad palmed rocketfrog		C		7
animals	amphibians	Hylidae	*Litoria wilcoxii*			C		4
animals	amphibians	Myobatrachidae	*Crinia tinnula*	wallum froglet		V		15/7
animals	amphibians	Myobatrachidae	*Adelotus brevis*	tusked frog		V		6
animals	amphibians	Myobatrachidae	*Uperoleia fusca*	dusky gungan		C		2
animals	amphibians	Myobatrachidae	*Crinia signifera*	clicking froglet		C		4
animals	amphibians	Myobatrachidae	*Mixophyes iteratus*	giant barred frog		E	E	3
animals	amphibians	Myobatrachidae	*Pseudophryne raveni*	copper backed broodfrog		C		13/1
animals	amphibians	Myobatrachidae	*Limnodynastes terraereginae*	scarlet sided pobblebonk		C		8
animals	amphibians	Myobatrachidae	*Limnodynastes tasmaniensis*	spotted grassfrog		C		15
animals	amphibians	Myobatrachidae	*Mixophyes fasciolatus*	great barred frog		C		1
animals	amphibians	Myobatrachidae	*Limnodynastes peronii*	striped marshfrog		C		51
animals	amphibians	Myobatrachidae	*Limnodynastes ornatus*	ornate burrowing frog		C		14
animals	amphibians	Myobatrachidae	*Crinia parinsignifera*	beeping froglet		C		15
animals	amphibians	Myobatrachidae	*Pseudophryne major*	great brown broodfrog		C		3
animals	amphibians	Myobatrachidae	*Uperoleia rugosa*	chubby gungan		C		2/1
animals	birds	Accipitridae	*Aquila audax*	wedge-tailed eagle		C		16
animals	birds	Accipitridae	*Milvus migrans*	black kite		C		5
animals	birds	Accipitridae	*Haliastur indus*	brahminy kite		C		96
animals	birds	Accipitridae	*Circus approximans*	swamp harrier		C		13
animals	birds	Accipitridae	*Accipiter fasciatus*	brown goshawk		C		53
animals	birds	Accipitridae	*Haliastur sphenurus*	whistling kite		C		141
animals	birds	Accipitridae	*Hieraaetus morphnoides*	little eagle		C		20
animals	birds	Accipitridae	*Accipiter novaehollandiae*	grey goshawk		R		16
animals	birds	Accipitridae	*Erythrotriorchis radiatus*	red goshawk		E	V	1
animals	birds	Accipitridae	*Accipiter cirrhocephalus*	collared sparrowhawk		C		14
animals	birds	Accipitridae	*Haliaeetus leucogaster*	white-bellied sea-eagle		C		72
animals	birds	Accipitridae	*Aviceda subcristata*	Pacific baza		C		46
animals	birds	Accipitridae	*Lophoictinia isura*	square-tailed kite		R		82
animals	birds	Accipitridae	*Pandion haliaetus*	osprey		C		48
animals	birds	Accipitridae	*Elanus axillaris*	black-shouldered kite		C		53/1
animals	birds	Accipitridae	*Circus assimilis*	spotted harrier		C		4
animals	birds	Aegothelidae	*Aegotheles cristatus*	Australian owlet-nightjar		C		18
animals	birds	Alaudidae	*Mirafra javanica*	singing bushlark		C		4
animals	birds	Alcedinidae	*Alcedo azurea*	azure kingfisher		C		51
animals	birds	Anatidae	*Anas castanea*	chestnut teal		C		88

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Anatidae	*Anas gracilis*	grey teal		C		84
animals	birds	Anatidae	*Cygnus atratus*	black swan		C		43
animals	birds	Anatidae	*Anas superciliosa*	Pacific black duck		C		192
animals	birds	Anatidae	*Aythya australis*	hardhead		C		19
animals	birds	Anatidae	*Anas rhynchotis*	Australasian shoveler		C		23
animals	birds	Anatidae	*Biziura lobata*	musk duck		C		1
animals	birds	Anatidae	*Chenonetta jubata*	Australian wood duck		C		136
animals	birds	Anatidae	*Malacorhynchus membranaceus*	pink-eared duck		C		11
animals	birds	Anatidae	*Nettapus coromandelianus*	cotton pygmy-goose		R		2
animals	birds	Anatidae	*Stictonetta naevosa*	freckled duck		R		8
animals	birds	Anatidae	*Dendrocygna arcuata*	wandering whistling-duck		C		7
animals	birds	Anatidae	*Dendrocygna eytoni*	plumed whistling-duck		C		20
animals	birds	Anatidae	*Anas platyrhynchos*	mallard	Y			6
animals	birds	Anhingidae	*Anhinga melanogaster*	darter		C		58
animals	birds	Anseranatidae	*Anseranas semipalmata*	magpie goose		C		28
animals	birds	Apodidae	*Apus affinis*	house swift		C		2
animals	birds	Apodidae	*Apus pacificus*	fork-tailed swift		C		3
animals	birds	Apodidae	*Hirundapus caudacutus*	white-throated needletail		C		47
animals	birds	Ardeidae	*Ardea alba*	great egret		C		125
animals	birds	Ardeidae	*Ardea ibis*	cattle egret		C		127
animals	birds	Ardeidae	*Egretta sacra*	eastern reef egret		C		3
animals	birds	Ardeidae	*Ardea intermedia*	intermediate egret		C		62
animals	birds	Ardeidae	*Butorides striatus*	striated heron		C		26
animals	birds	Ardeidae	*Egretta novaehollandiae*	white-faced heron		C		174
animals	birds	Ardeidae	*Nycticorax caledonicus*	nankeen night heron		C		40
animals	birds	Ardeidae	*Ixobrychus flavicollis*	black bittern		C		4
animals	birds	Ardeidae	*Botaurus poiciloptilus*	Australasian bittern		C		2
animals	birds	Ardeidae	*Ixobrychus minutus*	little bittern		C		7
animals	birds	Ardeidae	*Egretta garzetta*	little egret		C		46
animals	birds	Ardeidae	*Ardea pacifica*	white-necked heron		C		38
animals	birds	Artamidae	*Cracticus torquatus*	grey butcherbird		C		109
animals	birds	Artamidae	*Artamus cyanopterus*	dusky woodswallow		C		17
animals	birds	Artamidae	*Strepera graculina*	pied currawong		C		17
animals	birds	Artamidae	*Cracticus nigrogularis*	pied butcherbird		C		196
animals	birds	Artamidae	*Artamus superciliosus*	white-browed woodswallow		C		5
animals	birds	Artamidae	*Artamus sp.*					1
animals	birds	Artamidae	*Gymnorhina tibicen*	Australian magpie		C		221
animals	birds	Artamidae	*Artamus minor*	little woodswallow		C		2
animals	birds	Artamidae	*Artamus leucorynchus*	white-breasted woodswallow		C		44
animals	birds	Burhinidae	*Burhinus grallarius*	bush stone-curlew		C		8
animals	birds	Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo		C		123
animals	birds	Cacatuidae	*Calyptorhynchus funereus*	yellow-tailed black-cockatoo		C		50
animals	birds	Cacatuidae	*Calyptorhynchus lathami*	glossy black-cockatoo		V		1
animals	birds	Cacatuidae	*Calyptorhynchus banksii*	red-tailed black-cockatoo		C		3
animals	birds	Cacatuidae	*Nymphicus hollandicus*	cockatiel		C		5
animals	birds	Cacatuidae	*Cacatua tenuirostris*	long-billed corella	Y	C		10

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Cacatuidae	*Cacatua roseicapilla*	galah		C		113
animals	birds	Cacatuidae	*Cacatua sanguinea*	little corella		C		23
animals	birds	Campephagidae	*Lalage sueurii*	white-winged triller		C		33
animals	birds	Campephagidae	*Lalage leucomela*	varied triller		C		51
animals	birds	Campephagidae	*Coracina novaehollandiae*	black-faced cuckoo-shrike		C		216
animals	birds	Campephagidae	*Coracina tenuirostris*	cicadabird		C		82
animals	birds	Campephagidae	*Coracina papuensis*	white-bellied cuckoo-shrike		C		67
animals	birds	Campephagidae	*Coracina lineata*	barred cuckoo-shrike		C		12
animals	birds	Caprimulgidae	*Eurostopodus mystacalis*	white-throated nightjar		C		13
animals	birds	Centropodidae	*Centropus phasianinus*	pheasant coucal		C		104
animals	birds	Charadriidae	*Pluvialis fulva*	Pacific golden plover		C		36
animals	birds	Charadriidae	*Elseyornis melanops*	black-fronted dotterel		C		25
animals	birds	Charadriidae	*Charadrius bicinctus*	double-banded plover		C		3
animals	birds	Charadriidae	*Charadrius mongolus*	lesser sand plover		C		57
animals	birds	Charadriidae	*Vanellus tricolor*	banded lapwing		C		11
animals	birds	Charadriidae	*Erythrogonys cinctus*	red-kneed dotterel		C		12
animals	birds	Charadriidae	*Charadrius leschenaultii*	greater sand plover		C		18
animals	birds	Charadriidae	*Vanellus miles novaehollandiae*	masked lapwing (southern subspecies)		C		208
animals	birds	Charadriidae	*Charadrius ruficapillus*	red-capped plover		C		19
animals	birds	Ciconiidae	*Ephippiorhynchus asiaticus*	black-necked stork		R		45
animals	birds	Cinclosomatidae	*Psophodes olivaceus*	eastern whipbird		C		155
animals	birds	Climacteridae	*Climacteris picumnus*	brown treecreeper		C		7
animals	birds	Climacteridae	*Cormobates leucophaeus metastasis*	white-throated treecreeper (southern)		C		118
animals	birds	Climacteridae	*Cormobates leucophaeus*	white-throated treecreeper		C		2
animals	birds	Columbidae	*Columba livia*	rock dove	Y			31
animals	birds	Columbidae	*Lopholaimus antarcticus*	topknot pigeon		C		9
animals	birds	Columbidae	*Streptopelia chinensis*	spotted turtle-dove	Y			124
animals	birds	Columbidae	*Macropygia amboinensis*	brown cuckoo-dove		C		126
animals	birds	Columbidae	*Ptilinopus superbus*	superb fruit-dove		C		6
animals	birds	Columbidae	*Geopelia humeralis*	bar-shouldered dove		C		158
animals	birds	Columbidae	*Columba leucomela*	white-headed pigeon		C		5
animals	birds	Columbidae	*Ocyphaps lophotes*	crested pigeon		C		155
animals	birds	Columbidae	*Phaps chalcoptera*	common bronzewing		C		24
animals	birds	Columbidae	*Chalcophaps indica*	emerald dove		C		15
animals	birds	Columbidae	*Ptilinopus regina*	rose-crowned fruit-dove		C		13
animals	birds	Columbidae	*Geopelia striata*	peaceful dove		C		237
animals	birds	Coraciidae	*Eurystomus orientalis*	dollarbird		C		117
animals	birds	Corvidae	*Corvus orru*	Torresian crow		C		337
animals	birds	Cuculidae	*Cuculus pallidus*	pallid cuckoo		C		28
animals	birds	Cuculidae	*Chrysococcyx minutillus*	little bronze-cuckoo		C		16
animals	birds	Cuculidae	*Scythrops novaehollandiae*	channel-billed cuckoo		C		37
animals	birds	Cuculidae	*Cacomantis flabelliformis*	fan-tailed cuckoo		C		99
animals	birds	Cuculidae	*Cacomantis variolosus*	brush cuckoo		C		48
animals	birds	Cuculidae	*Cuculus saturatus*	oriental cuckoo		C		12
animals	birds	Cuculidae	*Chrysococcyx basalis*	Horsfield's bronze-cuckoo		C		11
animals	birds	Cuculidae	*Chrysococcyx lucidus*	shining bronze-cuckoo		C		38

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Cuculidae	*Eudynamys scolopacea*	common koel		C		84
animals	birds	Dicaeidae	*Dicaeum hirundinaceum*	mistletoebird		C		95
animals	birds	Dicruridae	*Myiagra alecto*	shining flycatcher		C		11
animals	birds	Dicruridae	*Myiagra inquieta*	restless flycatcher		C		21
animals	birds	Dicruridae	*Myiagra rubecula*	leaden flycatcher		C		90
animals	birds	Dicruridae	*Myiagra cyanoleuca*	satin flycatcher		C		7
animals	birds	Dicruridae	*Grallina cyanoleuca*	magpie-lark		C		244
animals	birds	Dicruridae	*Rhipidura rufifrons*	rufous fantail		C		39
animals	birds	Dicruridae	*Rhipidura fuliginosa*	grey fantail		C		179
animals	birds	Dicruridae	*Dicrurus bracteatus bracteatus*	spangled drongo (eastern Australia)		C		3
animals	birds	Dicruridae	*Rhipidura leucophrys leucophrys*	willie wagtail (southern)		C		1
animals	birds	Dicruridae	*Rhipidura leucophrys*	willie wagtail		C		178
animals	birds	Dicruridae	*Monarcha trivirgatus*	spectacled monarch		C		24
animals	birds	Dicruridae	*Monarcha melanopsis*	black-faced monarch		C		37
animals	birds	Dicruridae	*Dicrurus bracteatus*	spangled drongo		C		133
animals	birds	Dicruridae	*Monarcha leucotis*	white-eared monarch		C		9
animals	birds	Falconidae	*Falco berigora*	brown falcon		C		4
animals	birds	Falconidae	*Falco peregrinus*	peregrine falcon		C		15
animals	birds	Falconidae	*Falco cenchroides*	nankeen kestrel		C		24
animals	birds	Falconidae	*Falco longipennis*	Australian hobby		C		23
animals	birds	Fregatidae	*Fregata ariel*	lesser frigatebird		C		1
animals	birds	Gruidae	*Grus rubicunda*	brolga		C		54
animals	birds	Haematopodidae	*Haematopus longirostris*	pied oystercatcher		C		18
animals	birds	Halcyonidae	*Dacelo novaeguineae*	laughing kookaburra		C		198
animals	birds	Halcyonidae	*Todiramphus chloris*	collared kingfisher		C		61
animals	birds	Halcyonidae	*Todiramphus pyrrhopygia*	red-backed kingfisher		C		5
animals	birds	Halcyonidae	*Todiramphus macleayii*	forest kingfisher		C		111
animals	birds	Halcyonidae	*Todiramphus sanctus*	sacred kingfisher		C		113
animals	birds	Hirundinidae	*Hirundo sp.*					1
animals	birds	Hirundinidae	*Hirundo ariel*	fairy martin		C		41
animals	birds	Hirundinidae	*Hirundo nigricans*	tree martin		C		36
animals	birds	Hirundinidae	*Hirundo neoxena*	welcome swallow		C		188
animals	birds	Hirundinidae	*Cheramoeca leucosternus*	white-backed swallow		C		4
animals	birds	Jacanidae	*Irediparra gallinacea*	comb-crested jacana		C		26
animals	birds	Laridae	*Sterna bergii*	crested tern		C		24
animals	birds	Laridae	*Sterna hirundo*	common tern		C		7
animals	birds	Laridae	*Sterna caspia*	Caspian tern		C		86
animals	birds	Laridae	*Sterna nilotica*	gull-billed tern		C		43
animals	birds	Laridae	*Chlidonias hybridus*	whiskered tern		C		2
animals	birds	Laridae	*Chlidonias leucopterus*	white-winged black tern		C		2
animals	birds	Laridae	*Larus novaehollandiae*	silver gull		C		89
animals	birds	Laridae	*Sterna albifrons*	little tern		E		13
animals	birds	Maluridae	*Malurus sp.*					1
animals	birds	Maluridae	*Malurus cyaneus*	superb fairy-wren		C		5
animals	birds	Maluridae	*Malurus melanocephalus*	red-backed fairy-wren		C		116
animals	birds	Maluridae	*Malurus lamberti*	variegated fairy-wren		C		158

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animals	birds	Megapodiidae	*Alectura lathami*	Australian brush-turkey		C		37
animals	birds	Meliphagidae	*Manorina melanocephala*	noisy miner		C		126
animals	birds	Meliphagidae	*Myzomela sanguinolenta*	scarlet honeyeater		C		160
animals	birds	Meliphagidae	*Anthochaera chrysoptera*	little wattlebird		C		64
animals	birds	Meliphagidae	*Melithreptus albogularis*	white-throated honeyeater		C		125
animals	birds	Meliphagidae	*Lichenostomus versicolor*	varied honeyeater		C		1
animals	birds	Meliphagidae	*Acanthagenys rufogularis*	spiny-cheeked honeyeater		C		2
animals	birds	Meliphagidae	*Philemon citreogularis*	little friarbird		C		37
animals	birds	Meliphagidae	*Plectorhyncha lanceolata*	striped honeyeater		C		57
animals	birds	Meliphagidae	*Lichenostomus melanops*	yellow-tufted honeyeater		C		2
animals	birds	Meliphagidae	*Lichenostomus chrysops*	yellow-faced honeyeater		C		128
animals	birds	Meliphagidae	*Philemon corniculatus*	noisy friarbird		C		143
animals	birds	Meliphagidae	*Melithreptus lunatus*	white-naped honeyeater		C		32
animals	birds	Meliphagidae	*Melithreptus gularis*	black-chinned honeyeater		R		8
animals	birds	Meliphagidae	*Lichmera indistincta*	brown honeyeater		C		169
animals	birds	Meliphagidae	*Lichenostomus fuscus*	fuscous honeyeater		C		130
animals	birds	Meliphagidae	*Xanthomyza phrygia*	regent honeyeater		E	E	1
animals	birds	Meliphagidae	*Phylidonyris nigra*	white-cheeked honeyeater		C		15
animals	birds	Meliphagidae	*Entomyzon cyanotis*	blue-faced honeyeater		C		43
animals	birds	Meliphagidae	*Meliphaga lewinii*	Lewin's honeyeater		C		177
animals	birds	Meliphagidae	*Myzomela obscura*	dusky honeyeater		C		5
animals	birds	Meliphagidae	*Grantiella picta*	painted honeyeater		R		1
animals	birds	Meliphagidae	*Acanthorhynchus tenuirostris*	eastern spinebill		C		11
animals	birds	Meliphagidae	*Lichenostomus fasciogularis*	mangrove honeyeater		C		59
animals	birds	Meliphagidae	*Melithreptus brevirostris*	brown-headed honeyeater		C		1
animals	birds	Meropidae	*Merops ornatus*	rainbow bee-eater		C		110
animals	birds	Motacillidae	*Anthus novaeseelandiae*	Richard's pipit		C		49
animals	birds	Muscicapidae	*Zoothera heinei*	russet-tailed thrush		C		1/1
animals	birds	Neosittidae	*Daphoenositta chrysoptera*	varied sittella		C		28
animals	birds	Oriolidae	*Oriolus sagittatus*	olive-backed oriole		C		113
animals	birds	Oriolidae	*Sphecotheres viridis*	figbird		C		95
animals	birds	Orthonychidae	*Orthonyx temminckii*	logrunner		C		1
animals	birds	Pachycephalidae	*Falcunculus frontatus*	crested shrike-tit		C		77
animals	birds	Pachycephalidae	*Colluricincla harmonica*	grey shrike-thrush		C		234
animals	birds	Pachycephalidae	*Pachycephala pectoralis*	golden whistler		C		78
animals	birds	Pachycephalidae	*Pachycephala rufiventris*	rufous whistler		C		214
animals	birds	Pachycephalidae	*Colluricincla megarhyncha*	little shrike-thrush		C		45
animals	birds	Pardalotidae	*Acanthiza nana*	yellow thornbill		C		1
animals	birds	Pardalotidae	*Gerygone mouki*	brown gerygone		C		19
animals	birds	Pardalotidae	*Sericornis sp.*					1
animals	birds	Pardalotidae	*Chthonicola sagittata*	speckled warbler		C		1
animals	birds	Pardalotidae	*Acanthiza chrysorrhoa*	yellow-rumped thornbill		C		2
animals	birds	Pardalotidae	*Sericornis frontalis*	white-browed scrubwren		C		102
animals	birds	Pardalotidae	*Pardalotus punctatus*	spotted pardalote		C		26
animals	birds	Pardalotidae	*Pardalotus striatus*	striated pardalote		C		178
animals	birds	Pardalotidae	*Gerygone levigaster*	mangrove gerygone		C		62

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animals	birds	Pardalotidae	*Gerygone olivacea*	white-throated gerygone		C		87
animals	birds	Pardalotidae	*Acanthiza pusilla*	brown thornbill		C		74
animals	birds	Pardalotidae	*Acanthiza lineata*	striated thornbill		C		7
animals	birds	Pardalotidae	*Sericornis citreogularis*	yellow-throated scrubwren		C		1
animals	birds	Pardalotidae	*Smicrornis brevirostris*	weebill		C		2
animals	birds	Pardalotidae	*Sericornis magnirostris*	large-billed scrubwren		C		13
animals	birds	Passeridae	*Taeniopygia guttata*	zebra finch		C		4
animals	birds	Passeridae	*Passer domesticus*	house sparrow	Y			24
animals	birds	Passeridae	*Neochmia temporalis*	red-browed finch		C		100
animals	birds	Passeridae	*Lonchura punctulata*	nutmeg mannikin	Y			9
animals	birds	Passeridae	*Neochmia modesta*	plum-headed finch		C		1
animals	birds	Passeridae	*Taeniopygia bichenovii*	double-barred finch		C		90
animals	birds	Passeridae	*Lonchura castaneothorax*	chestnut-breasted mannikin		C		30
animals	birds	Pelecanidae	*Pelecanus conspicillatus*	Australian pelican		C		99
animals	birds	Petroicidae	*Petroica rosea*	rose robin		C		40
animals	birds	Petroicidae	*Microeca fascinans*	jacky winter		C		11
animals	birds	Petroicidae	*Eopsaltria australis*	eastern yellow robin		C		181
animals	birds	Petroicidae	*Petroica goodenovii*	red-capped robin		C		9
animals	birds	Phalacrocoracidae	*Phalacrocorax sp.*					1
animals	birds	Phalacrocoracidae	*Phalacrocorax varius*	pied cormorant		C		47
animals	birds	Phalacrocoracidae	*Phalacrocorax carbo*	great cormorant		C		9
animals	birds	Phalacrocoracidae	*Phalacrocorax sulcirostris*	little black cormorant		C		83
animals	birds	Phalacrocoracidae	*Phalacrocorax melanoleucos*	little pied cormorant		C		102
animals	birds	Phasianidae	*Coturnix sp.*					1
animals	birds	Phasianidae	*Coturnix chinensis*	king quail		C		1
animals	birds	Phasianidae	*Coturnix pectoralis*	stubble quail		C		6
animals	birds	Phasianidae	*Coturnix ypsilophora*	brown quail		C		35
animals	birds	Pittidae	*Pitta versicolor*	noisy pitta		C		4
animals	birds	Podargidae	*Podargus strigoides*	tawny frogmouth		C		50
animals	birds	Podicipedidae	*Podiceps cristatus*	great crested grebe		C		1
animals	birds	Podicipedidae	*Tachybaptus novaehollandiae*	Australasian grebe		C		71
animals	birds	Pomatostomidae	*Pomatostomus temporalis*	grey-crowned babbler		C		21
animals	birds	Procellariidae	*Lugensa brevirostris*	Kerguelen petrel		C		1/1
animals	birds	Procellariidae	*Puffinus tenuirostris*	short-tailed shearwater		C		3/1
animals	birds	Psittacidae	*Lathamus discolor*	swift parrot		E	E	1
animals	birds	Psittacidae	*Platycercus elegans*	crimson rosella		C		6
animals	birds	Psittacidae	*Alisterus scapularis*	Australian king-parrot		C		27
animals	birds	Psittacidae	*Platycercus adscitus*	pale-headed rosella		C		187
animals	birds	Psittacidae	*Psephotus haematonotus*	red-rumped parrot		C		1
animals	birds	Psittacidae	*Trichoglossus chlorolepidotus*	scaly-breasted lorikeet		C		184
animals	birds	Psittacidae	*Trichoglossus haematodus moluccanus*	rainbow lorikeet		C		254
animals	birds	Psittacidae	*Platycercus adscitus palliceps*	pale-headed rosella (southern form)		C		5
animals	birds	Psittacidae	*Aprosmictus erythropterus*	red-winged parrot		C		5
animals	birds	Psittacidae	*Glossopsitta concinna*	musk lorikeet		C		1
animals	birds	Psittacidae	*Glossopsitta pusilla*	little lorikeet		C		72
animals	birds	Psittacidae	*Platycercus eximius*	eastern rosella		C		11

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animals	birds	Psittacidae	*Neophema pulchella*	turquoise parrot		R		7
animals	birds	Ptilonorhynchidae	*Ptilonorhynchus violaceus*	satin bowerbird		C		6
animals	birds	Rallidae	*Fulica atra*	Eurasian coot		C		14
animals	birds	Rallidae	*Porzana fluminea*	Australian spotted crake		C		2
animals	birds	Rallidae	*Porzana tabuensis*	spotless crake		C		4
animals	birds	Rallidae	*Gallinula tenebrosa*	dusky moorhen		C		70
animals	birds	Rallidae	*Amaurornis olivaceus*	bush-hen		C		4
animals	birds	Rallidae	*Gallirallus philippensis*	buff-banded rail		C		17
animals	birds	Rallidae	*Porphyrio porphyrio*	purple swamphen		C		112
animals	birds	Rallidae	*Rallus pectoralis*	Lewin's rail		R		2
animals	birds	Rallidae	*Porzana pusilla*	Baillon's crake		C		7
animals	birds	Recurvirostridae	*Himantopus himantopus*	black-winged stilt		C		150
animals	birds	Recurvirostridae	*Recurvirostra novaehollandiae*	red-necked avocet		C		28
animals	birds	Rostratulidae	*Rostratula australis*	Australian painted snipe		V	V	10
animals	birds	Scolopacidae	*Calidris alba*	sanderling		C		1
animals	birds	Scolopacidae	*Limosa limosa*	black-tailed godwit		C		61
animals	birds	Scolopacidae	*Tringa glareola*	wood sandpiper		C		13
animals	birds	Scolopacidae	*Numenius minutus*	little curlew		C		2
animals	birds	Scolopacidae	*Limosa lapponica*	bar-tailed godwit		C		176
animals	birds	Scolopacidae	*Calidris canutus*	red knot		C		14
animals	birds	Scolopacidae	*Xenus cinereus*	terek sandpiper		C		51
animals	birds	Scolopacidae	*Tringa nebularia*	common greenshank		C		96
animals	birds	Scolopacidae	*Numenius madagascariensis*	eastern curlew		R		150
animals	birds	Scolopacidae	*Limnodromus semipalmatus*	Asian dowitcher		C		3
animals	birds	Scolopacidae	*Heteroscelus brevipes*	grey-tailed tattler		C		86
animals	birds	Scolopacidae	*Calidris tenuirostris*	great knot		C		71
animals	birds	Scolopacidae	*Limicola falcinellus*	broad-billed sandpiper		C		2
animals	birds	Scolopacidae	*Gallinago hardwickii*	Latham's snipe		C		25
animals	birds	Scolopacidae	*Calidris ruficollis*	red-necked stint		C		41
animals	birds	Scolopacidae	*Calidris ferruginea*	curlew sandpiper		C		85
animals	birds	Scolopacidae	*Tringa stagnatilis*	marsh sandpiper		C		60
animals	birds	Scolopacidae	*Philomachus pugnax*	ruff		C		1
animals	birds	Scolopacidae	*Calidris acuminata*	sharp-tailed sandpiper		C		30
animals	birds	Scolopacidae	*Arenaria interpres*	ruddy turnstone		C		10
animals	birds	Scolopacidae	*Actitis hypoleucos*	common sandpiper		C		4
animals	birds	Scolopacidae	*Numenius phaeopus*	whimbrel		C		176
animals	birds	Strigidae	*Ninox strenua*	powerful owl		V		1
animals	birds	Strigidae	*Ninox novaeseelandiae*	southern boobook		C		43
animals	birds	Strigidae	*Ninox connivens*	barking owl		C		3
animals	birds	Sturnidae	*Sturnus vulgaris*	common starling	Y			51
animals	birds	Sturnidae	*Acridotheres tristis*	common myna	Y			8
animals	birds	Sulidae	*Morus serrator*	Australasian gannet		C		2/1
animals	birds	Sylviidae	*Cisticola exilis*	golden-headed cisticola		C		59
animals	birds	Sylviidae	*Cincloramphus mathewsi*	rufous songlark		C		7
animals	birds	Sylviidae	*Acrocephalus stentoreus*	clamorous reed-warbler		C		27
animals	birds	Sylviidae	*Cincloramphus cruralis*	brown songlark		C		7

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Sylviidae	*Megalurus gramineus*	little grassbird		C		9
animals	birds	Sylviidae	*Megalurus timoriensis*	tawny grassbird		C		44
animals	birds	Threskiornithidae	*Platalea regia*	royal spoonbill		C		128
animals	birds	Threskiornithidae	*Platalea flavipes*	yellow-billed spoonbill		C		36
animals	birds	Threskiornithidae	*Threskiornis molucca*	Australian white ibis		C		176
animals	birds	Threskiornithidae	*Threskiornis spinicollis*	straw-necked ibis		C		147
animals	birds	Threskiornithidae	*Plegadis falcinellus*	glossy ibis		C		43
animals	birds	Turnicidae	*Turnix varia*	painted button-quail		C		14
animals	birds	Turnicidae	*Turnix maculosa*	red-backed button-quail		C		9
animals	birds	Tytonidae	*Tyto alba*	barn owl		C		11
animals	birds	Tytonidae	*Tyto novaehollandiae novaehollandiae*	masked owl (southern subspecies)		C		1
animals	birds	Zosteropidae	*Zosterops lateralis*	silvereye		C		149
animals	birds	Zosteropidae	*Zosterops lateralis cornwalli*	silvereye (eastern)		C		2
animals	bony fish	Ceratodontidae	*Neoceratodus forsteri*	Australian lungfish			V	1
animals	bony fish	Nannopercidae	*Nannoperca oxleyana*	Oxleyan pygmy perch		V	E	1
animals	bony fish	Poeciliidae	*Xiphophorus sp.*					3
animals	insects	Hesperiidae	*Cephrenes sp.*					1
animals	insects	Hesperiidae	*Chaetocneme beata*	eastern dusk-flat				1
animals	insects	Hesperiidae	*Trapezites symmomus*					1
animals	insects	Hesperiidae	*Telicota colon argeus*	pale-orange darter				6
animals	insects	Hesperiidae	*Cephrenes trichopepla*	yellow palm-dart				25
animals	insects	Hesperiidae	*Pelopidas agna dingo*	dingy swift				1
animals	insects	Hesperiidae	*Suniana sunias nola*	wide-brand grass-dart (southern subspecies)				1
animals	insects	Hesperiidae	*Hasora discolor mastusia*	green awl				1
animals	insects	Hesperiidae	*Ocybadistes ardea heterobathra*	orange grass-dart				37
animals	insects	Hesperiidae	*Euschemon rafflesia rafflesia*	regent skipper (southern subspecies)				10
animals	insects	Hesperiidae	*Taractrocera papyria papyria*	white-banded grass-dart				4
animals	insects	Hesperiidae	*Cephrenes augiades sperthias*	orange palm-dart				2
animals	insects	Hesperiidae	*Ocybadistes walkeri sothis*	green grass-dart (Bassian subspecies)				1
animals	insects	Hesperiidae	*Telicota ancilla ancilla*	green darter				2
animals	insects	Lycaenidae	*Prosotas felderi*	southern line-blue				3
animals	insects	Lycaenidae	*Zizeeria karsandra*	spotted grass-blue				12
animals	insects	Lycaenidae	*Psychonotis caelius*	small green-banded blue				2
animals	insects	Lycaenidae	*Lampides boeticus*	long-tailed pea-blue				6
animals	insects	Lycaenidae	*Candalides absimilis*	common pencilled-blue				1
animals	insects	Lycaenidae	*Zizula hylax attenuata*	little grass-blue				13
animals	insects	Lycaenidae	*Zizina labradus labradus*	common grass-blue (Australian subspecies)				52
animals	insects	Lycaenidae	*Erysichton lineata lineata*	hairy line-blue				1
animals	insects	Lycaenidae	*Catochrysops panormus platissa*	pale pea-blue				1
animals	insects	Lycaenidae	*Nacaduba berenice berenice*	large purple line-blue				5
animals	insects	Lycaenidae	*Catopyrops florinda halys*	speckled line-blue (southern subspecies)				1
animals	insects	Lycaenidae	*Candalides erinus erinus*	small dusky-blue				1
animals	insects	Lycaenidae	*Rapala varuna simsoni*	indigo flash				4

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	insects	Nymphalidae	*Euploea sp.*					2
animals	insects	Nymphalidae	*Hypocysta metirius*	brown ringlet				7
animals	insects	Nymphalidae	*Hypolimnas misippus*	danaid eggfly				1
animals	insects	Nymphalidae	*Danaus plexippus plexippus*	monarch				87
animals	insects	Nymphalidae	*Danaus chrysippus petilia*	lesser wanderer				54
animals	insects	Nymphalidae	*Hypolimnas bolina nerina*	varied eggfly				53
animals	insects	Nymphalidae	*Tirumala hamata hamata*	blue tiger				40
animals	insects	Nymphalidae	*Junonia villida calybe*	meadow argus				56
animals	insects	Nymphalidae	*Danaus affinis affinis*	marsh tiger				9
animals	insects	Nymphalidae	*Melanitis leda bankia*	common evening-brown				69
animals	insects	Nymphalidae	*Hypocysta pseudirius*	grey ringlet				1
animals	insects	Nymphalidae	*Euploea core corinna*	common crow				63
animals	insects	Nymphalidae	*Doleschallia bisaltide australis*	leafwing				1
animals	insects	Nymphalidae	*Polyura sempronius sempronius*	tailed emperor				36
animals	insects	Nymphalidae	*Argyreus hyperbius inconstans*	Australian fritillary		E		10
animals	insects	Nymphalidae	*Phaedyma shepherdi shepherdi*	white-banded plane (southern subspecies)				11
animals	insects	Nymphalidae	*Acraea andromacha andromacha*	glasswing				49
animals	insects	Nymphalidae	*Junonia orithya albicincta*	blue argus				1
animals	insects	Nymphalidae	*Phaedyma shepherdi*					1
animals	insects	Nymphalidae	*Vanessa kershawi*	Australian painted lady				24
animals	insects	Nymphalidae	*Vanessa itea*	yellow admiral				16
animals	insects	Papilionidae	*Papilio aegeus aegeus*	orchard swallowtail (Australian subspecies)				45
animals	insects	Papilionidae	*Cressida cressida cressida*	greasy swallowtail				28
animals	insects	Papilionidae	*Papilio demoleus sthenelus*	chequered swallowtail				18
animals	insects	Papilionidae	*Graphium sarpedon choredon*	blue triangle				38
animals	insects	Papilionidae	*Graphium eurypylus lycaon*	pale-blue triangle (eastern subspecies)				18
animals	insects	Papilionidae	*Papilio anactus*	dingy swallowtail				18
animals	insects	Papilionidae	*Papilio aegeus*					1
animals	insects	Papilionidae	*Papilio fuscus capaneus*	fuscous swallowtail (Australian subspecies)				19
animals	insects	Pieridae	*Pieris rapae*	cabbage white				43
animals	insects	Pieridae	*Elodina parthia*	striated pearl-white				1
animals	insects	Pieridae	*Appias paulina ego*	yellow albatross				2
animals	insects	Pieridae	*Delias nigrina*	black jezebel				58
animals	insects	Pieridae	*Eurema smilax*	small grass-yellow				23
animals	insects	Pieridae	*Elodina angulipennis*	southern pearl-white				2
animals	insects	Pieridae	*Belenois java teutonia*	caper white				11
animals	insects	Pieridae	*Catopsilia gorgophone gorgophone*	yellow migrant				1
animals	insects	Pieridae	*Delias argenthona argenthona*	scarlet jezebel				51
animals	insects	Pieridae	*Catopsilia pyranthe crokera*	white migrant				18
animals	insects	Pieridae	*Eurema brigitta australis*	no-brand grass-yellow				8
animals	insects	Pieridae	*Cepora perimale scyllara*	caper gull (Australian subspecies)				8
animals	insects	Pieridae	*Catopsilia pomona pomona*	lemon migrant				54

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	insects	Pieridae	*Eurema hecabe phoebus*	large grass-yellow				46
animals	mammals	Bovidae	*Bos taurus*	European cattle	Y			1
animals	mammals	Canidae	*Vulpes vulpes*	red fox	Y			15
animals	mammals	Canidae	*Canis familiaris*	dog	Y			1
animals	mammals	Canidae	*Canis lupus dingo*	dingo				14
animals	mammals	Dasyuridae	*Planigale maculata*	common planigale		C		1
animals	mammals	Dasyuridae	*Antechinus flavipes*	yellow-footed antechinus		C		6/1
animals	mammals	Dasyuridae	*Antechinus flavipes flavipes*	yellow-footed antechinus (south-east Queensland)		C		17
animals	mammals	Delphinidae	*Tursiops truncatus*	bottlenose dolphin		C		1
animals	mammals	Dugongidae	*Dugong dugon*	dugong		V		1
animals	mammals	Felidae	*Felis catus*	cat	Y			8
animals	mammals	Leporidae	*Lepus capensis*	brown hare	Y			20
animals	mammals	Macropodidae	*Macropus sp.*					4
animals	mammals	Macropodidae	*Wallabia bicolor*	swamp wallaby		C		16/1
animals	mammals	Macropodidae	*Macropus giganteus*	eastern grey kangaroo		C		34
animals	mammals	Macropodidae	*Macropus rufogriseus*	red-necked wallaby		C		15
animals	mammals	Macropodidae	*Macropus dorsalis*	black-striped wallaby		C		7
animals	mammals	Macropodidae	*Macropus parryi*	whiptail wallaby		C		2
animals	mammals	Molossidae	*Mormopterus sp. 2*	eastern freetail bat		C		2
animals	mammals	Molossidae	*Tadarida australis*	white-striped freetail bat		C		9
animals	mammals	Molossidae	*Mormopterus beccarii*	Beccari's freetail bat		C		1
animals	mammals	Muridae	*Melomys sp.*					11
animals	mammals	Muridae	*Rattus lutreolus*	swamp rat		C		11
animals	mammals	Muridae	*Hydromys chrysogaster*	water rat		C		10
animals	mammals	Muridae	*Melomys cervinipes*	fawn-footed melomys		C		5
animals	mammals	Muridae	*Rattus fuscipes*	bush rat		C		13
animals	mammals	Muridae	*Mus musculus*	house mouse	Y			24
animals	mammals	Muridae	*Melomys burtoni*	grassland melomys		C		5
animals	mammals	Muridae	*Rattus rattus*	black rat	Y			5
animals	mammals	Ornithorhynchidae	*Ornithorhynchus anatinus*	platypus		C		35
animals	mammals	Peramelidae	*Isoodon macrourus*	northern brown bandicoot		C		9
animals	mammals	Petauridae	*Petaurus sp.*					1
animals	mammals	Petauridae	*Petaurus breviceps*	sugar glider		C		4
animals	mammals	Phalangeridae	*Trichosurus vulpecula*	common brushtail possum		C		32/1
animals	mammals	Phascolarctidae	*Phascolarctos cinereus (southeast Queensland bioregion)*	koala (southeast Queensland bioregion)		V		179/1
animals	mammals	Potoroidae	*Aepyprymnus rufescens*	rufous bettong		C		2
animals	mammals	Pseudocheiridae	*Petauroides volans*	greater glider		C		10/1
animals	mammals	Pseudocheiridae	*Pseudocheirus peregrinus*	common ringtail possum		C		21/1
animals	mammals	Pteropodidae	*Pteropus sp.*					12
animals	mammals	Pteropodidae	*Pteropus alecto*	black flying-fox		C		2
animals	mammals	Pteropodidae	*Pteropus poliocephalus*	grey-headed flying-fox		C	V	22
animals	mammals	Pteropodidae	*Pteropus scapulatus*	little red flying-fox		C		4
animals	mammals	Rhinolophidae	*Rhinolophus megaphyllus*	eastern horseshoe-bat		C		2
animals	mammals	Suidae	*Sus scrofa*	pig	Y			15

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	mammals	Tachyglossidae	*Tachyglossus aculeatus*	short-beaked echidna		C		19
animals	mammals	Vespertilionidae	*Myotis macropus*	large-footed myotis		C		2
animals	mammals	Vespertilionidae	*Miniopterus schreibersii oceanensis*	eastern bent-wing bat		C		3
animals	mammals	Vespertilionidae	*Chalinolobus nigrogriseus*	hoary wattled bat		C		2
animals	mammals	Vespertilionidae	*Nyctophilus sp.*					1
animals	mammals	Vespertilionidae	*Scotorepens greyii*	little broad-nosed bat		C		2
animals	mammals	Vespertilionidae	*Chalinolobus gouldii*	Gould's wattled bat		C		2
animals	reptiles	Agamidae	*Pogona barbata*	bearded dragon		C		30
animals	reptiles	Agamidae	*Diporiphora australis*			C		4
animals	reptiles	Agamidae	*Amphibolurus nobbi nobbi*	nobbi		C		2
animals	reptiles	Agamidae	*Physignathus lesueurii*	eastern water dragon		C		19
animals	reptiles	Agamidae	*Chlamydosaurus kingii*	frilled lizard		C		2
animals	reptiles	Boidae	*Morelia spilota*	carpet python		C		22/2
animals	reptiles	Chelidae	*Emydura sp.*					1
animals	reptiles	Chelidae	*Chelodina longicollis*	eastern snake-necked turtle		C		4
animals	reptiles	Colubridae	*Boiga irregularis*	brown tree snake		C		4
animals	reptiles	Colubridae	*Tropidonophis mairii*	freshwater snake		C		9
animals	reptiles	Colubridae	*Dendrelaphis punctulata*	common tree snake		C		13
animals	reptiles	Elapidae	*Cacophis krefftii*	dwarf crowned snake		C		1
animals	reptiles	Elapidae	*Hemiaspis signata*	black-bellied swamp snake		C		4
animals	reptiles	Elapidae	*Demansia psammophis*	yellow-faced whip snake		C		8
animals	reptiles	Elapidae	*Pseudechis porphyriacus*	red-bellied black snake		C		9
animals	reptiles	Elapidae	*Tropidechis carinatus*	rough-scaled snake		C		1
animals	reptiles	Elapidae	*Cacophis squamulosus*	golden crowned snake		C		5
animals	reptiles	Elapidae	*Cacophis harriettae*	white-crowned snake		C		4/1
animals	reptiles	Elapidae	*Rhinoplocephalus nigrescens*	eastern small-eyed snake		C		1
animals	reptiles	Gekkonidae	*Gehyra dubia*			C		3
animals	reptiles	Gekkonidae	*Oedura lesueurii*	Lesueur's velvet gecko		C		1
animals	reptiles	Gekkonidae	*Oedura robusta*	robust velvet gecko		C		3/1
animals	reptiles	Pygopodidae	*Delma plebeia*	common delma		C		1
animals	reptiles	Pygopodidae	*Lialis burtonis*	Burton's legless lizard		C		6/2
animals	reptiles	Scincidae	*Lampropholis amicula*			C		1
animals	reptiles	Scincidae	*Lampropholis couperi*			C		2
animals	reptiles	Scincidae	*Anomalopus verreauxii*			C		4
animals	reptiles	Scincidae	*Ctenotus taeniolatus*	copper-tailed skink		C		1
animals	reptiles	Scincidae	*Tiliqua scincoides*	eastern blue-tongued lizard		C		7
animals	reptiles	Scincidae	*Eulamprus martini*			C		1
animals	reptiles	Scincidae	*Ctenotus robustus*			C		4
animals	reptiles	Scincidae	*Carlia pectoralis*			C		1
animals	reptiles	Scincidae	*Eulamprus quoyii*	eastern water skink		C		7
animals	reptiles	Scincidae	*Egernia frerei*	major skink		C		1
animals	reptiles	Scincidae	*Egernia major*	land mullet		C		2
animals	reptiles	Scincidae	*Carlia vivax*			C		5
animals	reptiles	Scincidae	*Lampropholis delicata*			C		24
animals	reptiles	Scincidae	*Cryptoblepharus virgatus*			C		19
animals	reptiles	Scincidae	*Cyclodomorphus gerrardii*	pink-tongued lizard		C		2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	reptiles	Scincidae	*Saproscincus challengeri*			C		1
animals	reptiles	Typhlopidae	*Ramphotyphlops sp.*					1
animals	reptiles	Typhlopidae	*Ramphotyphlops nigrescens*			C		2
animals	reptiles	Typhlopidae	*Ramphotyphlops proximus*			C		1/1
animals	reptiles	Varanidae	*Varanus sp.*	goanna				2
animals	reptiles	Varanidae	*Varanus varius*	lace monitor		C		14
animals	reptiles	Varanidae	*Varanus gouldii*	sand monitor		C		3/1
fungi	sac fungi	Arthoniaceae	*Arthothelium*			C		1/1
fungi	sac fungi	Collemataceae	*Collema glaucophthalmum*			C		1/1
fungi	sac fungi	Haematommaceae	*Haematomma persoonii*			C		1/1
fungi	sac fungi	Lecanoraceae	*Lecanora argentata*			C		1/1
fungi	sac fungi	Parmeliaceae	*Punctelia borreri*			C		1/1
fungi	sac fungi	Parmeliaceae	*Parmelina conlabrosa*			C		1/1
fungi	sac fungi	Parmeliaceae	*Parmelinopsis spumosa*			C		1/1
fungi	sac fungi	Parmeliaceae	*Parmotrema crinitum x P.reticulatum (Taylor) M.Choisy*			C		1/1
fungi	sac fungi	Parmeliaceae	*Hypotrachyna immaculata*			C		2/2
fungi	sac fungi	Parmeliaceae	*Parmotrema tinctorum*			C		2/2
fungi	sac fungi	Parmeliaceae	*Parmotrema robustum*			C		2/2
fungi	sac fungi	Parmeliaceae	*Canoparmelia texana*			C		1/1
fungi	sac fungi	Parmeliaceae	*Parmotrema crinitum*			C		3/3
fungi	sac fungi	Pertusariaceae	*Pertusaria leioplacella*			C		1/1
fungi	sac fungi	Physciaceae	*Physcia minor*			C		1/1
fungi	sac fungi	Physciaceae	*Hafellia dissa*			C		2/2
fungi	sac fungi	Physciaceae	*Dirinaria picta*			C		3/3
fungi	sac fungi	Physciaceae	*Dirinaria confluens*			C		2/2
fungi	sac fungi	Physciaceae	*Hyperphyscia adglutinata*			C		2/2
fungi	sac fungi	Physciaceae	*Dirinaria applanata*			C		5/5
fungi	sac fungi	Ramalinaceae	*Ramalina confirmata*			C		2/2
fungi	uncertain	Ascomycota	*Hypoxylon nummularium var. australe*			C		1/1
fungi		Basidiomycota	*Hygrocybe miniata*			C		1/1
fungi		Basidiomycota	*Polyporus tumulosus*			C		1/1
fungi		Basidiomycota	*Phallus rubicundus*			C		1/1
fungi		Basidiomycota	*Lycoperdon gunnii*			C		1/1
plants	conifers	Araucariaceae	*Araucaria cunninghamii var. cunninghamii*			C		1/1
plants	conifers	Cupressaceae	*Callitris columellaris*			C		2/1
plants	conifers	Pinaceae	*Pinus elliottii*	slash pine	Y			4/1
plants	cycads	Zamiaceae	*Macrozamia lucida*	pineapple zamia		C		1
plants	ferns	Adiantaceae	*Pellaea nana*			C		1/1
plants	ferns	Adiantaceae	*Adiantum hispidulum*			C		1
plants	ferns	Adiantaceae	*Adiantum aethiopicum*			C		1
plants	ferns	Adiantaceae	*Cheilanthes sieberi subsp. sieberi*			C		2/2
plants	ferns	Adiantaceae	*Adiantum hispidulum var. hispidulum*			C		1/1
plants	ferns	Aspleniaceae	*Asplenium attenuatum var. attenuatum*			C		1/1
plants	ferns	Blechnaceae	*Doodia aspera*	prickly rasp fern		C		1
plants	ferns	Blechnaceae	*Blechnum indicum*	swamp water fern		C		5

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plants	ferns	Dennstaedtiaceae	*Pteridium esculentum*	common bracken		C		5/1
plants	ferns	Lindsaeaceae	*Lindsaea incisa*			C		2
plants	ferns	Lindsaeaceae	*Lindsaea ensifolia subsp. ensifolia*			C		1
plants	ferns	Polypodiaceae	*Drynaria rigidula*			C		1/1
plants	ferns	Schizaeaceae	*Lygodium microphyllum*	snake fern		C		2/1
plants	ferns	Thelypteridaceae	*Christella dentata*	creek fern		C		1/1
plants	higher dicots	Acanthaceae	*Thunbergia alata*	black-eyed Susan	Y			1/1
plants	higher dicots	Acanthaceae	*Hygrophila costata*		Y			3/3
plants	higher dicots	Acanthaceae	*Hygrophila polysperma*		Y			1/1
plants	higher dicots	Acanthaceae	*Rostellularia adscendens subsp. adscendens*			C		1/1
plants	higher dicots	Aizoaceae	*Zaleya galericulata*			C		1/1
plants	higher dicots	Aizoaceae	*Tetragonia tetragonioides*	New Zealand spinach		C		1/1
plants	higher dicots	Aizoaceae	*Sesuvium portulacastrum*	sea purslane		C		1/1
plants	higher dicots	Amaranthaceae	*Gomphrena celosioides*	gomphrena weed	Y			1/1
plants	higher dicots	Anacardiaceae	*Schinus terebinthifolius*		Y			2
plants	higher dicots	Apiaceae	*Centella asiatica*			C		3/1
plants	higher dicots	Apiaceae	*Hydrocotyle paludosa*			C		1/1
plants	higher dicots	Apocynaceae	*Parsonsia velutina*	hairy silkpod		C		1
plants	higher dicots	Apocynaceae	*Alyxia ruscifolia*			C		1
plants	higher dicots	Apocynaceae	*Parsonsia straminea*	monkey rope		C		4/1
plants	higher dicots	Araliaceae	*Polyscias elegans*	celery wood		C		2
plants	higher dicots	Asclepiadaceae	*Cynanchum carnosum*			C		1/1
plants	higher dicots	Asteraceae	*Bidens pilosa*		Y			1
plants	higher dicots	Asteraceae	*Aster subulatus*	wild aster	Y			2/1
plants	higher dicots	Asteraceae	*Sonchus oleraceus*	common sowthistle	Y			1
plants	higher dicots	Asteraceae	*Emilia sonchifolia*		Y			1
plants	higher dicots	Asteraceae	*Glossocardia bidens*	native cobbler's pegs		C		1/1
plants	higher dicots	Asteraceae	*Arctotheca calendula*	Cape weed	Y			1/1
plants	higher dicots	Asteraceae	*Ageratum houstonianum*	blue billygoat weed	Y			1
plants	higher dicots	Asteraceae	*Cyanthillium cinereum*			C		1/1
plants	higher dicots	Asteraceae	*Erechtites valerianifolius forma valerianifolius*		Y			1/1
plants	higher dicots	Asteraceae	*Conyza canadensis var. canadensis*		Y			1/1
plants	higher dicots	Asteraceae	*Sphagneticola trilobata*		Y			1/1
plants	higher dicots	Asteraceae	*Baccharis halimifolia*	groundsel bush	Y			8/1
plants	higher dicots	Asteraceae	*Hypochaeris radicata*	catsear	Y			1/1
plants	higher dicots	Asteraceae	*Ageratina adenophora*	crofton weed	Y			1/1
plants	higher dicots	Asteraceae	*Conyza primulifolia*	Chilean fleabane	Y			1/1
plants	higher dicots	Asteraceae	*Conyza bonariensis*		Y			1
plants	higher dicots	Asteraceae	*Tagetes minuta*	stinking roger	Y			1/1
plants	higher dicots	Basellaceae	*Anredera cordifolia*	Madeira vine	Y			1/1
plants	higher dicots	Boraginaceae	*Heliotropium amplexicaule*	blue heliotrope	Y			1/1
plants	higher dicots	Brassicaceae	*Lepidium bonariense*	Argentine peppercress	Y			1/1
plants	higher dicots	Caesalpiniaceae	*Senna didymobotrya*		Y			1/1
plants	higher dicots	Caesalpiniaceae	*Chamaecrista rotundifolia var. rotundifolia*		Y			3/2
plants	higher dicots	Caesalpiniaceae	*Senna pendula var. glabrata*	Easter cassia	Y			1
plants	higher dicots	Campanulaceae	*Pratia concolor*	poison pratia		C		1

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plants	higher dicots	Campanulaceae	*Lobelia stenophylla*			C		1/1
plants	higher dicots	Campanulaceae	*Lobelia purpurascens*	white root		C		3
plants	higher dicots	Casuarinaceae	*Casuarina glauca*	swamp she-oak		C		5
plants	higher dicots	Casuarinaceae	*Allocasuarina littoralis*			C		2/2
plants	higher dicots	Casuarinaceae	*Casuarina cunninghamiana*			C		1
plants	higher dicots	Casuarinaceae	*Allocasuarina torulosa*			C		1
plants	higher dicots	Celastraceae	*Siphonodon australis*	ivorywood		C		2/2
plants	higher dicots	Chenopodiaceae	*Suaeda australis*			C		6/1
plants	higher dicots	Chenopodiaceae	*Enchylaena tomentosa var. glabra*			C		1
plants	higher dicots	Chenopodiaceae	*Suaeda arbusculoides*			C		5/1
plants	higher dicots	Chenopodiaceae	*Sarcocornia quinqueflora subsp. quinqueflora*			C		4
plants	higher dicots	Chenopodiaceae	*Halosarcia pergranulata subsp. queenslandica*			C		1/1
plants	higher dicots	Clusiaceae	*Hypericum gramineum*			C		1/1
plants	higher dicots	Convolvulaceae	*Ipomoea cairica*		Y			2
plants	higher dicots	Convolvulaceae	*Ipomoea plebeia*	bellvine		C		1/1
plants	higher dicots	Cunoniaceae	*Callicoma serratifolia*	callicoma		C		1/1
plants	higher dicots	Dilleniaceae	*Hibbertia stricta*			C		2
plants	higher dicots	Dilleniaceae	*Hibbertia stricta var. stricta*			C		1/1
plants	higher dicots	Dilleniaceae	*Hibbertia vestita var. vestita*			C		1/1
plants	higher dicots	Dilleniaceae	*Hibbertia vestita*			C		2
plants	higher dicots	Droseraceae	*Drosera lanata*			C		1
plants	higher dicots	Ebenaceae	*Diospyros fasciculosa*	grey ebony		C		1
plants	higher dicots	Elaeocarpaceae	*Elaeocarpus coorangooloo*			R		1
plants	higher dicots	Epacridaceae	*Monotoca scoparia*	prickly broom heath		C		1/1
plants	higher dicots	Epacridaceae	*Acrotriche aggregata*	red cluster heath		C		1/1
plants	higher dicots	Epacridaceae	*Epacris microphylla*			C		1
plants	higher dicots	Euphorbiaceae	*Acalypha nemorum*	hairy acalypha		C		1
plants	higher dicots	Euphorbiaceae	*Acalypha australis*		Y			2/2
plants	higher dicots	Euphorbiaceae	*Euphorbia peplus*	petty spurge	Y			1/1
plants	higher dicots	Euphorbiaceae	*Drypetes deplanchei*	grey boxwood		C		1
plants	higher dicots	Euphorbiaceae	*Phyllanthus tenellus*		Y			2/2
plants	higher dicots	Euphorbiaceae	*Bridelia leichhardtii*			C		1
plants	higher dicots	Euphorbiaceae	*Glochidion harveyanum*			C		1
plants	higher dicots	Euphorbiaceae	*Ricinocarpos pinifolius*	wedding bush		C		2/1
plants	higher dicots	Euphorbiaceae	*Chamaesyce hyssopifolia*		Y			2/2
plants	higher dicots	Euphorbiaceae	*Poranthera microphylla*	small poranthera		C		1
plants	higher dicots	Euphorbiaceae	*Euphorbia heterophylla*		Y			2/2
plants	higher dicots	Euphorbiaceae	*Mallotus philippensis*	red kamala		C		1
plants	higher dicots	Euphorbiaceae	*Mallotus claoxyloides*	green kamala		C		1
plants	higher dicots	Euphorbiaceae	*Glochidion sumatranum*	umbrella cheese tree		C		2
plants	higher dicots	Euphorbiaceae	*Glochidion ferdinandi*			C		3/1
plants	higher dicots	Euphorbiaceae	*Phyllanthus virgatus*			C		1/1
plants	higher dicots	Euphorbiaceae	*Breynia oblongifolia*			C		1
plants	higher dicots	Fabaceae	*Kennedia rubicunda*	red Kennedy pea		C		1/1
plants	higher dicots	Fabaceae	*Kummerowia striata*	japanese clover	Y			1/1
plants	higher dicots	Fabaceae	*Lotononis bainesii*	lotononis	Y			3/3

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plants	higher dicots	Fabaceae	*Pultenaea paleacea*			C		2
plants	higher dicots	Fabaceae	*Mirbelia rubiifolia*	heathy mirbelia		C		2/2
plants	higher dicots	Fabaceae	*Pycnospora lutescens*	pycnospora		C		1/1
plants	higher dicots	Fabaceae	*Derris involuta*	native derris		C		1
plants	higher dicots	Fabaceae	*Aotus lanigera*	pointed aotus		C		1/1
plants	higher dicots	Fabaceae	*Fabaceae*			C		1
plants	higher dicots	Fabaceae	*Desmodium heterocarpon var. heterocarpon*			C		1/1
plants	higher dicots	Fabaceae	*Daviesia ulicifolia subsp. stenophylla*			C		1/1
plants	higher dicots	Fabaceae	*Austrosteenisia blackii var. blackii*			C		1/1
plants	higher dicots	Fabaceae	*Zornia dyctiocarpa var. dyctiocarpa*			C		1/1
plants	higher dicots	Fabaceae	*Trifolium repens var. repens*	white clover	Y			1/1
plants	higher dicots	Fabaceae	*Macroptilium atropurpureum*	siratro	Y			1/1
plants	higher dicots	Fabaceae	*Jacksonia scoparia*			C		2/2
plants	higher dicots	Fabaceae	*Pultenaea villosa*	hairy bush pea		C		1/1
plants	higher dicots	Fabaceae	*Glycine cyrtoloba*			C		1
plants	higher dicots	Fabaceae	*Pultenaea retusa*			C		1/1
plants	higher dicots	Fabaceae	*Mirbelia pungens*			C		2/2
plants	higher dicots	Fabaceae	*Mucuna gigantea*	burny bean		C		1/1
plants	higher dicots	Fabaceae	*Vicia sativa subsp. nigra*		Y			1/1
plants	higher dicots	Fabaceae	*Tephrosia glomeruliflora*	pink tephrosia	Y			1/1
plants	higher dicots	Fabaceae	*Desmodium rhytidophyllum*			C		2
plants	higher dicots	Fabaceae	*Stylosanthes guianensis*		Y			1/1
plants	higher dicots	Fabaceae	*Indigofera suffruticosa*		Y			1/1
plants	higher dicots	Fabaceae	*Hardenbergia violacea*			C		2
plants	higher dicots	Fabaceae	*Gompholobium pinnatum*	poor mans gold		C		1/1
plants	higher dicots	Fabaceae	*Chorizema parviflorum*	eastern flame pea		C		2/2
plants	higher dicots	Fabaceae	*Pultenaea myrtoides*			C		2/2
plants	higher dicots	Fabaceae	*Glycine clandestina*			C		1
plants	higher dicots	Goodeniaceae	*Velleia spathulata*	wild pansies		C		3/2
plants	higher dicots	Goodeniaceae	*Goodenia rotundifolia*			C		1/1
plants	higher dicots	Haloragaceae	*Gonocarpus chinensis subsp. verrucosus*			C		2/2
plants	higher dicots	Haloragaceae	*Gonocarpus micranthus subsp. ramosissimus*			C		1
plants	higher dicots	Lamiaceae	*Lycopus australis*	water horehound		C		1/1
plants	higher dicots	Lamiaceae	*Westringia eremicola*	slender westringia		C		1/1
plants	higher dicots	Lamiaceae	*Plectranthus graveolens*	flea bush		C		1/1
plants	higher dicots	Lamiaceae	*Clerodendrum floribundum*			C		1
plants	higher dicots	Lamiaceae	*Clerodendrum tomentosum*			C		1
plants	higher dicots	Lentibulariaceae	*Utricularia aurea*	golden bladderwort		C		4/4
plants	higher dicots	Lentibulariaceae	*Utricularia lasiocaulis*			C		1/1
plants	higher dicots	Lentibulariaceae	*Utricularia caerulea*	blue bladderwort		C		1/1
plants	higher dicots	Lentibulariaceae	*Utricularia uliginosa*	asian bladderwort		C		1/1
plants	higher dicots	Malvaceae	*Sida cordifolia*		Y			1
plants	higher dicots	Malvaceae	*Hibiscus heterophyllus*			C		3/1
plants	higher dicots	Malvaceae	*Malvaviscus arboreus*		Y			1/1
plants	higher dicots	Malvaceae	*Sida rhombifolia*		Y			1/1
plants	higher dicots	Malvaceae	*Hibiscus tiliaceus*	cotton tree		C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Melastomataceae	*Melastoma malabathricum subsp. malabathricum*			C		2
plants	higher dicots	Meliaceae	*Dysoxylum rufum*			C		1
plants	higher dicots	Meliaceae	*Melia azedarach*	white cedar		C		2
plants	higher dicots	Menyanthaceae	*Nymphoides indica*	water snowflake		C		1/1
plants	higher dicots	Mimosaceae	*Acacia maidenii*	Maiden's wattle		C		2
plants	higher dicots	Mimosaceae	*Acacia leiocalyx subsp. leiocalyx*			C		2/2
plants	higher dicots	Mimosaceae	*Acacia penninervis*			C		1
plants	higher dicots	Mimosaceae	*Acacia concurrens*			C		4/3
plants	higher dicots	Mimosaceae	*Acacia flavescens*	toothed wattle		C		1
plants	higher dicots	Mimosaceae	*Acacia myrtifolia*			C		1/1
plants	higher dicots	Mimosaceae	*Acacia hubbardiana*			C		1/1
plants	higher dicots	Mimosaceae	*Acacia aulacocarpa*			C		2
plants	higher dicots	Mimosaceae	*Acacia cincinnata*			C		1/1
plants	higher dicots	Mimosaceae	*Acacia leiocalyx*			C		5
plants	higher dicots	Moraceae	*Ficus virens*			C		1
plants	higher dicots	Moraceae	*Maclura cochinchinensis*	cockspur thorn		C		1
plants	higher dicots	Moraceae	*Trophis scandens subsp. scandens*			C		1
plants	higher dicots	Moraceae	*Ficus obliqua*			C		1
plants	higher dicots	Moraceae	*Ficus coronata*	creek sandpaper fig		C		1
plants	higher dicots	Myrsinaceae	*Myrsine porosa*			C		1
plants	higher dicots	Myrsinaceae	*Myrsine variabilis*			C		1
plants	higher dicots	Myrsinaceae	*Aegiceras corniculatum*	river mangrove		C		3
plants	higher dicots	Myrtaceae	*Melaleuca quinquenervia*	swamp paperbark		C		8
plants	higher dicots	Myrtaceae	*Leptospermum juniperinum*	prickly tea-tree		C		1
plants	higher dicots	Myrtaceae	*Leptospermum microcarpum*	small-fruited tea-tree		C		2/2
plants	higher dicots	Myrtaceae	*Leptospermum polygalifolium*	tantoon		C		3/1
plants	higher dicots	Myrtaceae	*Corymbia trachyphloia subsp. trachyphloia*			C		1
plants	higher dicots	Myrtaceae	*Eucalyptus racemosa subsp. racemosa*	scribbly gum		C		3
plants	higher dicots	Myrtaceae	*Leptospermum luehmannii*			R		2/2
plants	higher dicots	Myrtaceae	*Eucalyptus tereticornis*			C		3
plants	higher dicots	Myrtaceae	*Eucalyptus siderophloia*			C		2
plants	higher dicots	Myrtaceae	*Melaleuca linariifolia*	snow-in summer		C		1
plants	higher dicots	Myrtaceae	*Lophostemon suaveolens*	swamp box		C		5
plants	higher dicots	Myrtaceae	*Leptospermum speciosum*			C		2/1
plants	higher dicots	Myrtaceae	*Lophostemon confertus*	brush box		C		3
plants	higher dicots	Myrtaceae	*Eucalyptus microcorys*			C		1
plants	higher dicots	Myrtaceae	*Eucalyptus bancroftii*	Bancroft's red gum		C		3/1
plants	higher dicots	Myrtaceae	*Melaleuca thymifolia*	thyme honeymyrtle		C		1
plants	higher dicots	Myrtaceae	*Eucalyptus pilularis*	blackbutt		C		1
plants	higher dicots	Myrtaceae	*Melaleuca viminalis*			C		1
plants	higher dicots	Myrtaceae	*Corymbia intermedia*	pink bloodwood		C		4/1
plants	higher dicots	Myrtaceae	*Angophora woodsiana*	smudgee		C		1
plants	higher dicots	Myrtaceae	*Rhodamnia dumicola*	rib-fruited malletwood		C		1/1
plants	higher dicots	Myrtaceae	*Melaleuca salicina*			C		1/1
plants	higher dicots	Myrtaceae	*Calytrix tetragona*	fringe myrtle		C		2/2
plants	higher dicots	Myrtaceae	*Syzygium australe*	scrub cherry		C		3

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plants	higher dicots	Myrtaceae	*Melaleuca sieberi*			C		2/1
plants	higher dicots	Myrtaceae	*Eucalyptus crebra*	narrow-leaved red ironbark		C		1
plants	higher dicots	Myrtaceae	*Angophora costata*			C		1
plants	higher dicots	Myrtaceae	*Acmena hemilampra*			C		1
plants	higher dicots	Myrtaceae	*Syzygium oleosum*	blue cherry		C		1
plants	higher dicots	Myrtaceae	*Melaleuca nodosa*			C		1/1
plants	higher dicots	Myrtaceae	*Gossia bidwillii*			C		1/1
plants	higher dicots	Myrtaceae	*Eugenia uniflora*	Brazilian cherry tree	Y			1
plants	higher dicots	Ochnaceae	*Ochna serrulata*	ochna	Y			1/1
plants	higher dicots	Oleaceae	*Notelaea longifolia*			C		2
plants	higher dicots	Onagraceae	*Ludwigia octovalvis*	willow primrose		C		1/1
plants	higher dicots	Onagraceae	*Ludwigia peploides subsp. montevidensis*			C		1/1
plants	higher dicots	Onagraceae	*Oenothera indecora subsp. bonariensis*		Y			1/1
plants	higher dicots	Oxalidaceae	*Oxalis corniculata*		Y			1
plants	higher dicots	Passifloraceae	*Passiflora foetida*		Y			1/1
plants	higher dicots	Passifloraceae	*Passiflora suberosa*	corky passion flower	Y			2
plants	higher dicots	Passifloraceae	*Passiflora subpeltata*	white passion flower	Y			1
plants	higher dicots	Phytolaccaceae	*Phytolacca octandra*	inkweed	Y			1/1
plants	higher dicots	Pittosporaceae	*Billardiera scandens*			C		1
plants	higher dicots	Pittosporaceae	*Pittosporum revolutum*	yellow pittosporum		C		1
plants	higher dicots	Polygalaceae	*Polygala paniculata*		Y			1/1
plants	higher dicots	Polygalaceae	*Comesperma hispidulum*			C		1/1
plants	higher dicots	Polygonaceae	*Rumex brownii*	swamp dock		C		1/1
plants	higher dicots	Polygonaceae	*Persicaria attenuata*			C		3/3
plants	higher dicots	Polygonaceae	*Persicaria dichotoma*			C		3/3
plants	higher dicots	Polygonaceae	*Persicaria subsessilis*	hairy knotweed		C		1/1
plants	higher dicots	Polygonaceae	*Persicaria orientalis*	princes feathers		C		1/1
plants	higher dicots	Polygonaceae	*Persicaria decipiens*	slender knotweed		C		1/1
plants	higher dicots	Polygonaceae	*Persicaria strigosa*			C		1
plants	higher dicots	Polygonaceae	*Rumex crispus*	curled dock	Y			1/1
plants	higher dicots	Primulaceae	*Anagallis arvensis*	blue pimpernel	Y			1/1
plants	higher dicots	Proteaceae	*Banksia robur*	broad-leaved banksia		C		2
plants	higher dicots	Proteaceae	*Banksia oblongifolia*	dwarf banksia		C		2/1
plants	higher dicots	Proteaceae	*Banksia integrifolia subsp. compar*			C		1/1
plants	higher dicots	Proteaceae	*Persoonia stradbrokensis*			C		3
plants	higher dicots	Proteaceae	*Macadamia integrifolia*	macadamia nut		V	V	1/1
plants	higher dicots	Proteaceae	*Macadamia ternifolia*	bopple nut		V	V	1/1
plants	higher dicots	Proteaceae	*Grevillea leiophylla*	wallum grevillea		C		3/1
plants	higher dicots	Proteaceae	*Banksia integrifolia*			C		2
plants	higher dicots	Proteaceae	*Hakea actites*			C		2/1
plants	higher dicots	Proteaceae	*Grevillea robusta*			C		1
plants	higher dicots	Proteaceae	*Persoonia sericea*	silky geebung		C		1
plants	higher dicots	Proteaceae	*Lomatia silaifolia*	crinkle bush		C		2
plants	higher dicots	Proteaceae	*Hakea florulenta*	three-nerved willow hakea		C		2/1
plants	higher dicots	Rhamnaceae	*Alphitonia excelsa*	soap tree		C		11/1
plants	higher dicots	Rhizophoraceae	*Ceriops tagal*	yellow mangrove		C		5/3

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plants	higher dicots	Rhizophoraceae	*Rhizophora stylosa*	spotted mangrove		C		4/1
plants	higher dicots	Rhizophoraceae	*Bruguiera gymnorhiza*	large-fruited orange mangrove		C		1/1
plants	higher dicots	Rubiaceae	*Dentella repens*	dentella		C		1/1
plants	higher dicots	Rubiaceae	*Richardia brasiliensis*	white eye	Y			2/2
plants	higher dicots	Rubiaceae	*Cyclophyllum coprosmoides var. coprosmoides*			C		1/1
plants	higher dicots	Rubiaceae	*Everistia vacciniifolia var. nervosa*			C		1/1
plants	higher dicots	Rubiaceae	*Psydrax odorata forma buxifolia*			C		1
plants	higher dicots	Rubiaceae	*Cyclophyllum coprosmoides*			C		1
plants	higher dicots	Rubiaceae	*Psychotria loniceroides*	hairy psychotria		C		1
plants	higher dicots	Rubiaceae	*Pavetta australiensis*			C		1
plants	higher dicots	Rubiaceae	*Morinda canthoides*			C		1/1
plants	higher dicots	Rubiaceae	*Psydrax lamprophylla*			C		1/1
plants	higher dicots	Rubiaceae	*Richardia stellaris*		Y			1/1
plants	higher dicots	Rutaceae	*Zieria smithii*			C		1
plants	higher dicots	Rutaceae	*Halfordia kendack*	saffron heart		C		1
plants	higher dicots	Rutaceae	*Phebalium woombye*	wallum phebalium		C		2/1
plants	higher dicots	Rutaceae	*Boronia polygalifolia*	dwarf boronia		C		1/1
plants	higher dicots	Rutaceae	*Acronychia imperforata*	beach acronychia		C		1
plants	higher dicots	Rutaceae	*Acronychia oblongifolia*	common acronychia		C		1
plants	higher dicots	Rutaceae	*Flindersia bennettiana*	Bennett's ash		C		1
plants	higher dicots	Rutaceae	*Flindersia schottiana*	bumpy ash		C		1
plants	higher dicots	Rutaceae	*Flindersia australis*	crow's ash		C		3/1
plants	higher dicots	Santalaceae	*Exocarpos latifolius*			C		1
plants	higher dicots	Sapindaceae	*Guioa semiglauca*	guioa		C		1
plants	higher dicots	Sapindaceae	*Dodonaea rupicola*			V	V	5/5
plants	higher dicots	Sapindaceae	*Arytera divaricata*	coogera		C		1/1
plants	higher dicots	Sapindaceae	*Jagera pseudorhus var. pseudorhus*			C		1/1
plants	higher dicots	Sapindaceae	*Cupaniopsis anacardioides*	tuckeroo		C		2
plants	higher dicots	Sapindaceae	*Mischocarpus pyriformis*			C		1
plants	higher dicots	Sapindaceae	*Alectryon tomentosus*			C		1
plants	higher dicots	Sapindaceae	*Dodonaea triquetra*	large-leaved hop bush		C		1
plants	higher dicots	Sapindaceae	*Jagera pseudorhus*			C		3
plants	higher dicots	Sapindaceae	*Arytera foveolata*	pitted coogera		C		1/1
plants	higher dicots	Sapotaceae	*Niemeyera antiloga*	brown pearwood		C		1/1
plants	higher dicots	Sapotaceae	*Pouteria pohlmaniana*			C		1
plants	higher dicots	Scrophulariaceae	*Bacopa caroliniana*		Y			1/1
plants	higher dicots	Scrophulariaceae	*Limnophila aromatica*			C		1/1
plants	higher dicots	Scrophulariaceae	*Buchnera urticifolia*			C		1/1
plants	higher dicots	Solanaceae	*Datura metel*		Y			1/1
plants	higher dicots	Solanaceae	*Solanum nigrum*		Y			1
plants	higher dicots	Solanaceae	*Solanum torvum*	devil's fig	Y			4/2
plants	higher dicots	Solanaceae	*Solanum mauritianum*	wild tobacco	Y			2
plants	higher dicots	Solanaceae	*Duboisia myoporoides*			C		1
plants	higher dicots	Solanaceae	*Solanum seaforthianum*	Brazilian nightshade	Y			1
plants	higher dicots	Solanaceae	*Solanum americanum subsp. nutans*		Y			1/1
plants	higher dicots	Solanaceae	*Solanum chrysotrichum*		Y			2/2

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plants	higher dicots	Solanaceae	*Solanum stelligerum*	devil's needles		C		1
plants	higher dicots	Solanaceae	*Physalis angulata*		Y			1/1
plants	higher dicots	Sterculiaceae	*Sterculia quadrifida*	peanut tree		C		1
plants	higher dicots	Stylidiaceae	*Stylidium tenerum*			C		1/1
plants	higher dicots	Thymelaeaceae	*Pimelea linifolia*			C		3
plants	higher dicots	Ulmaceae	*Trema tomentosa var. aspera*			C		1/1
plants	higher dicots	Ulmaceae	*Trema tomentosa var. viridis*			C		3
plants	higher dicots	Verbenaceae	*Lantana camara*		Y			3
plants	higher dicots	Verbenaceae	*Verbena litoralis var. brasiliensis*		Y			1/1
plants	higher dicots	Verbenaceae	*Verbena rigida*		Y			1/1
plants	higher dicots	Verbenaceae	*Lantana camara cv. Gol Gol*		Y			3
plants	higher dicots	Vitaceae	*Cissus opaca*			C		1
plants	liverworts	Cephaloziellaceae	*Cephaloziella*			C		1/1
plants	liverworts	Fossombroniaceae	*Fossombronia*			C		1/1
plants	liverworts	Frullaniaceae	*Frullania*			C		4/4
plants	liverworts	Frullaniaceae	*Frullania subtropica*			C		1/1
plants	liverworts	Frullaniaceae	*Frullania rubella*			C		2/2
plants	liverworts	Frullaniaceae	*Frullania monocera*			C		1/1
plants	liverworts	Frullaniaceae	*Frullania ericoides*			C		2/2
plants	liverworts	Lejeuneaceae	*Lejeunea*			C		2/2
plants	liverworts	Lejeuneaceae	*Lejeunea drummondii*			C		1/1
plants	liverworts	Lejeuneaceae	*Lopholejeunea muelleriana var. australis*			C		1/1
plants	liverworts	Lejeuneaceae	*Acrolejeunea aulacophora*			C		5/5
plants	liverworts	Lejeuneaceae	*Lejeunea caespitosa*			C		2/2
plants	liverworts	Lejeuneaceae	*Lejeunea herzogii*			C		1/1
plants	liverworts	Marchantiaceae	*Marchantia berteroana*			C		1/1
plants	liverworts	Porellaceae	*Porella crawfordii*			C		1/1
plants	lower dicots	Annonaceae	*Melodorum leichhardtii*			C		1/1
plants	lower dicots	Annonaceae	*Polyalthia nitidissima*	polyalthia		C		1
plants	lower dicots	Avicenniaceae	*Avicennia marina subsp. australasica*			C		14/2
plants	lower dicots	Cabombaceae	*Brasenia schreberi*			R		1/1
plants	lower dicots	Cabombaceae	*Cabomba caroliniana var. caroliniana*	Cabomba	Y			4/4
plants	lower dicots	Lauraceae	*Endiandra pubens*	hairy walnut		C		1/1
plants	lower dicots	Lauraceae	*Cassytha glabella*			C		1
plants	lower dicots	Lauraceae	*Endiandra sieberi*	hard corkwood		C		1
plants	lower dicots	Lauraceae	*Cassytha pubescens*	downy devil's twine		C		1
plants	lower dicots	Lauraceae	*Neolitsea dealbata*	white bolly gum		C		1
plants	lower dicots	Menispermaceae	*Pleogyne australis*	wiry grape		C		1
plants	lower dicots	Menispermaceae	*Stephania japonica*			C		2
plants	lower dicots	Nymphaeaceae	*Nymphaea*			C		1/1
plants	monocots	Arecaceae	*Caryota albertii*			C		1
plants	monocots	Arecaceae	*Livistona decora*			C		1
plants	monocots	Asparagaceae	*Asparagus aethiopicus cv. Sprengeri*		Y			2/2
plants	monocots	Burmanniaceae	*Burmannia juncea*			C		1/1
plants	monocots	Colchicaceae	*Gloriosa superba*	glory lily	Y			1/1
plants	monocots	Colchicaceae	*Burchardia umbellata*			C		1

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plants	monocots	Commelinaceae	*Aneilema biflorum*			C		1/1
plants	monocots	Commelinaceae	*Murdannia graminea*	murdannia		C		1/1
plants	monocots	Commelinaceae	*Commelina diffusa*	wandering jew		C		2/1
plants	monocots	Cyperaceae	*Rhynchospora corymbosa*			C		2/2
plants	monocots	Cyperaceae	*Fimbristylis ferruginea*			C		4/1
plants	monocots	Cyperaceae	*Bolboschoenus caldwellii*			C		1
plants	monocots	Cyperaceae	*Fimbristylis bisumbellata*			C		2/1
plants	monocots	Cyperaceae	*Cyperus polystachyos var. polystachyos*			C		1/1
plants	monocots	Cyperaceae	*Lepidosperma laterale var. laterale*			C		1/1
plants	monocots	Cyperaceae	*Cyperus haspan subsp. haspan*			C		1/1
plants	monocots	Cyperaceae	*Fimbristylis polytrichoides*			C		2
plants	monocots	Cyperaceae	*Chorizandra sphaerocephala*			C		1/1
plants	monocots	Cyperaceae	*Schoenoplectus mucronatus*			C		1/1
plants	monocots	Cyperaceae	*Eleocharis philippinensis*			C		1/1
plants	monocots	Cyperaceae	*Fimbristylis tristachya*			C		1/1
plants	monocots	Cyperaceae	*Fimbristylis dichotoma*	common fringe-rush		C		2/2
plants	monocots	Cyperaceae	*Lepidosperma laterale*			C		1
plants	monocots	Cyperaceae	*Eleocharis equisetina*			C		2/1
plants	monocots	Cyperaceae	*Abildgaardia vaginata*			C		1
plants	monocots	Cyperaceae	*Scleria mackaviensis*			C		2/2
plants	monocots	Cyperaceae	*Schoenus yarrabensis*			C		1/1
plants	monocots	Cyperaceae	*Lipocarpha chinensis*			C		1/1
plants	monocots	Cyperaceae	*Lepironia articulata*			C		3/1
plants	monocots	Cyperaceae	*Cyperus sesquiflorus*		Y			1/1
plants	monocots	Cyperaceae	*Cyperus polystachyos*			C		1
plants	monocots	Cyperaceae	*Scleria sphacelata*			C		1
plants	monocots	Cyperaceae	*Rhynchospora rubra*			C		1/1
plants	monocots	Cyperaceae	*Ptilothrix deusta*			C		2/1
plants	monocots	Cyperaceae	*Isolepis inundata*	swamp club rush		C		1/1
plants	monocots	Cyperaceae	*Cyperus trinervis*			C		1/1
plants	monocots	Cyperaceae	*Cyperus bowmannii*			C		1/1
plants	monocots	Cyperaceae	*Baumea rubiginosa*	soft twigrush		C		3/2
plants	monocots	Cyperaceae	*Baumea articulata*	jointed twigrush		C		5/2
plants	monocots	Cyperaceae	*Fuirena ciliaris*			C		1/1
plants	monocots	Cyperaceae	*Cyperus gracilis*			C		1/1
plants	monocots	Cyperaceae	*Cyperus pilosus*			C		2/2
plants	monocots	Cyperaceae	*Scleria rugosa*			C		1/1
plants	monocots	Cyperaceae	*Cyperus fulvus*			C		1/1
plants	monocots	Cyperaceae	*Scleria levis*			C		1/1
plants	monocots	Cyperaceae	*Gahnia aspera*			C		2
plants	monocots	Cyperaceae	*Carex inversa*	knob sedge		C		1/1
plants	monocots	Cyperaceae	*Baumea juncea*	bare twigrush		C		1/1
plants	monocots	Dioscoreaceae	*Dioscorea transversa*	native yam		C		1
plants	monocots	Eriocaulaceae	*Eriocaulon scariosum*			C		1/1
plants	monocots	Haemodoraceae	*Haemodorum tenuifolium*			C		2/2
plants	monocots	Hypoxidaceae	*Curculigo ensifolia var. ensifolia*			C		1/1

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plants	monocots	Iridaceae	*Patersonia glabrata*			C		2/1
plants	monocots	Iridaceae	*Sisyrinchium sp. (Peregian P.R.Sharpe 4970)*	scourweed	Y			1/1
plants	monocots	Iridaceae	*Patersonia sericea var. sericea*			C		1/1
plants	monocots	Juncaceae	*Juncus bufonius*	toad rush	Y			1/1
plants	monocots	Juncaceae	*Juncus kraussii*	sea rush		C		1/1
plants	monocots	Orchidaceae	*Diuris aurea*			C		1/1
plants	monocots	Orchidaceae	*Glossodia minor*	small wax lip orchid		C		1/1
plants	monocots	Orchidaceae	*Phaius australis*			E	E	1/1
plants	monocots	Orchidaceae	*Geodorum densiflorum*	pink nodding orchid		C		2
plants	monocots	Orchidaceae	*Corybas barbarae*	helmet orchid		C		1/1
plants	monocots	Orchidaceae	*Zeuxine oblonga*	hairy jewel orchid		C		1/1
plants	monocots	Orchidaceae	*Arthrochilus prolixus*			C		1/1
plants	monocots	Orchidaceae	*Thelymitra angustifolia*			C		1/1
plants	monocots	Orchidaceae	*Caladenia carnea var. carnea*			C		1/1
plants	monocots	Orchidaceae	*Genoplesium sagittiferum*			C		1/1
plants	monocots	Orchidaceae	*Arthrochilus irritabilis*	leafy elbow orchid		C		2/2
plants	monocots	Orchidaceae	*Genoplesium acuminatum*			C		6/6
plants	monocots	Poaceae	*Isachne globosa*	swamp millet		C		1/1
plants	monocots	Poaceae	*Urochloa mutica*		Y			1/1
plants	monocots	Poaceae	*Leersia hexandra*	swamp rice grass		C		1
plants	monocots	Poaceae	*Themeda triandra*	kangaroo grass		C		4/1
plants	monocots	Poaceae	*Eulalia trispicata*			C		1/1
plants	monocots	Poaceae	*Eragrostis brownii*	Brown's lovegrass		C		1/1
plants	monocots	Poaceae	*Digitaria ciliaris*	summer grass	Y			2/2
plants	monocots	Poaceae	*Bromus catharticus*	prairie grass	Y			1/1
plants	monocots	Poaceae	*Aristida warburgii*			C		1
plants	monocots	Poaceae	*Sorghum halepense*	Johnson grass	Y			1
plants	monocots	Poaceae	*Paspalum urvillei*	vasey grass	Y			1/1
plants	monocots	Poaceae	*Hyparrhenia hirta*	coolati grass	Y			1/1
plants	monocots	Poaceae	*Entolasia stricta*	wiry panic		C		5
plants	monocots	Poaceae	*Entolasia marginata*	bordered panic		C		3
plants	monocots	Poaceae	*Digitaria didactyla*	Queensland blue couch	Y			1/1
plants	monocots	Poaceae	*Aristida gracilipes*			C		1/1
plants	monocots	Poaceae	*Setaria sphacelata*		Y			3/1
plants	monocots	Poaceae	*Sacciolepis indica*	Indian cupscale grass		C		6/3
plants	monocots	Poaceae	*Paspalum vaginatum*	saltwater couch		C		1
plants	monocots	Poaceae	*Paspalum dilatatum*	paspalum	Y			1/1
plants	monocots	Poaceae	*Paspalidium gausum*			C		1
plants	monocots	Poaceae	*Oplismenus aemulus*	creeping shade grass		C		2
plants	monocots	Poaceae	*Eleusine indica*	crowsfoot grass	Y			1/1
plants	monocots	Poaceae	*Melinis repens*	red natal grass	Y			2/2
plants	monocots	Poaceae	*Chloris gayana*	rhodes grass	Y			1/1
plants	monocots	Poaceae	*Chrysopogon sylvaticus*			C		1/1
plants	monocots	Poaceae	*Alloteropsis semialata*	cockatoo grass		C		1/1
plants	monocots	Poaceae	*Sporobolus virginicus*	sand couch		C		6/3
plants	monocots	Poaceae	*Oplismenus imbecillis*			C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	monocots	Poaceae	*Eragrostis atrovirens*		Y			1/1
plants	monocots	Poaceae	*Andropogon virginicus*	whiskey grass	Y			1
plants	monocots	Poaceae	*Themeda quadrivalvis*	grader grass	Y			1/1
plants	monocots	Poaceae	*Phragmites australis*	common reed		C		2
plants	monocots	Poaceae	*Paspalum paniculatum*	Russell River grass	Y			2
plants	monocots	Poaceae	*Dichelachne sp. (Brisbane B.K.Simon 3221)*			C		1/1
plants	monocots	Poaceae	*Bothriochloa decipiens var. decipiens*			C		1/1
plants	monocots	Poaceae	*Hemarthria uncinata var. spathacea*			C		1/1
plants	monocots	Poaceae	*Ischaemum australe var. villosum*			C		1/1
plants	monocots	Poaceae	*Ischaemum australe var. australe*			C		1/1
plants	monocots	Poaceae	*Echinopogon nutans var. nutans*			C		1/1
plants	monocots	Poaceae	*Hyparrhenia rufa subsp. rufa*		Y			2/2
plants	monocots	Poaceae	*Lachnagrostis filiformis*			C		1/1
plants	monocots	Poaceae	*Capillipedium spicigerum*	spicytop		C		1/1
plants	monocots	Poaceae	*Austrostipa aristiglumis*	plains grass		C		1/1
plants	monocots	Poaceae	*Eragrostis spartinoides*			C		2
plants	monocots	Poaceae	*Sporobolus pyramidalis*		Y			2/2
plants	monocots	Poaceae	*Echinochloa crus-galli*	barnyard grass	Y			1/1
plants	monocots	Poaceae	*Ottochloa gracillima*	pademelon grass		C		2/1
plants	monocots	Poaceae	*Digitaria longiflora*			C		1/1
plants	monocots	Poaceae	*Cymbopogon refractus*	barbed-wire grass		C		2/1
plants	monocots	Poaceae	*Sporobolus fertilis*	giant Parramatta grass	Y			1/1
plants	monocots	Poaceae	*Paspalum conjugatum*	sourgrass	Y			2/1
plants	monocots	Poaceae	*Paspalidium distans*	shotgrass		C		1/1
plants	monocots	Poaceae	*Megathyrsus maximus*		Y			2
plants	monocots	Poaceae	*Imperata cylindrica*	blady grass		C		9/1
plants	monocots	Poaceae	*Paspalum notatum*	bahia grass	Y			1/1
plants	monocots	Poaceae	*Cynodon dactylon*		Y			2
plants	monocots	Poaceae	*Panicum effusum*			C		5/2
plants	monocots	Restionaceae	*Baloskion pallens*			C		4/2
plants	monocots	Restionaceae	*Sporadanthus caudatus*			C		4/1
plants	monocots	Restionaceae	*Sporadanthus interruptus*			C		1
plants	monocots	Restionaceae	*Leptocarpus tenax*			C		2
plants	monocots	Ruppiaceae	*Ruppia maritima*	sea tassel		C		1/1
plants	monocots	Smilacaceae	*Smilax australis*	barbed-wire vine		C		1
plants	monocots	Smilacaceae	*Smilax glyciphylla*	sweet sarsaparilla		C		1
plants	monocots	Typhaceae	*Typha orientalis*	broad-leaved cumbungi		C		2
plants	monocots	Xanthorrhoeaceae	*Xanthorrhoea fulva*	swamp grasstree		C		2
plants	monocots	Xanthorrhoeaceae	*Xanthorrhoea latifolia*			C		1
plants	monocots	Xanthorrhoeaceae	*Xanthorrhoea latifolia subsp. latifolia*			C		1/1
plants	monocots	Zingiberaceae	*Alpinia zerumbet*		Y			1/1
plants	mosses	Bartramiaceae	*Philonotis slateri*			C		1/1
plants	mosses	Bryaceae	*Rhodobryum aubertii*			C		1/1
plants	mosses	Bryaceae	*Gemmabryum coronatum*			C		3/3
plants	mosses	Bryaceae	*Rosulabryum billardierei*			C		1/1
plants	mosses	Calymperaceae	*Syrrhopodon armatus*			C		2/2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	mosses	Calymperaceae	*Syrrhopodon parasiticus*			C		1/1
plants	mosses	Dicranaceae	*Campylopus introflexus*			C		3/3
plants	mosses	Dicranaceae	*Campylopus pyriformis*			C		3/3
plants	mosses	Dicranaceae	*Dicranoloma dicarpum*			C		1/1
plants	mosses	Dicranaceae	*Dicranella baileyana*			C		1/1
plants	mosses	Entodontaceae	*Entodon plicatus*			C		1/1
plants	mosses	Funariaceae	*Funaria hygrometrica*			C		2/2
plants	mosses	Funariaceae	*Physcomitrium brisbanicum*			C		1/1
plants	mosses	Hypnaceae	*Taxiphyllum taxirameum*			C		1/1
plants	mosses	Hypnaceae	*Hypnum sp. (Burpengary C.J.Wild AQ733958)*			C		1/1
plants	mosses	Hypnaceae	*Hypnum sp. (Caboolture J.F.Shirley AQ733970)*			C		1/1
plants	mosses	Hypopterygiaceae	*Hypopterygium tamarisci*			C		1/1
plants	mosses	Leucobryaceae	*Leucobryum*			C		1/1
plants	mosses	Leucobryaceae	*Leucobryum candidum*			C		1/1
plants	mosses	Meteoriaceae	*Papillaria crocea*			C		1/1
plants	mosses	Meteoriaceae	*Barbellopsis trichophora*			C		1/1
plants	mosses	Meteoriaceae	*Papillaria leuconeura*			C		1/1
plants	mosses	Pottiaceae	*Weissia perpusilla*			C		2/2
plants	mosses	Pottiaceae	*Barbula subcalycina*			C		1/1
plants	mosses	Pottiaceae	*Weissia sp. (Victoria Park H.Tryon AQ645533)*			C		1/1
plants	mosses	Racopilaceae	*Racopilum cuspidigerum var. cuspidigerum*			C		3/3
plants	mosses	Racopilaceae	*Racopilum cuspidigerum var. convolutaceum*			C		1/1
plants	mosses	Sematophyllaceae	*Sematophyllum subhumile*			C		4/4
plants	mosses	Thuidiaceae	*Thuidium cymbifolium*			C		2/2
plants	spike mosses	Selaginellaceae	*Selaginella uliginosa*	swamp selaginella		C		1
plants		Byttneriaceae	*Seringia hillii*			C		4/4
plants		Byttneriaceae	*Commersonia bartramia*	brown kurrajong		C		1
plants		Hemerocallidaceae	*Dianella caerulea*			C		3
plants		Hemerocallidaceae	*Dianella longifolia var. stenophylla*			C		1/1
plants		Hemerocallidaceae	*Dianella revoluta*			C		4/1
plants		Hemerocallidaceae	*Tricoryne elatior*	yellow autumn lily		C		1/1
plants		Hemerocallidaceae	*Dianella longifolia var. longifolia*			C		1/1
plants		Laxmanniaceae	*Sowerbaea juncea*	vanilla plant		C		1/1
plants		Laxmanniaceae	*Lomandra multiflora*			C		1
plants		Laxmanniaceae	*Lomandra confertifolia subsp. pallida*			C		1/1
plants		Laxmanniaceae	*Lomandra multiflora subsp. multiflora*			C		1/1
plants		Laxmanniaceae	*Eustrephus latifolius*	wombat berry		C		3
plants		Laxmanniaceae	*Lomandra longifolia*			C		3
plants		Trachylomataceae	*Braithwaitea sulcata*			C		1/1
protists	brown algae	Phaeophyceae	*Hincksia mitchelliae*			C		1/1
protists	green algae	Chlorophyceae	*Chaetophora*			C		1/1
protists	green algae	Chlorophyceae	*Chara fibrosa*			C		1/1
protists	green algae	Chlorophyceae	*Udotea argentea*			C		1/1
protists	green algae	Chlorophyceae	*Caulerpa racemosa var. laetevirens*			C		1/1
protists	green algae	Chlorophyceae	*Trentepohlia bossei var. brevicellulis*			C		3/3
protists	green algae	Chlorophyceae	*Nitella tasmanica subsp. gelatinifera*			C		2/2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
protists	green algae	Chlorophyceae	*Enteromorpha clathrata*			C		1/1
protists	green algae	Chlorophyceae	*Nitella furcata*			C		1/1
protists	red algae	Rhodophyceae	*Chondria*			C		1/1
protists	red algae	Rhodophyceae	*Catenella nipae*			C		1/1
protists	red algae	Rhodophyceae	*Gracilaria verrucosa*			C		1/1
protists	red algae	Rhodophyceae	*Batrachospermum globosporum*			C		1/1

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.* The codes are Presumed Extinct (PE), Endangered (E), Vulnerable (V), Rare (R), Common (C) or Not Protected ( ).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999.* The values of EPBC are Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Extinct in the Wild (XW) and Vulnerable (V).

Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens).
This number is output as 99999 if it equals or exceeds this value. The second number located after the / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

APPENDIX D

Significant Terrestrial Flora and Fauna Profiles

SIGNIFICANT TERRESTRIAL FAUNA AND FLORA PROFILES

This Appendix provides a summary profile of significant flora and fauna species that may occur in the project area and be affected by the proposed NEBP development. Significant fauna and flora species considered in this Appendix are species listed under relevant provisions of the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* and the *Nature Conservation Act 1992 (NC Act)*. This Appendix contains a summary of relevant details concerning:

- the general ecology of the species including consideration of its critical habitat requirements, feeding and breeding behaviours;
- the distribution and abundance of the species;
- recognised threats to the viability of populations of the species;
- the likelihood of the species utilising areas to be affected by the NEBP project;
- the nature and significance of potential impacts of the NEBP project upon the viability of local populations of the species; and
- impact mitigation measures that are proposed as part of the NEBP that the species may benefit from.

The species considered in this Appendix were identified based on field observations and a review of the Queensland EPA's Wildlife Online database (the EPA Database) and the Commonwealth Department of Environment and Water Resources (DEWR) EPBC Protected Matters Search Tool (DEWR Database). The relevant search area for both database searches was based on a 10km search radius from the centre of the site. Based on these sources the NEBP project has the potential to affect:

- 28 species of threatened terrestrial fauna;
- 11 species of threatened terrestrial flora; and
- 18 species of migratory terrestrial fauna (excluding species that also have a threatened status).

The habitat requirements of each species have been examined to assess the likelihood that the species would utilise areas to be affected by the NEBP development. Each species has been allocated a rating of Very High, High, Moderate or Low according to the following criteria:

Very High: species observed in areas of suitable habitat to be directly affected by the proposal.

High: no site observations but both EPA database and DEWR database records for the species in the locality, with substantial areas of suitable habitat to be directly affected by the proposal.

Moderate: no site observations, but EPA database records for the species in the locality and at least some suitable habitat to be directly affected by the proposal.

Low: no site observations, but either EPA database records or DEWR records for the species in the locality, with no suitable habitat to be directly affected by the proposal.

(note: In respect of the above categories, the Wildlife Online database is considered to provide a more reliable assessment of the likelihood of a species occurring in SEQ due to the fact that it is based on actual recorded sightings of a species whilst the DEWR *EPBC Act* online database is not based on actual sighting records.)

Assessments of the potential of the NEBP development to have a significant impact on each species was made with reference to the known ecology of the species, the spatial extent and temporal duration of impacts, the likely efficacy of proposed impact mitigation measures, and the criteria specified in *EPBC Act* Policy Statement 1.1 - Significant Impact Guidelines - Matters of National Environmental Significance (May 2006). In this respect a Significant Impact is likely upon a species if the NEBP development results in:

- a long-term decrease in the size of a population;
- a reduction in the area of occupancy of the species;
- the fragmentation of an existing population into two or more populations;
- adverse affects to habitat critical to the survival of a species;
- disruptions to the breeding cycle of a population;
- decreases in the availability or quality of habitat to the extent that the species is likely to decline; or
- the establishment of invasive species that are harmful to a threatened species in the species´ habitat.

FLORA

Acacia attenuata

Conservation Status:

NC Act – Vulnerable
EPBC Act – Vulnerable

Species Profile:

This slender shrub grows to a height of 3-4 m and tends not to occur further than 40 km inland from the coast. The species is restricted to heath ecotones or layered eucalypt open-forest and woodland. *Acacia attenuata* has been recorded growing in shrublands with *Leptospermum whitei* and *Baekea fructescens*, in wallum with *Banksia aemula* and *Eucalyptus robusta*, in woodlands with *Corymbia trachyphloia*, *E. umbra* and *Banksia oblongifolia,* and in open forests of E. umbra, *E. racemosa* and *Melalucea quinquenervia*. It prefers areas with high rainfall and can survive seasonal waterlogging in sandy soils. It usually occurs in areas less than 1m AHD.

Additional details:

http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=10690

Critical Habitat Resources:

Low lying, high rainfall heathland or open eucalypt forest within coastal regions.

Site Observations/Habitat Values:

Site Observations:		EPA database record:		DEWR database record:	√

According to the criteria, there is moderate probability of occurrence for this species on the site given that:

- the species was not observed on the site and EPA database records did not include this species;
- the site does contain areas ofpotential habitat in the form of lowlying eucalypt and paperbark open forest associated with Raff Creek;
- the current Certified RE Map for the site does not identify remnant vegetation within the site as supporting essential habitat for this species; and
- the EPA does not specifically recognise the remnant vegetation types (i.e. RE 12.3.5 and RE 12.5.3) occurring within the site as providing valuable habitat for *Acacia attenuata*.

Recognised Threats and Potential Development Impact(s):

Urbanisation and habitat clearance constitute the greatest threat to this species.

Proposed Impact Mitigation Measures:

Removal of livestock, control of feral pigs and weed species.
Retention and enhancement of the majority of potential on-site habitat.
Use of the species in the landscaping and rehabilitation of open space areas.

Likelihood of Significant Impacts:

Low - the NEBP development is not likely to have an adverse impact on the viability of local populations of this species.

Hairy Joint Grass (*Arthraxon hispidus*)

Conservation Status:

NC Act – Vulnerable
EPBC Act – Vulnerable

Species Profile:

Hairy joint grass is a slender, creeping grass with branching, erect to semi-erect purplish stems that form roots at the node. Leaf-blades are ovate to ovate-lanceolate, 2 – 6 cm long, broad at the base and tapering abruptly to a short point with long white hairs fringing the margins. Hairy joint grass is typically described as moisture and shade-loving grass often associated with the edges of rainforest, wet sclerophyll forest, creeks and swamps.

Additional details:

http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10066
http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=9338

Critical Habitat Resources:

There is growing evidence from the north-coast of New South Wales, that the persistence and survival of Hairy Joint Grass is driven more by a dependence on groundwater.

Site Observations/Habitat Values:

Site Observations:		EPA database record:		DEWR database record:	√

According to the criteria, there is a moderate probability of occurrence for this species on the site given:

- EPA database records did not include this species;
- low-lying areas of the site subject to temporary inundation and saturation are in a disturbed state owing to a history of altered land uses;
- the current Certified RE Map for the site does not identify remnant vegetation within the site as supporting essential habitat for this species; and
- the EPA does not specifically recognise the remnant vegetation types (i.e. RE 12.3.5 and RE 12.5.3) occurring within the site as providing valuable habitat for Hairy joint grass.

Recognised Threats and Potential Development Impact(s):

Major threats to this species include:

- clearing of habitat for agriculture and development;
- inappropriate fire regimes;
- over-grazing by domestic stock and slashing or mowing of habitat; and
- competition from introduced grasses such as Paspalum and Kikuyu.

However, the site has been subject to disturbance pressures associated with vegetation clearance, agricultural pursuits, plantation forestry and livestock grazing for over 100 years. As such, the potential impacts associated with the NEBP development on Hairy Joint Grass are relatively low given that the majority of the site is already in a state that would not facilitate the long-term survival of this species.

Proposed Impact Mitigation Measures:

Habitat retention and enhancement.

Likelihood of Significant Impacts:

Low - the NEBP development is not likely to have an adverse impact on the viability of local populations of this species.

Heart-leaved Bosistoa (*Bosistoa selwynii*)

Conservation Status:

NC Act – No Status
EPBC Act – Vulnerable

Species Profile:

This species occurs from Maryborough in Queensland south to the Tweed River district in north-east NSW. It is a small to medium tree to 22 m tall. Leaves consist of one top three oval leaflets, 4 - 15 cm long and 2.5 - 9 cm wide. The small white flowers are borne in loose clusters at or near the tips of branches. The fruits are hard, ribbed and egg-shaped, and contain a single kidney-shaped seed. Observations generally occur in lowland rainforests on deep basaltic soils up to 300m altitude particularly along river banks.

Additional details:

http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10874

Critical Habitat Resources:

Moister lowland rainforests on basalt soils.

Site Observations/Habitat Values:

Site Observations:		EPA database record:		DEWR database record:	√

According to the criteria, there is low probability of occurrence for this species on the site given:

- EPA database records did not include this species;
- the site does not support basalt derived soils or any areas of lowland rainforest;
- the current Certified RE Map for the site does not identify remnant vegetation within the site as supporting essential habitat for this species; and
- the EPA does not specifically recognise the remnant vegetation types (i.e. RE 12.3.5 and RE 12.5.3) occurring within the site as providing valuable habitat for Heart-leaved bosistoa.

Recognised Threats and Potential Development Impact(s):

Major threats to this species include:

- loss of habitat through clearing and fragmentation;
- habitat degradation through weed invasion and disturbance;
- grazing by domestic stock;
- inappropriate fire regimes; and
- timber harvesting.

However, given the site does not support basalt derived soils or associated vegetation that constitutes critical habitat resources for this species, the NEBP development is unlikely to have an impact on populations of Heart-leaved bosistoa.

Proposed Impact Mitigation Measures:

None applicable.

Likelihood of Significant Impacts:

Low - the NEBP development is not likely to have an adverse impact on the viability of local populations of this species.

Three-leaved Bosistoa (*Bosistoa transversa*)

Conservation Status:

NC Act – No Status
EPBC Act – Vulnerable

Species Profile:

This species is a medium to large tree occurring from Maryborough in Queensland south to Lismore in north-east NSW. This tree grows up to 22 m tall with a dense dark-green crown. The broad, leathery leaves are heart-shaped at the base and paired on the stem. This species grows within lowland subtropical rainforest up to an altitude of 300m.

Additional details:

http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10103

Critical Habitat Resources:

Lowland subtropical rainforest up to 300 m in altitude.

Site Observations/Habitat Values:

Site Observations:		EPA database record:		DEWR database record:	√

According to the criteria, there is low probability of occurrence for this species on the site given:

- EPA database records did not include this species;
- the site does not support any areas of lowland rainforest;
- the current Certified RE Map for the site does not identify remnant vegetation within the site as supporting essential habitat for this species; and
- the EPA does not specifically recognise the remnant vegetation types (i.e. RE 12.3.5 and RE 12.5.3) occurring within the site as providing valuable habitat for Three-leaved bosistoa.

Recognised Threats and Potential Development Impact(s):

Major threats to this species include:

- loss of habitat through clearing and fragmentation;
- habitat degradation through weed invasion and disturbance;
- grazing by domestic stock;
- inappropriate fire regimes; and
- timber harvesting.

However, given the site does not support any vegetation that constitutes critical habitat resources for this species, the NEBP development is unlikely to have an impact on populations of Three-leaved bosistoa.

Proposed Impact Mitigation Measures:

None applicable.

Likelihood of Significant Impacts:

Low - the NEBP development is not likely to have an adverse impact on the viability of local populations of this species.

Brown Quandong (*Elaeocarpus coorangooloo*)

Conservation Status:

NC Act – Rare
EPBC Act – No status

Species Profile:

Elaeocarpus coorangooloo is a large tree supporting alternate serrate leaves. It grows on highly fertile basalt-derived soils, usually in complex notophyll communities that support an uneven canopy with many tree layers, scattered deciduous and semi-evergreen trees, and a dense shrub and vine layer. This species is known to occur from Mackay to the Atherton Tablelands and has some records within complex notophyll forest in Southeast Queensland.

Critical Habitat Resources:

Highly fertile basalt soils.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	

According to the criteria, there is low probability of occurrence for this species on the site given:

- DEWR database records did not include this species;
- the site does not support any areas of highly fertile basalt-derived soils;
- the current Certified RE Map for the site does not identify remnant vegetation within the site as supporting essential habitat for this species; and
- the EPA does not specifically recognise the remnant vegetation types (i.e. RE 12.3.5 and RE 12.5.3) occurring within the site as providing valuable habitat for Brown quandong.

Recognised Threats and Potential Development Impact(s):

Major threats to this species include:

- loss of habitat through clearing and fragmentation;
- habitat degradation through weed invasion and disturbance;
- grazing by domestic stock;
- inappropriate fire regimes; and
- timber harvesting.

However, as the site does not support any highly fertile basalt soils or complex notophyll vine forest communities, the NEBP development is unlikely to have impact on *Elaeocarpus coorangooloo* or known critical habitat resources for this species.

Proposed Impact Mitigation Measures:

None applicable

Likelihood of Significant Impacts:

Low - the NEBP development is not likely to have an adverse impact on the viability of local populations of this species.

Leafless Tongue Orchid (*Cryptostylis hunteriana*)

Conservation Status:

NC Act – No Status
EPBC Act – Vulnerable

Species Profile:

This leafless orchid has stems 50-450 mm tall with 1 to 10 flowers. The flowers are 20-30 x 6-8 mm. It occurs from Rainbow Beach to Tin Can Bay and inland to Gibraltar Range. It is a highly localised species occurring singly or in colonies in moist sandy soil in sparse to dense heath and sedgeland. They can also occur in coastal forest in moist to dry clay loam. This species has not been observed above 1000m AHD.

Additional details:
http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10187

Critical Habitat Resources:

Moist sandy soil or clay loam within dense heath or sedgeland occurring below 1000m altitude.

Site Observations/Habitat Values:

Site Observations:		EPA database record:		DEWR database record:	√

According to the criteria, there is a moderate probability of occurrence for this species on the site given:

- the EPA database records did not include this species;
- the site does not support some areas of disturbed heath;
- the current Certified RE Map for the site does not identify remnant vegetation on the site as supporting essential habitat for this species; and
- the EPA does not specifically recognise the remnant vegetation types (i.e. RE 12.3.5 and RE 12.5.3) occurring within the site as providing valuable habitat for the Leafless tongue orchid.

Recognised Threats and Potential Development Impact(s):

As this species typically occurs in coastal areas, a major threat to its survival is increasing development pressures on coastal areas. While the site supports some habitat (i.e. swampy heath) that may provide suitable habitat for *Cryptostylis hunteriana*, it is unlikely that this species occurs within the site owing to:

- an extensive history of disturbance associated with various altered land uses that have occurred across the site;
- heavy infestations of weed species within the swampy heathland; and
- trampling and grazing by livestock.

As such, the NEBP development is unlikely to have an impact on *C. hunteriana* or critical habitat resources for this species.

Proposed Impact Mitigation Measures:

None applicable

Likelihood of Significant Impacts:

Low - the NEBP development is not likely to have an adverse impact on the viability of any local populations of this species.

Glass House Mountains Hop Bush (*Dodonaea rupicola*)

Conservation Status:

NC Act – Vulnerable
EPBC Act – Vulnerable

Species Profile:

This shrub grows to 1m and has soft hairy branchlets and bipinnate leaves with up to 24 leaflets. It has small red and green flowers and is located throughout the Glass House Mountains.

Critical Habitat Resources:

In Queensland this species is restricted to Saddleback Mountain in the Glasshouse Mountains area. The limited distribution of this species appears to be largely attributed to the isolated nature of the mountain tops within the Glasshouse Mountains.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	

According to the criteria, there is low probability of occurrence for this species on the site given that it has a highly restricted distribution and occurrence.

Recognised Threats and Potential Development Impact(s):

None applicable

Proposed Impact Mitigation Measures:

None applicable

Likelihood of Significant Impacts:

None applicable

Leptospermum leuhmannii

Conservation Status:

NC Act – Rare
EPBC Act – No status

Species Profile:

This shrub grows to 4m on the cliff faces of the Glass House Mountains, observations have also been made on the cliff faces of Mount Coolum. The plant has distinctive bark which is shed in long strips, alternate leaves to 4cm in length that are shiny and aromatic when crushed. The species flowers in summer and has clusters of flowers to 12mm.

Critical Habitat Resources:

Mountain cliffs and hillsides within the sunshine coast and glasshouse mountain area.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	

According to the criteria, there is low probability of occurrence for this species on the site given that there are mountain cliffs and hillsides within or adjacent to the site.

Recognised Threats and Potential Development Impact(s):

None applicable

Proposed Impact Mitigation Measures:

None applicable

Likelihood of Significant Impacts:

None applicable

Bush Nut (*Macadamia integrifolia*)

Conservation Status:

NC Act – Vulnerable
EPBC Act – Vulnerable

Species Profile:

This species occurs north of Mt Tambourine and supports stiff tough leaves which are opposite or whorled. The margins are usually wavy or toothed and the species occurs on slopes of subtropical rainforest. It is most common in very tall vineforest and prefers steep drier hillsides or slopes. This species is also found among rocks in scree slopes of basalt origin.

Critical Habitat Resources:

Slopes of Subtropical-Rainforest and very tall vineforest, on steep drier hillsides or slopes and among rocks in scree slopes of basalt origin.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	√

According to the criteria, there is low probability of occurrence for this species on the site given the general absence of critical habitat requirements (i.e. subtropical rainforest, dry hillsides and slopes).

Recognised Threats and Potential Development Impact(s):

None applicable

Proposed Impact Mitigation Measures:

None applicable

Likelihood of Significant Impacts:

None applicable

Bopple Nut (*Macadamia ternifolia*)

Conservation Status:

NC Act – Vulnerable
EPBC Act – Vulnerable

Species Profile:

This tree to 6 m is found north of Mount Nebo in subtropical rainforest. It is usually found in tall to very tall close forest or rainforest on moderate to steep slopes within fertile soil usually derived from basalt origin. Unlike *Macadamia tetraphylla* or *integrifolia* this species has a poisonous nut enclosed in a hairy shell.

Critical Habitat Resources:

Tall to very tall closed forest, rainforest on soils derived from basalt usually on steep slopes.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	√

According to the criteria, there is low probability of occurrence for this species on the site given the site does not support any basalt derived soils or tall closed forest assemblages.

Recognised Threats and Potential Development Impact(s):

None applicable

Proposed Impact Mitigation Measures:

None applicable

Likelihood of Significant Impacts:

None applicable

Lesser Swamp orchid (*Phaius australis*)

Conservation Status:

NC Act – Endangered
EPBC Act – Endangered

Species Profile:

This orchid occurs along the coastlines of Queensland and New South Wales at altitudes up to 1100 m. It can grow to be 2 m tall and have up to 16 flowers. Flowers are usually a deep brownish red. It is most common in swamps and islands in the Moreton District. It grows in swamps and low lying depressions within forests of the coastal lowlands. It requires full shade and is often found in association with *Melaleuca quinquenervia* wetlands.

Additional details:
http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10610

Critical Habitat Resources:

Swamps and low lying depressions within forests requires full shade, often associated with *Melaleuca quinquenervia* wetlands.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	

According to the criteria, there is a moderate probability of occurrence for this species given that the site supports *Melaleuca quinquenervia* open forests and wetlands that are known to provide habitat resources for *Phaius australis*.

Recognised Threats and Potential Development Impact(s):

The major threats to this species include:

- clearing and fragmentation of habitat;
- drainage of swamps or pollution from nutrient run-off;
- frequent fire;
- grazing and trampling by domestic livestock and feral pigs; and
- weed invasion.

The site currently supports approximately 19.9 ha of paperbark open forest and wetlands along the southern and western boundaries. The NEBP development will necessitate the removal of approximately 2.7 ha of paperbark forest along the western boundary of the site.

Proposed Impact Mitigation Measures:

While there will be some removal of vegetation that constitutes favourable habitat for the Lesser swamp orchid, the NEBP Structure Plan will have a net positive outcome on vegetation suitable for the Lesser swamp orchid through the following:

- the retention of 86.6% of paperbark vegetation existing on the site;
- the removal of degrading forces such as livestock, feral pigs and source populations for weed invasion; and
- the implementation of best practice stormwater management techniques.

Likelihood of Significant Impacts:

Low - the NEBP development is not likely to have an adverse impact on the viability of local populations of this species.

MAMMALS

Grey-headed Flying-fox (*Pteropus poliocephalus*)

Conservation Status:

NC Act – Common
EPBC Act – Vulnerable

Species Profile:

The Grey-headed Flying-fox occurs in a coastal belt from Rockhampton to Melbourne and occasionally individuals are found in Bass Strait. It feeds on a wide variety of flowering and fruiting plants, including rainforest trees, eucalypts, tea-trees and banksias. Groups of this species form camps in gullies, typically not far from water and usually in vegetation with a dense canopy.

Critical Habitat Resources:

Tropical and temperate wet and dry sclerophyll forest and mangroves. Roosts in trees beside water, feeds on flowering trees.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	√

According to the criteria, there is High probability of occurrence for this species given its habitat requirements. The Grey-headed Flying-fox would be an occasional visitor to the site, utilizing available resources provided by the paperbark and eucalypt open forests. This species may also establish temporary camps in some of the more densely vegetated sectors of the site.

Recognised Threats and Potential Development Impact(s):

major threats to this species include:

- habitat loss;
- conflict between residents and any large camps of flying fox that may occur within the immediate region;
- interference from lighting and noise associated with the development on populations in the region; and
- increased risk of vehicle strike.

Proposed Impact Mitigation Measures:

Retention and enhancement of the majority of existing on-site habitat.
Environmental interpretation signage to advise of populations potentially occurring in the area

Likelihood of Significant Impacts:

Low - The NEBP is unlikely to have any significant impacts on this species. Habitat present is to be retained and enhanced and this species is known to be able to adapt to urban environments. Given there are no roosts present within the site it is likely that the species will continue to occur intermittently across the site.

Koala (*Phascolarctos cinereus*)

Conservation Status:
NC Act – Vulnerable (in South-east Queensland)
EPBC Act – No Status

Species Profile:
The Koala's range stretches form the temperate south of the country to the tropical north. Koalas habitat consists of open eucalypt forest and woodland at lower altitude in undulating country on relatively deep and usually high nutrient soil. Primary food species include Eucalyptus, *Corymbia, Lophostemon, Angophora* and *Melaleuca* species. The species does not use nests or dens and is considered nomadic within a home range which is usually approximately 100ha in size.

Critical Habitat Resources:
Open Eucalypt forest and woodland at lower altitude in undulating country on relatively deep and usually high nutrient soil. Primary food species include *Eucalyptus, Corymbia, Lophostemon*, *Angophora* and *Melaleuca* species.

Site Observations/Habitat Values:

Site Observations:	√		EPA database record:	√	DEWR database record:	

Koalas occur on the site and have been observed within most vegetation types identified on the site. Vegetation types on the site that are of some habitat value for koala are: Scribbly gum (*Eucalyptus racemosa*) shrubby open forest, Disturbed mixed species woodland, Mixed riparian vegetation, Regenerating Acacia dominated woodland, Paperbark (*Melaleuca quinquenervia*) open forest and Disturbed grassland.

The site does not form part of any formal Koala Habitat Area as defined by the *Nature Conservation (Koala) Conservation Plan 2006*.

Recognised Threats and Potential Development Impact(s):
Vegetation clearing and habitat fragmentation is the primary threat to this species, with vehicle strike, attacks from domestic dogs and increases in disease have also contributed heavily to population decline. The NEBP development would result in the clearance of approximately **% of existing koala habitat on the site and would increase the potential for vehicular strike and dog attack.

Proposed Impact Mitigation Measures:
Strategies that can be employed to protect koalas from impacts resulting from urban development include:

- Use of appropriate types of fencing (including fauna friendly and fauna exclusion) to ensure that animals are able to move through the site but are protected from areas considered to be significant threats.
- Vehicle speed control measures in local roads– this should include wide verges where animals may cross to increase visibility, signage to keep drivers aware of koala crossing areas and the provision of fauna friendly overpass or underpass crossings where major arterial roads are intended; and
- Areas that may be dedicated as conservation and are of suitable characteristics to support Koala habitat should be appropriately rehabilitated with koala feed species using local seed stocks. Koalas despite being capable of eating numerous species of *Eucalyptus, Angophora, Lophostemon, Corymbia* and *Melaleuca* have been known to have "cultural" tastes, where they have preferred tree species that are found within their home range. Efforts should be made to have any rehabilitation be of similar species composition as those vegetation communities observed within the site.

Likelihood of Significant Impacts:
The proposed development will have some marginal impacts on the corridor and habitat value that the site presently provides to this species. However these impacts can be appropriately managed through the implementation of the above strategies to ensure no long term significant adverse impacts occur.

Large-eared Pied Bat (*Chalinolobus dwyeri*)

Conservation Status:

NC Act – Rare
EPBC Act -Vulnerable

Species Profile:

This species has been recorded in scattered localities from Rockhampton in central Queensland to Bungonia in southern New South Wales (Strahn 2002). It occurs in drier habitats including dry sclerophyll forests and woodlands. Daytime roosts include caves, mine tunnels and the abandoned bottle shaped mud nests of Fairy Martins. It is suspected that this bats morphology allows for high maneuverability and feeds on small insects above the canopy of the forest.

Critical Habitat Resources:

The species requires mines, caves, hollow trees or mud nests for the purpose of roosting resources.

Site Observations/Habitat Values:

Site Observations:		EPA database record:		DEWR database record:	√

According to the criteria, there is low probability of occurrence for this species given its habitat requirements.

Recognised Threats and Potential Development Impact(s):

None applicable.

Proposed Impact Mitigation Measures:

None applicable.

Likelihood of Significant Impacts:

None.

Water mouse (*Xeromys myoides*)

Conservation Status:

NC Act – Vulnerable
EPBC Act – Vulnerable

Species Profile:

This species is regarded as particularly elusive and very little is known in regards to the ecology of the species. It is known it lives within mangrove communities throughout Australia with known populations ranging from the Northern Territory to South-east Queensland. The species is believed to feed on a variety of molluscs, crustaceans and polyclads located within the tidal areas of mangrove communities. It builds nests at the base of mangrove trees, with Grey Mangrove (*Avicenna marina*) the most common species targeted.

Critical Habitat Resources:

Grey Mangrove communities

Site Observations/Habitat Values:

Site Observations:		EPA database record:		DEWR database record:	√

A targeted trapping program for this species conducted by Yurrah Pty Ltd failed to capture any Water mouse and no indicators of Water mouse habitat have been identified on the site during the course of field surveys. Although various sectors of the site support mangrove and other marine vegetation, which may have once provided habitat for the Water mouse, degradation associated with human-induced disturbances (e.g. weed invasion, predation by introduced predators, feral pigs, livestock etc) would have driven any local populations to extinction.

Recognised Threats and Potential Development Impact(s):

Not applicable.

Proposed Impact Mitigation Measures:

Not applicable.

Likelihood of Significant Impacts:

None.

BIRDS

Red Goshawk (*Erythrotriorchis radiatus*)

Conservation Status:

NC Act – Endangered
EPBC Act – Vulnerable

Species Profile:

Species has a distribution that encompasses coastal and sub-coastal areas from the Kimberley region of Western Australia to northern New South Wales. Throughout its range it is most frequently observed in tropical to warm temperate forests and woodlands in close proximity to watercourses and wetlands where it feeds primarily on other bird species. It is a sparsely distributed and rarely encountered species and as a consequence little is known of its biology or reasons for its apparent rarity.

Additional details:
http://www.epa.qld.gov.au/publications/p02093aa.pdf/Red_goshawk_emErythrotriorchis_radiatus/em.pdf

Critical Habitat Resources:

Various habitat types including coastal & sub-coastal tall open forest, tropical savannah adjacent to wooded or forested rivers, and rainforest edges are utilized with a preference for a mosaic of vegetation types near to a permanent watercourse.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	√

According to the criteria, there is moderate probability of occurrence at this site given the habitat preferences of the species. The *Casuarina* species, *Melaleuca* species and mangrove areas may provide suitable habitat for the species.

Recognised Threats and Potential Development Impact(s):

Habitat clearing for development.
Anthropological disturbance to nesting sites.

Proposed Impact Mitigation Measures:

Controlled or stages clearing of land.
Habitat supplementation in areas of ecological value to be retained.
Monitoring and maintaining fire regime with conservation areas.
Location and buffering of any potential Red Goshawk Nests.

Likelihood of Significant Impacts:

Low – The NEBP is not likely to have any long term significant impacts upon this species. Whilst there is habitat present and there have been records within the area it is considered that adequate rehabilitation and conservation of areas of ecological value within the NEBP will protect any populations of this species in the area.

Australian Painted Snipe (*Rostratula australis*)

Conservation Status:
NC Act – Vulnerable
EPBC Act – Vulnerable

Species Profile:

This species has a scattered distribution across Australia and is usually found in freshwater or brackish, shallow, inland wetland areas. It nests on the ground in tall reed-like vegetation near water and feeds on worms, insects and seeds.

Additional details:
http://www.environment.gov.au/biodiversity/threatened/publications/painted-snipe.html

Critical Habitat Resources:

Shallow and vegetated wetland areas are considered important habitat types for this species.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	√

According to the criteria, there is moderate probability of occurrence given the habitat and foraging site requirements of the species. The subject site supports areas of disturbed salt couch grasslands and heathland which include brackish and freshwater streams. This species may occur intermittently within these areas.

Recognised Threats and Potential Development Impact(s):

Wetland habitat loss and degradation.
Increased anthropological activity within nesting sites.

Proposed Impact Mitigation Measures:

Best practice storm water management.
Habitat rehabilitation within conservation areas.

Likelihood of Significant Impacts:

Low – Habitat present within the NEBP is considered to be marginal and disturbed with only a moderate probability of the species occurring on the site. The disturbed salt couch grassland and heathland does support some brackish and fresh water streams however no characteristics present can be considered to be critical habitat resources.

Swift Parrot (*Lathamus discolor*)

Conservation Status:

NC Act – Endangered
EPBC Act – Endangered

Species Profile:

This species breeds exclusively in Tasmania, coinciding its breeding season with the flowering of the Tasmanian blue gum. Migration to the mainland of Australia occurs in autumn where the species forages on lerps and nectar in box ironbark forests and eucalypt woodlands in Victoria, New South Wales and occasionally in the Australian Capital Territory and south east Queensland.

Additional details:
http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10455;
http://www.environment.gov.au/biodiversity/threatened/publications/recovery/swift-parrot/pubs/swift-parrot.pdf

Critical Habitat Resources:

Preferences of habitat for the swift parrot, in Queensland, include eucalypts such as narrow leaved ironbark, yellow box forests and forest red gum. Larger trees are believed to be preferred by the species.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	√

According to the criteria, there is moderate probability of occurrence at this site given the habitat requirements of the species. The species had records from EPA database indicating that it has been observed previously within the immediate region of the site and there is known habitat supporting the characteristics required by this species. The EPBC database shows that the species or species habitat is known to occur within the area.

Recognised Threats and Potential Development Impact(s):

Habitat loss.
Anthropological interference to nesting areas.
Increase activity of domestic pets.

Proposed Impact Mitigation Measures:

Habitat and potential nesting areas to be retained and enhanced.

Likelihood of Significant Impacts:

Low – this species often moves in flocks and is gregarious in nature, it will associate with different lorikeet and parrot species and move as individuals within a larger flock. The development will retain potential habitat for the species.

Regent Honeyeater (*Xanthomyza phrygia*)

Conservation Status:

NC Act – Endangered
EPBC Act – Endangered and Migratory

Species Profile:

This species range has dramatically decreased over the last thirty years from south-east Queensland to north-eastern Victoria. It inhabits woodland areas with dense canopies and a large number of large trees. The habitats occupied by this species are generally found on the inland slopes of forests in south-east Queensland. Noisy, aggressive and conspicuous, it forages mainly in flowers and foliage in the upper canopy, feeding on nectar, fruits and insects. Breeding occurs from August to January.

Additional details:
http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10841

Critical Habitat Resources:

Eucalypt forest and woodland are considered critical habitat for this species.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	√

According to the habitat requirements of the species, there is a moderate probability that the species will occur at this site, given the criteria. this species is cryptic in nature and prefers heavily wooded areas with dense canopies and a large number of trees supporting hollows. The subject site demonstrates some characteristics required for this species however these characteristics are spread across a large distance and do not conform in total.

Recognised Threats and Potential Development Impact(s):

Habitat loss.
Anthropological interference to nesting areas.
Increase activity of domestic pets.

Proposed Impact Mitigation Measures:

Habitat and potential nesting areas to be retained and enhanced.

Likelihood of Significant Impacts:

Low – The subject site doesn't remove any critical habitat for this species.

Little Tern (*Sterna albifrons*)

Conservation Status:

NC Act – Endangered
EPBC Act –Migratory species

Species Profile:

This species migrates from Asia to Australia each year and establishes breeding colonies along the east Australian coastline, from Cape York to Tasmania. Throughout this range it is primarily encountered in coastal environments. The species breeds on undisturbed, unvegetated sites near estuaries and adjacent fresh water lakes, on estuarine and continental islands and on coral cays. Nesting occurs between the high tide mark and shore vegetation.

Additional details:
http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10769

Critical Habitat Resources:

Coastal estuaries are considered to be important breeding site habitats for this species.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	√

According to the habitat requirements of the little tern, there is a moderate probability that this species will occur at the site, given the criteria. The NEBP occurs in close proximity to Moreton Bay. It is possible this species flies over the subject site or occurs as a short term vagrant.

Recognised Threats and Potential Development Impact(s):

Anthropological activities affecting flood levels or hydrological regimes resulting in the flooding of nesting sites.
Disturbance to coastal nesting and feeding as a result of increased traffic near roosting sites.
Increased activity from domestic and feral animals, including direct predation on a individual or its eggs.

Proposed Impact Mitigation Measures:

Undertake feral animal control programs.
Reduce anthropologic interaction with nesting and roosting sites through erection of barriers.
Provide interpretative signage to advise people of the value and risk associated with the species.

Likelihood of Significant Impacts:

Low – The areas where this species may occur are intended to be retain as conservation areas.

Eastern Curlew (*Numenis madagascariensis*)

Conservation Status:

NC Act – Rare
EPBC Act – Migratory species

Species Profile:

This species is a non-breeding summer resident of the Australian coastline, where it is usually encountered around estuaries, salt-marshes, mudflats and sandy beaches. Two important habitat types exist for this species, one within the tidal zone and the other above it. Majority of birds leave Australia over the period of April to May and return to their northern hemisphere breeding grounds.

Additional details:
http://www.epa.qld.gov.au/nature_conservation/wildlife/az_of_animals/eastern_curlew/

Critical Habitat Resources:

Estuaries, mudflats, mangroves, and sandy beaches are all important habitats for this species. Intertidal zones and zones above the tidal areas are both important habitat types for the eastern curlew.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	√

According to the criteria, there is a moderate probability of occurrence of the eastern curlew at this site given the species habitat requirements. The site is located within the Moreton Bay region and this species is likely to travel some distance inland and would intermittently occur on the subject site.

Recognised Threats and Potential Development Impact(s):

Loss of wetland habitat and feeding resources.
Impacts associated with anthropological activity which disturbs roosting and feeding sites.

Proposed Impact Mitigation Measures:

Best practice storm water management.
Protect important habitat resources.
Provide interpretative signage to advise people of the value and risk associated with the species.

Likelihood of Significant Impacts:

Low – The NEBP will not have any activity that occurs immediately adjacent to Moreton Bay. The dredging of the channel to the Caboolture River might create some issues in regards to levels of disturbance to species utilizing Moreton Bay for the marina access to and NEBP, however this is not the commencement of an new activity and currently does not create any impacts

Cotton Pygmy-goose (*Nettapus coromandelianus*)

Conservation Status:

NC Act – Rare
EPBC Act – Migratory Species

Species Profile:

The cotton pygmy goose is a surface feeder generally found in freshwater lakes, swamps, dams and lagoons that are vegetated. This species utilizes hollows within standing, dead trees, that are close to water, as roosting sites. Although its distribution was once along the eastern coastline of Australia from Cape York to southern New South Wales, it is now believed uncommon in Queensland.

Additional details:
http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10557

Critical Habitat Resources:

Vegetated areas close to freshwater sources are required habitat for the cotton pygmy goose.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	√

According to the criteria, there is a moderate probability that this species will occur at this site, given the habitat requirements. The species had records from EPA database indicating that it has been observed previously within the immediate region of the site and there is known habitat supporting the characteristics required by this species. The EPBC database shows that the species or species habitat is known to occur within the area

Recognised Threats and Potential Development Impact(s):

Loss of wetland habitat and feeding resources.
Impacts associated with anthropological activity which disturbs roosting and feeding sites.

Proposed Impact Mitigation Measures:

Best practice storm water management.
Protect important habitat resources.
Provide interpretative signage to advise people of the value and risk associated with the species.

Likelihood of Significant Impacts:

Low – The NEBP will not have any activity that occurs immediately adjacent to Moreton Bay. The dredging of the channel to the Caboolture River might create some issues in regards to levels of disturbance to species utilising Moreton Bay for the marina access to and NEBP, however this is not the commencement of an new activity and currently does not create any impacts

Grey Goshawk (*Accipiter novaehollandiae*)

Conservation Status:

NC Act – Rare
EPBC Act – No Status

Species Profiles:

The distribution of this species extends in a coastal to sub-coastal band from the Kimberley in West Australia to south-eastern South Australia. It is most frequently encountered in well timbered coastal woodlands where it preys on other bird species, small mammals, reptiles and insects and is known to occasionally eat carrion.

Additional details:
http://www.fpa.tas.gov.au/fileadmin/user_upload/PDFs/Zoology_Ecology/tfm_grey_goshawk.pdf

Critical Habitat Resources:

Closed coastal forests is an important habitat type for this species.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	

According to the criteria, there is moderate probability of occurrence at the site given the habitat requirements of the grey goshawk. The NEBP site supports both roosting opportunities and habitat as well as having recorded numerous observations of viable food resource for the species.

Recognised Threats and Potential Development Impact(s):

Loss of roosting and nesting habitat.
Reduction in food resources.
Anthropologic impacts to nesting trees or sites.

Proposed Impact Mitigation Measures:

Locate and buffer any potential nests or nesting sites.
Develop a Fauna Management Plan to protect the species during and following the development.
Provide interpretive signage for residents to understand the value of the species.
Encourage pet owners to keep cats ad dogs indoors during nights.

Likelihood of Significant Impacts:

Low –The NEBP will retain habitat within conservation areas and habitat loss will be minimal.

Freckled Duck (*Stictonetta naevosa*)

Conservation Status:

NC Act – Rare
EPBC Act – No Status

Species Profile:

The freckled duck primarily inhabits areas of south west and south east Australia. Throughout northern Australia non-breeding populations have been recorded at a number of isolated localities. This species prefers permanent freshwater creeks and swamps but is often found in ephemeral pools and farm dams. The duck feeds at dawn and dusk on algae, small invertebrates and some aquatic sedges and grasses and rests during the day in dense vegetation in deep water.

Additional details:
http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10771

Critical Habitat Resources:

Freshwater bodies that are vegetated are important breeding, resting and foraging habitats for the freckled duck.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	

According to the criteria, there is moderate probability of occurrence at the site, given the habitat preferences of this species. The species had records from EPA database indicating that it has been observed previously within the immediate region of the site and there is known habitat supporting the characteristics required by this species.

Recognised Threats and Potential Development Impact(s):

Draining and clearing of wetland and swamp habitat.
Changes to natural river flows and flood patterns as a result of dams, weirs and irrigation.
Grazing and trampling of wetland habitat by grazing stock.
Illegal shooting.

Proposed Impact Mitigation Measures:

Remove feral pigs and cows.
Provide buffers to wetland areas that are to be retained.
Provide interpretive signage for residents to understand the value of the species.
Encourage pet owners to keep cats ad dogs indoors during nights.

Likelihood of Significant Impacts:

Low – The NEBP will be unlikely to create any serious adverse impacts on this species. The layout incorporates the wetland areas and provides adequate buffering to ensure any species that utilize this habitat will be maintained.

Square-tailed Kite (*Lophoictinia isura*)

Conservation Status:

NC Act – Rare
EPBC Act – No Status

Species Profile:

This species is endemic to Australia and is recorded as widespread but sparsely distributed across the mainland. It is most frequently encountered in coastal woodland and heath habitats where it preys on other bird species, primarily nestlings, small mammals and reptiles. Forested habitats utilised by the kite include eucalypt, *Angophora* and *Callitris* species.

Additional details:
http://www.nationalparks.nsw.gov.au/pdfs/tsprofile_squaretailed_kite.pdf

Critical Habitat Resources:

Intact woodlands in temperate and tropical areas of Australia are important habitats for the square tailed kite.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	

Given the criteria, there is a moderate probability that the square tailed kite will occupy habitats within the site. The species had records from EPA database indicating that it has been observed previously within the immediate region of the site and there is known habitat supporting the characteristics required by this species.

Recognised Threats and Potential Development Impact(s):

Loss of habitat through clearing and the activities associated with clearing.
Anthropologic disturbance to nest trees.
Inappropriate fire and/or grazing regimes that reduce nesting and feeding resources.

Proposed Impact Mitigation Measures:

Protection and maintenance of nesting habitat
Alteration of prescribed burning and grazing regimes to ensure the enhancement and maintenance of floristic and structural diversity.

Likelihood of Significant Impacts:

Low – The NEBP is unlikely to significantly impact upon this species as it is not intending to remove any large tracts of woodland. The majority of the site currently supports cleared grasslands or disturbed regrowth forests. There is a potential for this species ot have reduced food resources as a result of the NEBP however there will still be adequate foraging grounds both within and adjacent to the site for this species.

Black-chinned honeyeater (*Melithreptus gularis*)

Conservation Status:

NC Act – Rare
EPBC Act – No Status

Species Profile:

This species is found from the tablelands to the western slopes of the Great Dividing Range. However, it is rarely recorded east of the Great Dividing Range but has been recorded in the Richmond River region. The open habitat types occupied by this species consist of a variety of eucalypt species including stringy barks, box, smooth barks, ironbarks and tea-tree.

Additional details:
http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10523

Critical Habitat Resources:

Open eucalypt forests and woodlands are important habitat types for the species.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	

According to the criteria, there is a moderate probability of occurrence for the species given its preferred habitat types. However it is more likely to consider this species probability of occurrence as low. This species is only occasionally noted east of the Great Dividing Range and rarely in coastal areas. In addition there is only a marginal amount of adequate habitat within the site with many of the areas potentially providing habitat supporting a disturbed state.

Recognised Threats and Potential Development Impact(s):

Not applicable.

Proposed Impact Mitigation Measures:

Not applicable.

Likelihood of Significant Impacts:

None

Lewins Rail (Rallus pectoralis)

Conservation Status:

NC Act – Rare
EPBC Act – No status

Species Profile:

The distribution of this species extends from Townsville, QLD to Kangaroo Island, SA. Breeding sites are not well known due to the cryptic nature of the species and their nests. Lewin's rail is found to occupy fresh to saline water bodies that are permanent or ephemeral and have emergent or fringing vegetation. The bird forages in this vegetation eating small invertebrates, birds eggs and frogs.

Additional details:
http://www.environment.gov.au/biodiversity/threatened/publications/action/birds2000/pubs/lewins-rail-e.pdf

Critical Habitat Resources:

Densely vegetated areas close to water are important habitat for the species.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	

According to the criteria, there is moderate probability of occurrence at this site, given the habitat requirements for this species. The site is located adjacent to Moreton Bay and it supports several areas which may be considered adequate habitat for the species.

Recognised Threats and Potential Development Impact(s):

Feral and Domestic animals.
Change in hydrological regimes due to realignments of creeks and rivers, change in flood levels, and alteration from saline to freshwater wetland systems.

Proposed Impact Mitigation Measures:

Remove feral pigs and cows.
Provide buffers to wetland areas that are to be retained.
Provide interpretive signage for residents to understand the value of the species.
Encourage pet owners to keep cats ad dogs indoors during nights.

Likelihood of Significant Impacts:

Low – The NEBP will be unlikely to create any serious adverse impacts on this species. The layout incorporates the wetland areas and provides adequate buffering to ensure any species that utilize this habitat will be maintained. The layout does not intend to alter the hydrological regime of the site.

Black-necked Stork (*Ephippiorhynchus asiaticus*)

Conservation Status:

NC Act - Rare
EPBC Act – No Status

Species Profile:

The black-necked stork is the only stork species in Australia. The distribution of this species extends across northern and eastern Australia, with sightings decreasing into NSW and rarely seen south of Sydney. Throughout its range it is most frequently encountered alone or in pairs foraging on frog, fish, eels, turtles, crabs and snakes. The foraging and breeding habitats include freshwater (permanent or ephemeral) wetlands, adjacent grasslands and woodlands and are occasionally seen on intertidal areas of the coast.

Additional details:
http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10275

Critical Habitat Resources:

Wetlands, lagoons, intertidal mud-flats and mangrove margins are important habitats for the species.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	

According to the criteria, there is moderate probability of occurrence of this species at this site given the habitat types required. The subject site is associated with Moreton Bay and supports numerous habitats that are cohesive with this species.

Recognised Threats and Potential Development Impact(s):

Removal of wetland habitats through vegetation clearing
Alteration or pollution of wetland habitats
Changes in hydrological regime

Proposed Impact Mitigation Measures:

Provide buffers to wetland areas that are to be retained.
Provide interpretive signage for residents to understand the value of the species
Manage wetlands and the surrounding landscape to ensure natural hydrological regimes are maintained.

Likelihood of Significant Impacts:

Low – The NEBP will be unlikely to create any serious adverse impacts on this species. The layout incorporates the wetland areas and provides adequate buffering to ensure any species that utilize this habitat will be maintained. The layout does not intend to alter the hydrological regime of the site.

Glossy Black Cockatoo (*Calyptorhynchus lathami*)

Conservation Status:

NC Act – Vulnerable
EPBC Act – Status under review

Species Profile:

The glossy black cockatoo has a highly specialized diet, feeding almost exclusively on she oak seeds. It is occasionally seen eating other food sources including the seeds from Hakea, acacia, eucalypts and angophoras, as well as insect larvae. The species lives in open, inland woodland, coastal woodlands and drier forested areas. The species is distributed from the coast near Eungella in eastern Queensland to Mallacoota in Victoria. The drier forest types with intact and less rugged landscapes are thought to be preferred by the species. Nesting is in a hollow limb or trunk of an old or dead tree, up to 30 metres off the ground.

Additional details:
http://www.nationalparks.nsw.gov.au/npws.nsf/Content/glossy_black_cockatoos

Critical Habitat Resources:

Key *Allocasuarina* spp., particularly *A. littoralis* and *A. torulosa*, are important tree species that provide a food source for the glossy black cockatoo. Also, hollows found in standing trees are important nesting sites.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	

According to the criteria, there is a moderate probability that this species will occur on this site, given the habitat requirements.

Recognised Threats and Potential Development Impact(s):

Habitat loss.
Feral and Domestic animals.
Unnatural fire regime impacting upon specific food resource trees.

Proposed Impact Mitigation Measures:

Remove feral pigs and cows.
Provide buffers to wetland areas that are to be retained.
Provide interpretive signage for residents to understand the value of the species.
Encourage pet owners to keep cats ad dogs indoors during nights.

Likelihood of Significant Impacts:

Moderate – The NEBP supports *Allocasuarina* species though the vegetation communities present. These species provide an important food resource for this species. The removal of these species could have a localised impact on any active populations within the region. This impact will be mitigated through the use of these tree species in rehabilitation within conservation and open space areas.

Painted Honeyeater (*Grantiella picta*)

Conservation Status:

NC Act – Rare
EPBC Act – No status

Species Profile:

This species has a nomadic nature and is sparsely distributed across its range. The largest number of birds and majority of breeding sites occur on the inland slopes of the Great Dividing Range in southern Queensland, NSW and Victoria. The species forages on mistletoe, with a preference for mistletoes within the genera *Amyema*, which grow on eucalypts and acacias. It makes its small and delicate nest within the outer canopy of drooping eucalypts, sheoak, paperbark or mistletoe.

Additional details:
http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10357

Critical Habitat Resources:

Eucalypt woodlands containing mistletoe are important habitat types necessary to meet the foraging and breeding requirements of the species.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	

According to the criteria, there is low probability of occurrence for this species given its habitat requirements. This species has been recorded within the EPA database, however this record is considered to be of a vagrant somewhat outside of its range and habitat. The species would be unlikely to occur in the site given the current habitat values present.

Recognised Threats and Potential Development Impact(s):

Not applicable.

Proposed Impact Mitigation Measures:

Not applicable.

Likelihood of Significant Impacts:

None

Turquoise Parrot (*Neophema pulchella*)

Conservation Status:

NC Act – Rare
EPBC Act – No status

Species Profile:
The turquoise parrot inhabits steep, rocky ridges, gullies, rolling hills, river flats, and the open plains found of the Great Dividing Range. The species occurs in eucalypt woodland and open forests containing low shrubs and some grass. It has also been recorded in riparian habitats and a variety of grasslands/savannahs. The species eats seeds from a variety of grasses, herbs and shrubs and requires access to a reliable source of water. The species is also known to occasionally eat flowers, fruit, nectar, leaves and scale insects.

Additional details:
http://www.nationalparks.nsw.gov.au/pdfs/tsprofile_turquoise_parrot.pdf

Critical Habitat Resources:

A range of eucalypts, including those with suitable hollows for nesting, are required by the species. Grasses and other herbaceous plants are an important source of food.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	

According to the criteria, there is moderate probability of occurrence that this species will be identified on site, given the habitat requirements of this species. NEBP supports trees with hollows and vegetation communities consistent with the habitat required by this species.

Recognised Threats and Potential Development Impact(s):

Loss of habitat through clearing intensive logging, burning and grazing.
Destruction of sites containing hollows which may be used for nesting.
Unnatural fire regimes which remove nesting and feeding resources.

Proposed Impact Mitigation Measures:

Protection and maintenance of known or potential habitat.
Alteration of prescribed burning and grazing regimes.

Likelihood of Significant Impacts:

Low – NEBP will incorporate conservation areas that will also protect the habitat for this species which occurs within the site. This will include protecting eucalypt forest and wetland areas.

Powerful Owl (*Ninox strenua*)

Conservation Status:

NC Act – Vulnerable
EPBC Act – No Status

Species Profile:

The powerful owl is endemic to the east coast of Australia, mainly seen on the coastal side of the Great Dividing Range from Mackay to south western Victoria. The species abundance has decreased and they occur in low densities across their range. The owl inhabits a variety of habitat types including woodland and open sclerophyll as well as rainforests and tall, open and wet forests. The owl is found in both wide landscapes and fragmented habitats, hunting at night on medium sized arboreal mammals, birds and bats.

Critical Habitat Resources:

Significant habitat requirements include trees with hollows and shrub layers, in which the prey items live as well as suitable roosting sites for the owl species.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	

According to the criteria, there is moderate probability of occurrence at this site given the habitat requirements of the powerful owl. This occurrence is however only likely to be intermittent fly overs or short periodic foraging within the small patch of Scribbly Gum forest.

Recognised Threats and Potential Development Impact(s):

Not applicable.

Proposed Impact Mitigation Measures:

Not applicable.

Likelihood of Significant Impacts:

None - The NEBP is unlikely to have any significant impact upon this species.

Squatter Pigeon- southern sub-species (*Geophaps scripta scripta*)

Conservation Status:

NC Act - Vulnerable
EPBC Act – Vulnerable

Species Profile:

This sub-species occupies a variety of habitats including open forests, dominated by eucalypts, grassy woodlands, disturbed habitats and sown grasslands with remnant vegetation present. The bird is similar in appearance to the northern, non threatened sub-species (*Geophaps scripta peninsulae*), except for the coloration of skin surrounding the eye. Both species inhabit grassy plains and woodlands. Although listed as vulnerable, the species remains common in heavily grazed areas north of the Tropic of Capricorn and is commonly observed in habitats close to a water body. The squatter pigeon feeds mainly on the seeds of grasses, legumes and other herbaceous plants.

Additional details:
http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=64440#habitat

Critical Habitat Resources:

The squatter pigeon has been recorded as requiring a various range of habitat types including woodland, grassland and shrubland.

Site Observations/Habitat Values:

Site Observations:		EPA database record:		DEWR database record:	√

According to the criteria, there is low probability of occurrence at this site given the habitat preferences of the species. The presence of grazed grasslands and disturbed, remnant vegetation may meet the requirements of the species.

Recognised Threats and Potential Development Impact(s):

Not applicable.

Proposed Impact Mitigation Measures:

Not applicable.

Likelihood of Significant Impacts:

The NEBP is unlikely to have an impact upon this species.

Coxen's Fig-Parrot (*Cyclopsitta diophthalma coxenii*)

Conservation Status:

NC Act - Endangered
EPBC Act – Critically Endangered & Migratory

Species Profile:

This species is distributed across south-east Queensland and northern New South Wales. Habitat preference is general, having been sighted in both upland and lowland areas of riparian corridors in woodland, subtropical rainforest and littoral forest. Habitats where fig trees are present are thought to be favoured. Breeding sites are also variable, with nests reported within, and on ecotones of, subtropical rainforest, dry rainforest and sclerophyll forests.

Additional details:
http://www.environment.gov.au/biodiversity/threatened/publications/recovery/fig-parrot/pubs/fig-parrot.pdf

Critical Habitat Resources:

The presence of fruiting trees, particularly fig trees, seems to be of importance in habitat preference of the Coxen's Fig-Parrot. No single habitat type has been identified as critical.

Site Observations/Habitat Values:

Site Observations:		EPA database record:		DEWR database record:	√

According to the criteria, there is moderate probability of occurrence at this site given the habitat and forage preferences of the species which, includes riparian woodland and fruiting trees (eg. Fig, camphor laurel, lantana).

Recognised Threats and Potential Development Impact(s):

Habitat loss from vegetation clearing.
Anthropological disturbance to breeding areas.
Loss of feeding resources due to vegetation clearing.
Low population preventing a social breeding trigger being activated.

Proposed Impact Mitigation Measures:

Protect and enhance habitat.
Implement a community awareness strategy.

Likelihood of Significant Impacts:

Low - The NEBP will not have any adverse impacts upon this species. The majority of the habitat for this species that is present within the site will be retained or enhanced.

Black-breasted Button-quail (*Turnix melanogaster*)

Conservation Status:

NC Act – Vulnerable
EPBC Act – Vulnerable

Species Profile:

This species lives in dense habitat types such as rainforest and microphyll vine forests, preferring drier low closed forests. A deep leaf litter on the forest floor is imperative to the species in order to meet its foraging requirements. The species has been recorded in national parks, council and military areas throughout Queensland and extends its range down the coast of New South Wales.

Additional details:
http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=923#habitat

Critical Habitat Resources:

A deep leaf litter is considered important for foraging in this species and also possibly for roosting. Forests with various, dense shrub layers and fallen logs are also important shelter and breeding habitat requirements for the black-breasted button quail.

Site Observations/Habitat Values:

Site Observations:		EPA database record:		DEWR database record:	√

According to the criteria, there is low probability of occurrence for this species given its habitat requirements.

Recognised Threats and Potential Development Impact(s):

Not applicable.

Proposed Impact Mitigation Measures:

Not applicable.

Likelihood of Significant Impacts:

None.

Great Egret (*Ardea alba*)

Conservation Status:

NC Act – No status
EPBC Act – Migratory species

Species Profile:

Great Egrets occur throughout most of the world. They are common throughout Australia, with the exception of the arid areas. The bird's overall plumage is white, and, for most of the year, when not breeding, the bill and facial skin are yellow which turn to black and green when breeding. The preferred habitats include shallow water, but also occur in a variety of wetter habitats including damp grasslands, estuaries, waterways, creeks and rivers. The species will feed on molluscs, amphibians, aquatic insects, small reptiles, crustaceans and occasionally other small animals, but fish are the primary resource in its diet.

Critical Habitat Resources:

Floodwaters, rivers, shallows of wetlands, intertidal mudflats

Site Observations/Habitat Values:

Site Observations:	√	EPA database record:	√	DEWR database record:	√

According to the criteria, there is a very high probability of occurrence for this species on the site given its habitat requirements. The site supports a variety of habitats consistent with the utilized by the species and was observed during field assessments.

Recognised Threats and Potential Development Impact(s):

Loss of wetland habitat and feeding resources.
Impacts associated with anthropological activity which disturbs roosting and feeding sites.

Proposed Impact Mitigation Measures:

Best practice storm water management.
Protect important habitat resources.
Provide interpretative signage to advise people of the value and risk associated with the species

Likelihood of Significant Impacts:

Low - The NEBP is unlikely to have any long term adverse impacts on this species. The habitat values that are present are intended to be retained within open space and conservation areas and best practice stormwater management is intended.

Cattle egret (*Ardea ibis*)

Conservation Status:

NC Act - Common
EPBC Act – Migratory species

Species Profile:

This species is widespread throughout the world, including Australia. Most numerous in the north and east, but recorded in all states. The cattle egret is usually seen in small groups on grazing land, stalking through the grass for large insects. It frequently perches on fence posts or the backs of grazing animals.

Critical Habitat Resources:

Pasture among stock, occasionally shallow wetlands.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	√

According to the criteria, there is high probability of occurrence for this species on the site given its habitat requirements. There are numerous habitats within the region that may be influenced upon by the NEBP including grasslands grazed by stock, freshwater streams and brackish water areas.

Recognised Threats and Potential Development Impact(s):

Loss of wetland habitat and feeding resources.
Impacts associated with anthropological activity which disturbs roosting and feeding sites.

Proposed Impact Mitigation Measures:

Best practice storm water management.
Protect important habitat resources.
Provide interpretative signage to advise people of the value and risk associated with the species

Likelihood of Significant Impacts:

Low - The NEBP is unlikely to have any long term adverse impacts on this species. The habitat values that are present are intended to be retained, although with the removal of livestock these values may change, however wetlands and grasslands will be maintained within open space and conservation areas and best practice stormwater management is intended.

Ruddy turnstone (*Arenaria interpres*)

Conservation Status:

NC Act - Common
EPBC Act – Migratory species

Species Profile:

The Ruddy Turnstone is a migratory species which breeds in the high Arctic and migrates to all southern continents. It occurs usually within Australia from August to April. It is found throughout the entire Australian coastline but is more often found along the eastern coast of Queensland where its preferred habitat, tidal reefs and pools, weed covered rocks and pebbly, shelly and sandy shores, are more prominent. It occasionally can be observed inland on various forms of shallow waters. These species are generalists in their diet eating anything they can find under rocks, pebbles or seaweed, this includes eggs of smaller colonial terns.

Critical Habitat Resources:

Tidal reefs and pools, weed covered rocks and pebbly, shelly and sandy shores.

Site Observations/Habitat Values:

Site Observations:	√	EPA database record:	√	DEWR database record:	√

According to the criteria, there is high probability of occurrence for this species on the site given its habitat requirements. There are numerous habitats within the region that may be influenced upon by the NEBP.

Recognised Threats and Potential Development Impact(s):

Loss of marine and tidal wetlands.
Pollution to tidal wetlands and estuaries.
Increased anthropological impacts as a result of increased marine traffic.
Feral animal predation.

Proposed Impact Mitigation Measures:

Remove feral cats and pigs.
Best practice stormwater management.
Maintain, buffer and enhance any tidal mudflats or wetlands.

Likelihood of Significant Impacts:

Low – The NEBP may contribute to increased marine traffic and dredging within the channel leading into the Caboolture River. However this activity is not being introduced with the development and has occurred previously along this channel. The previous activity has not had any detrimental long term impacts upon adjacent important shorebird habitat.

Curlew sandpiper (*Calidris ferruginea*)

Conservation Status:

NC Act - Common
EPBC Act – Migratory species

Species Profile:

The Curlew Sandpiper is a small to medium-sized wader occurring across a broad range including Siberia and Alaska. The species occurs across a range of habitats within Australia in both coastal and inland areas. It has a long, black bill with a down-curved end and black legs and feet. It occurs within Australia on intertidal mudflats of estuaries, lagoons, mangroves, as well as beaches, rocky shores and around lakes, dams and floodwaters. The Curlew Sandpiper feeds on insects and their larvae when breeding. Otherwise, it feeds on small marine invertebrates, especially polychaete worms.

Critical Habitat Resources:

Intertidal mudflats of estuaries, lagoons, mangroves, as well as beaches, rocky shores and around lakes, dams and floodwaters.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	√

According to the criteria, there is high probability of occurrence for this species on the site given its habitat requirements. There are numerous habitats both within and adjacent to the NEBP which support characteristics consistent with this species requirements.

Recognised Threats and Potential Development Impact(s):

Loss of marine and tidal wetlands.
Pollution to tidal wetlands and estuaries.
Increased anthropological impacts as a result of increased marine traffic.
Feral animal predation.

Proposed Impact Mitigation Measures:

Remove feral cats and pigs.
Best practice stormwater management.
Maintain, buffer and enhance any tidal mudflats or wetlands.

Likelihood of Significant Impacts:

Low – The NEBP may contribute to increased marine traffic and dredging within the channel leading into the Caboolture River. However this activity is not being introduced with the development and has occurred previously along this channel. The previous activity has not had any detrimental long term impacts upon adjacent important shorebird habitat.

Mongolian plover (*Charadrius mongolus*)

Conservation Status:

NC Act - Common
EPBC Act – Migratory species

Species Profile:

This species occurs throughout the world with breeding in Siberia. The species is a regular migrant to Australia and New Zeeland. Lesser Sand-Plover is a medium-sized plover with grey upperparts, white under parts, and bright rust-brown breast band and nape. It occurs around the coastlines of Australia usually found in tidal mudflats and sand flats, gently sloping sandy and shelly beaches, salt marshes, atolls and other coastal habitats. Its diet consists primarily of insects, crustaceans and annelid worms.

Critical Habitat Resources:

Coastlines, mudflats, sand flats, gently sloping sandy and shelly beaches.

Site Observations/Habitat Values:

Site Observations:		EPA database record:		DEWR database record:	√

According to the criteria, there is moderate probability of occurrence for this species on the site given its habitat requirements. There are numerous habitats both within and adjacent to the NEBP which support characteristics consistent with this species requirements.

Recognised Threats and Potential Development Impact(s):

Loss of marine and tidal wetlands.
Pollution to tidal wetlands and estuaries.
Increased anthropological impacts as a result of increased marine traffic.
Feral animal predation.

Proposed Impact Mitigation Measures:

Remove feral cats and pigs.
Best practice stormwater management.
Maintain, buffer and enhance any tidal mudflats or wetlands.

Likelihood of Significant Impacts:

Low – The NEBP may contribute to increased marine traffic and dredging within the channel leading into the Caboolture River. However this activity is not being introduced with the development and has occurred previously along this channel. The previous activity has not had any detrimental long term impacts upon adjacent important shorebird habitat.

Latham's Snipe (*Gallinago hardwickii*)

Conservation Status:

NC Act – No Status
EPBC Act – Migratory species

Species Profile:

Latham's Snipe is a non-breeding migrant to the south east of Australia including Tasmania. Latham's Snipe is the largest snipe in Australia, with brown plumage. The bill is long and straight, the wings short and pointed and the tail long. Latham's Snipe are seen in small groups or singly in freshwater wetlands on or near the coast, generally among dense cover. They are found in any vegetation around wetlands, in sedges, grasses, lignum, reeds and rushes and also in saltmarsh and creek edges on migration where their primary diet consists of seeds and other plant material (mainly from species in families such as Cyperaceae, Poaceae, Juncaceae, Polygonaceae, Ranunculaceae and Fabaceae), and on invertebrates including insects, earthworms and spiders and occasionally molluscs, isopods and centipedes.

Critical Habitat Resources:

Wet grassland, open wooded wetlands supporting Cyperaceae, Poaceae, Juncaceae, Polygonaceae, Ranunculaceae and Fabaceae species.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	√

According to the criteria, there is high probability of occurrence for this species on the site given its habitat requirements. There are numerous habitats both within and adjacent to the NEBP which support characteristics consistent with this species requirements.

Recognised Threats and Potential Development Impact(s):

Loss of marine and tidal wetlands.
Pollution to tidal wetlands and estuaries.
Increased anthropological impacts as a result of increased marine traffic.
Feral animal predation.

Proposed Impact Mitigation Measures:

Remove feral cats and pigs.
Best practice stormwater management.
Maintain, buffer and enhance any tidal mudflats or wetlands.

Likelihood of Significant Impacts:

Low – The NEBP may contribute to increased marine traffic and dredging within the channel leading into the Caboolture River. However this activity is not being introduced with the development and has occurred previously along this channel. The previous activity has not had any detrimental long term impacts upon adjacent important shorebird habitat.

Grey-tailed Tattler (*Heteroscelus brevipes*)

Conservation Status:

NC Act - Common
EPBC Act – Migratory species

Species Profiles:

This species is also a non-breeding summer resident of the Australian coastline, where they are encountered around estuaries, tidal mudflats and less frequently on exposed beaches. The Grey-tailed tattler is an elegant species with a uniform grey back and white belly. The majority of the migrant population departs Australia over the period from April to May and return to their northern hemisphere breeding grounds. These birds forage on the ground or water, picking up food by sight. They eat insects, crustaceans and other invertebrates.

Critical Habitat Resources:

Estuaries, tidal mudflats, mangroves, wave-washed rocks, and reefs, and shallow water margins.

Site Observations/Habitat Values:

Site Observations:	√	EPA database record:	√	DEWR database record:	√

According to the criteria, there is a very high probability of occurrence for this species on the site given its habitat requirements. There are numerous habitats both within and adjacent to the NEBP which support characteristics consistent with this species requirements and there were observations made during field assessment.

Recognised Threats and Potential Development Impact(s):

Loss of marine and tidal wetlands.
Pollution to tidal wetlands and estuaries.
Increased anthropological impacts as a result of increased marine traffic.
Feral animal predation.

Proposed Impact Mitigation Measures:

Remove feral cats and pigs.
Best practice stormwater management.
Maintain, buffer and enhance any tidal mudflats or wetlands.

Likelihood of Significant Impacts:

Low – The NEBP may contribute to increased marine traffic and dredging within the channel leading into the Caboolture River. However this activity is not being introduced with the development and has occurred previously along this channel. The previous activity has not had any detrimental long term impacts upon adjacent important shorebird habitat.

Bar-tailed godwit (*Limosa lapponica*)

Conservation Status:

NC Act - Common
EPBC Act – Migratory species

Species Profile:

Bar-tailed Godwits arrive in Australia each year in August from breeding grounds in the northern hemisphere particularly north-east Siberia and north-west Alaska. The birds migrate to Indonesia, Papua New Guinea and Australia. They are quite large waders ranging in size from 38-46cm and generally are mottled brown above and lighter and more uniform buff below. It has dull white under wings, and a long, slightly upturned bill. Bar-tailed Godwits inhabit tidal mudflats, beaches and mangroves. They are common in coastal areas around Australia. Bar-tailed Godwits feed on molluscs, worms and aquatic insects.

Critical Habitat Resources:

Tidal mudflats, beaches and Mangroves.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	√

According to the criteria, there is high probability of occurrence for this species on the site given its habitat requirements. There are numerous habitats both within and adjacent to the NEBP which support characteristics consistent with this species requirements.

Recognised Threats and Potential Development Impact(s):

Loss of marine and tidal wetlands.
Pollution to tidal wetlands and estuaries.
Increased anthropological impacts as a result of increased marine traffic.
Feral animal predation.

Proposed Impact Mitigation Measures:

Remove feral cats and pigs.
Best practice stormwater management.
Maintain, buffer and enhance any tidal mudflats or wetlands.

Likelihood of Significant Impacts:

Low – The NEBP may contribute to increased marine traffic and dredging within the channel leading into the Caboolture River. However this activity is not being introduced with the development and has occurred previously along this channel. The previous activity has not had any detrimental long term impacts upon adjacent important shorebird habitat.

Whimbrel (*Numenis phaeopus*)

Conservation Status:

NC Act - Common
EPBC Act – Migratory species

Species Profile:

The Whimbrel is a medium-sized curlew, which is mainly streaked brown, with twin dark streaks along the crown and bill. The body is white below, with coarsely streaked brown upperparts. This species is common across northern Australia and uncommon to rare further south. Breeding grounds are in the northern hemisphere from central Siberia to Iceland. Whimbrels are found mainly on the coast, on tidal and estuarine mudflats, especially near mangroves where they feed on worms, crustaceans and occasionally fish and nestling birds.

Critical Habitat Resources:

Estuaries, salt-marshes, mudflats and sandy beaches.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	√

According to the criteria, there is high probability of occurrence for this species on the site given its habitat requirements. There are numerous habitats both within and adjacent to the NEBP which support characteristics consistent with this species requirements.

Recognised Threats and Potential Development Impact(s):

Loss of marine and tidal wetlands.
Pollution to tidal wetlands and estuaries.
Increased anthropological impacts as a result of increased marine traffic.
Feral animal predation.

Proposed Impact Mitigation Measures:

Remove feral cats and pigs.
Best practice stormwater management.
Maintain, buffer and enhance any tidal mudflats or wetlands.

Likelihood of Significant Impacts:

Low – The NEBP may contribute to increased marine traffic and dredging within the channel leading into the Caboolture River. However this activity is not being introduced with the development and has occurred previously along this channel. The previous activity has not had any detrimental long term impacts upon adjacent important shorebird habitat.

Pacific Golden Plover (*Pluvialis fulva*)

Conservation Status:

NC Act - Common
EPBC Act - Migratory

Species Profile:

The Pacific Golden Plover is a slender upright shorebird with a rounded head, slim neck, short fine bill and long legs. In breeding plumage, the underparts from the tail to the chin including the eye are black with white flecking on the tail. The upperparts, crown and wings are golden brown with white and black flecks on the wings.. When not breeding, it has a broad, buff brown to white eyebrow and the upperparts are duller, being golden brown with white spots. The Pacific Golden Plover breeds on the Arctic tundra in western Alaska. It is a common migrant in Australia from August to April where is can be found on muddy, rocky and sandy wetlands, shores, paddocks, salt marsh, coastal golf courses, estuaries and lagoons where its dietary requirements of molluscs, insects, worms, crustaceans and lizards can be found.

Critical Habitat Resources:

Muddy, rocky and sandy wetlands, shores, paddocks, salt marsh, estuaries and lagoons.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	√

According to the criteria, there is high probability of occurrence for this species on the site given its habitat requirements. There are numerous habitats both within and adjacent to the NEBP which support characteristics consistent with this species requirements.

Recognised Threats and Potential Development Impact(s):

Loss of marine and tidal wetlands.
Pollution to tidal wetlands and estuaries.
Increased anthropological impacts as a result of increased marine traffic.
Feral animal predation.

Proposed Impact Mitigation Measures:

Remove feral cats and pigs.
Best practice stormwater management.
Maintain, buffer and enhance any tidal mudflats or wetlands.

Likelihood of Significant Impacts:

Low – The NEBP may contribute to increased marine traffic and dredging within the channel leading into the Caboolture River. However this activity is not being introduced with the development and has occurred previously along this channel. The previous activity has not had any detrimental long term impacts upon adjacent important shorebird habitat.

Terek sandpiper (*Xenus cinereus*)

Conservation Status:

NC Act – No Status
EPBC Act – Migratory species

Species Profile:

The Terek Sandpiper is a small sandpiper with short orange legs. The long slightly up-turned bill is orange at the base. The body is brownish-grey above and on the sides of the breast, and white below. This species is more common on the northern and eastern Australian coasts than in the south, but large populations are considered uncommon. Terek Sandpipers are found on the coast in mangrove swamps, tidal mudflats and the seashore. The primary diets consists of crustaceans and insects, adding seeds, molluscs and spiders in their breeding ground

Critical Habitat Resources:

Tidal mudflats, estuaries, shores and reefs of islands, coastal swamps.

Site Observations/Habitat Values:

Site Observations:		EPA database record:		DEWR database record:	√

According to the criteria, there is high probability of occurrence for this species on the site given its habitat requirements. There are numerous habitats both within and adjacent to the NEBP which support characteristics consistent with this species requirements.

Recognised Threats and Potential Development Impact(s):

Loss of marine and tidal wetlands.
Pollution to tidal wetlands and estuaries.
Increased anthropological impacts as a result of increased marine traffic.
Feral animal predation.

Proposed Impact Mitigation Measures:

Remove feral cats and pigs.
Best practice stormwater management.
Maintain, buffer and enhance any tidal mudflats or wetlands.

Likelihood of Significant Impacts:

Low – The NEBP may contribute to increased marine traffic and dredging within the channel leading into the Caboolture River. However this activity is not being introduced with the development and has occurred previously along this channel. The previous activity has not had any detrimental long term impacts upon adjacent important shorebird habitat.

White-bellied Sea-Eagle (*Haliaeetus leucogaster*)

Conservation Status:

NC Act - Common
EPBC Act – Migratory species

Species Profile:

The White-bellied Sea-Eagle is the second largest raptor found in Australia, it has white on the head, rump and underparts and dark grey on the back and wings. In flight the black flight feathers on the wings are easily seen when the bird is viewed from below. The large, hooked bill is grey with a darker tip, and the eye is dark brown. They form permanent pairs that inhabit territories throughout the year in coastal and near coastal areas of Australia. Aquatic animals form the primary source of food for this species diet, including sea snakes, fish and turtles and occasionally birds and mammals.

Critical Habitat Resources:

Large Rivers, fresh and saline lakes, coastal seas.

Site Observations/Habitat Values:

Site Observations:	√	EPA database record:	√	DEWR database record:	√

According to the criteria, there is a very high probability of occurrence for this species on the site given its habitat requirements. The species was observed on site and habitat resources that are required for this species are present throughout and adjacent to the site.

Recognised Threats and Potential Development Impact(s):

Loss of roosting and nesting habitat.
Reduction in food resources.
Anthropologic impacts to nesting trees or sites.

Proposed Impact Mitigation Measures:

Locate and buffer any potential nests or nesting sites.
Develop a Fauna Management Plan to protect the species during and following the development.
Provide interpretive signage for residents to understand the value of the species.

Likelihood of Significant Impacts:

Low – The NEBP will retain habitat for this species within open space and conservation areas. Nests or roosting trees will be protected and the proximity to Moreton Bay and Caboolture River will ensure that food resources are kept available.

White-throated Needletail (*Hirundapus caudacutus*)

Conservation Status:

NC Act - Common
EPBC Act – Migratory species

Species Profile:

The White-throated Needletail is predominantly grey-brown, glossed with green and the long curved wings have white markings. The tail is short and square, with the protruding feather shafts giving a spiky appearance. These species are predominantly fly over species occurring across a range of habitats in eastern Australia; however they may roost in trees intermittently. Flying insects, such as termites, ants, beetles and flies are the primary resources for the diets of these birds.

Critical Habitat Resources:

Aerial across variety of habitats.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	√

According to the criteria, there is high probability of occurrence for this species on the site given its habitat requirements. This species occurs in many coastal species but is not often observed roosting or landing. It is likely this species intermittently occurs flying over the site.

Recognised Threats and Potential Development Impact(s):

Not applicable.

Proposed Impact Mitigation Measures:

Not applicable

Likelihood of Significant Impacts:

None – The White Throated Needletail is a flyover species only and is unlikely to be impacted by any development on this site.

Black-faced Monarch (*Monarcha melanopsis*)

Conservation Status:

NC Act - Common
EPBC Act – Migratory species

Species Profile:

The Black-faced Monarch is found along the coast of eastern Australia, becoming less common further south. It has a distinctive black face that does not extend across the eyes, grey upperparts, wings and upper breast, contrasting with a rufous belly. This species is found in rainforests, eucalypt woodlands, coastal scrub and damp gullies. It may be found in more open woodland when migrating. The Black-faced Monarch forages for insects among foliage, or catches flying insects on the wing.

Critical Habitat Resources:

Rainforest, Wet Eucalypt Forest and Mangroves along coastal regions.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	√

According to the criteria, there is high probability of occurrence for this species on the site given its habitat requirements. The species is listed in both the EPA and the EPBC databases and is likely to occur within vegetated habitats within the site.

Recognised Threats and Potential Development Impact(s):

Habitat loss.
Predation by feral animals.
Anthropological impacts on nesting areas.

Proposed Impact Mitigation Measures:

Remove feral animals.
Encourage owners to keep domestic animals inside at night.
Retain nesting and feeding habitat.

Likelihood of Significant Impacts:

Low – NEBP will not have any significant impact on this species. Habitat will be retained within conservation and open space areas and other management strategies will be employed to remove feral animals and minimize harm from domestic animals.

Spectacled Monarch (*Monarcha trivirgatus*)

Conservation Status:

NC Act – Common
EPBC Act – Migratory species

Species Profile:

The Spectacled Monarch is found in coastal north-eastern and eastern Australia, from Cape York, Queensland to Port Stephens, New South Wales It is a small flycatcher that is blue-grey above, with a black face mask that extends across both eyes, rufous breast, white underparts and a black tail. The Spectacled Monarch prefers thick understorey in rainforests, wet gullies and waterside vegetation, as well as mangroves where it feeds on insects, foraging mostly below the canopy in foliage and on tree trunks or vines.

Critical Habitat Resources:

Wet Forests and Mangroves.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	√

According to the criteria, there is high probability of occurrence for this species on the site given its habitat requirements. Whilst no observations were made there were numerous records in the EPA database and habitat was observed to be present.

Recognised Threats and Potential Development Impact(s):

Habitat loss.
Predation by feral animals.
Anthropological impacts on nesting areas.

Proposed Impact Mitigation Measures:

Remove feral animals.
Encourage owners to keep domestic animals inside at night.
Retain nesting and feeding habitat.

Likelihood of Significant Impacts:

Low – NEBP will not have any significant impact on this species. Habitat will be retained within conservation and open space areas and other management strategies will be employed to remove feral animals and minimize harm from domestic animals.

Rainbow Bee-eater (*Merops ornatus*)

Conservation Status:

NC Act – Common
EPBC Act – Migratory species

Species Profile:

The Rainbow Bee-eater is found throughout mainland Australia, as well as eastern Indonesia, New Guinea and, rarely, the Solomon Islands. In Australia it is widespread, except in desert areas. This species is a brilliantly coloured bird, with a long slim curved bill and a long tail with distinctive tail-streamers. The upperparts are green, with the flight feathers coppery and black tipped. The under wings are bright orange, with a black edge and the head is often a cap of yellow. The Rainbow Bee-eater is most often found in open forests, woodlands and shrublands, and cleared areas, usually near water. Rainbow Bee-eaters eat insects, mainly catching bees and wasps, as well as dragonflies, beetles, butterflies and moths.

Critical Habitat Resources:

Temperate to tropical woodland, savannah, forest edges, farmland.

Site Observations/Habitat Values:

Site Observations:	√	EPA database record:	√	DEWR database record:	√

According to the criteria, there is high probability of occurrence for this species on the site given its habitat requirements.

Recognised Threats and Potential Development Impact(s):

Habitat loss.
Predation by feral animals.
Anthropological impacts on nesting areas.

Proposed Impact Mitigation Measures:

Remove feral animals.
Encourage owners to keep domestic animals inside at night.
Retain nesting and feeding habitat.

Likelihood of Significant Impacts:
Low – NEBP will not have any significant impact on this species. Habitat will be retained within conservation and open space areas and other management strategies will be employed to remove feral animals and minimize harm from domestic animals.

Rufous Fantail (*Rhipidura rufifrons*)

Conservation Status:

NC Act – Common
EPBC Act – Migratory

Species Profile:

The Rufous Fantail is found in northern and eastern coastal Australia, being more common in the north. It is a small, active bird which has a distinctive reddish brown rump and continuously fanned tail. The Rufous Fantail is found in rainforest, dense wet forests, swamp woodlands and mangroves, preferring deep shade, and is often seen close to the ground. During migration, it may be found in more open habitats or urban areas. It generally feeds on insects, which it gleans from the middle and lower levels of the canopy.

Critical Habitat Resources:

Rainforest, dense wet forests, swamp woodlands and mangroves.

Site Observations/Habitat Values:

Site Observations:	√	EPA database record:	√	DEWR database record:	√

According to the criteria, there is high probability of occurrence for this species on the site given its habitat requirements.

Recognised Threats and Potential Development Impact(s):

Habitat loss.
Predation by feral animals.
Anthropological impacts on nesting areas.

Proposed Impact Mitigation Measures:

Remove feral animals.
Encourage owners to keep domestic animals inside at night.
Retain nesting and feeding habitat.

Likelihood of Significant Impacts:

Low – NEBP will not have any significant impact on this species. Habitat will be retained within conservation and open space areas and other management strategies will be employed to remove feral animals and minimize harm from domestic animals.

Satin Flycatcher (*Myiagra cyanoleuca*)

Conservation Status:

NC Act – Common
EPBC Act – Migratory

Species Profile:

The Satin Flycatcher is found along the east coast of Australia from far northern Queensland to Tasmania, including south-eastern South Australia. It is a small blue-black and white bird with a small crest. The Satin Flycatcher is found in tall forests, preferring wetter habitats such as heavily forested gullies, but not rainforests. The Satin Flycatcher takes insects on the wing, foraging actively from perches in the mid to upper canopy

Critical Habitat Resources:

Heavily forested gullies near watercourses.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	√

According to the criteria, there is high probability of occurrence for this species on the site given its habitat requirements.

Recognised Threats and Potential Development Impact(s):

Habitat loss.
Predation by feral animals.
Anthropological impacts on nesting areas.

Proposed Impact Mitigation Measures:

Remove feral animals.
Encourage owners to keep domestic animals inside at night.
Retain nesting and feeding habitat.

Likelihood of Significant Impacts:

Low – NEBP will not have any significant impact on this species. Habitat will be retained within conservation and open space areas and other management strategies will be employed to remove feral animals and minimize harm from domestic animals.

REPTILES

Three toed Snake tooth Skink (*Coeranoscincus reticulatus*)

Conservation Status:

NC Act – Rare
EPBC Act – Vulnerable

Species Profile:

This species is distributed between the northern rivers district, north-eastern NSW and south-east Queensland. It inhabits rainforests and occasionally moist eucalypt forest on loamy or sandy soils. The skink lives within leaf litter, rotting logs and loose soil and feeds on earthworms and beetle grubs.

Critical Habitat Resources:

Fallen timber, rotting logs within rainforest or wet sclerophyll vegetation communities.

Site Observations/Habitat Values:

Site Observations:		EPA database record:		DEWR database record:	√

There is low probability of this species occurring on at the NEBP site given the general absence of suitable habitat on the site.

Recognised Threats and Potential Development Impact(s):

Not applicable.

Proposed Impact Mitigation Measures:

None applicable.

Likelihood of Significant Impacts:

None.

AMPHIBIANS

Giant Barred Frog (*Mixophyes iteratus*)

Conservation Status:

NC Act – Endangered
EPBC Act - Endangered

Species Profile:

This species forages and lives in deep and moist leaf litter in rainforests, moist eucalypt forests and neighbouring dry eucalypt forests. This species breeds in shallow, rocky streams in rainforests, wet sclerophyll forests and farmland at altitudes ranging from 100 – 1,000 metres or in deep, slow moving streams in the lowlands. The giant barred frog is found in these habitat types ranging from Belli Creek near Eumundi, SEQ, to Warrimoo, mid-east NSW (26° 31'S, 152° 49'E - 33° 43'S, 150° 36'E). North eastern NSW, particularly the Coffs Harbour-Dorrigo region is now a stronghold.

Additional details:
http://www.epa.qld.gov.au/nature_conservation/wildlife/threatened_plants_and_animals/endangered/giant_barredfrog/;
http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10538

Critical Habitat Resources:

A moving water body is of particular importance to the giant barred frog in order to meet its habitat requirements. Damp, foraging areas (eg. leaf litter) are also of importance to the giant barred frog.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	√

There is a low probability that this species occurs at the NEBP site due to the absence of suitable habitat.

Recognised Threats and Potential Development Impact(s):

Not applicable.

Proposed Impact Mitigation Measures:

None applicable.

Likelihood of Significant Impacts:

None.

Wallum Froglet (*Crinia tinnula*)

Conservation Status:

NC Act – Vulnerable
EPBC Act – No status

Species Profile:

The wallum froglet only inhabits lowland, coastal areas of south east Queensland and northern NSW, including the sand islands off the Queensland coast (Fraser, Bribie, Moreton and North Stradbroke Island). Originally ranging from Bundaberg, QLD to Sydney, NSW, the distribution of the wallum froglet has been severely decreased and fragmented. This wallum dependant frog relies on acidic water bodies for annual reproduction.

Additional details:
http://www.epa.qld.gov.au/nature_conservation/wildlife/az_of_animals/wallum_froglet/

Critical Habitat Resources:

Acidic, freshwater swamps are important breeding ground sites. Suitable lowland, terrestrial habitat within the known range is also critical for survival.

Site Observations/Habitat Values:

Site Observations:		EPA database record:	√	DEWR database record:	

According to the criteria, there is high probability of occurrence for this species given its habitat requirements. The paperbark open forest communities in the south-west of the site, that are associated with Raff Creek, are also identifies as Essential Habitat for this species on the certified regional ecosystem mapping for the locality.

Recognised Threats and Potential Development Impact(s):

Habitat loss and degradation.

Proposed Impact Mitigation Measures:

Removal of livestock and control of feral pigs.
Retention and enhancement of the majority of existing on-site habitat.
Best practice stormwater quality management.

Likelihood of Significant Impacts:

Low - the NEBP development is not likely to have an adverse impact on the viability of local populations of this species.

Tusked Frog (*Adelotus brevis*)

Conservation Status:

NC Act - Vulnerable
EPBC Act – No status

Species Profile:

The cryptic lifestyle of this species makes it difficult to locate. The frog spends its time under vegetation and logs beside water bodies and moist ditches in rainforests, wet sclerophyll and flooded pastures. The species is distributed across the coastal plain and adjacent Great Dividing Range from central Queensland to southern NSW.

Additional details:
http://www.nationalparks.nsw.gov.au/npws.nsf/Content/Tusked+frog+population+Nandewar+and+New+England+Tablelands+bioregions+endangered+population+listing;
http://www.faunanet.gov.au/wos/factfile.cfm?Fact_ID=259

Critical Habitat Resources:

Wet habitats, including rainforest and wet sclerophyll, are critical for the tusked frog's reproduction and foraging requirements.

Site Observations/Habitat Values:

Site Observations:	√	EPA database record:	√	DEWR database record:	

This species was recorded on the site by Yarrah Pty Ltd in 2004. On site habitat for this species is associated with the freshwater wetland and paperbark communities of Raff Creek and ephemeral wetlands that form in adjacent grassland habitats following rainfall.

Recognised Threats and Potential Development Impact(s):

Habitat loss and degradation.

Proposed Impact Mitigation Measures:

Removal of livestock and control of feral pigs.
Retention and enhancement of the majority of existing on-site habitat.
Best practice stormwater quality management.
Increased environmental education and awareness.

Likelihood of Significant Impacts:

Low - the NEBP development is not likely to have an adverse impact on the viability of local populations of this species.

APPENDIX E

List of Fauna Observed on the NEBP Site

TERRESTRIAL VERTEBRATE FAUNA OBSERVED AT THE NEBP SITE

Conservation Status Codes:
NC Act - E=Endangered**; V**=Vulnerable**; R**=Rare
EPBC Act - E=Endangered; **V**=Vulnerable; **M** = Migratory

Sightings Codes:
ET=elliott trapping*; **VO**=visual observation; **SP**=spot light; **CI**=call identification; **SC**=scats; **TR**=tracks; **FS**=feeding signs; **N**=nest
(* : all elliott trapping observations based on surby work carried out by Yurrah Pty Ltd (2004)).

	Genus	***Species***	**Common Name**	**Status**		**Sighting**
				NC Act	***EPBC Act***	
Mammals	*Antechinus*	*flavipes*	Yellow-footed Antechinus			ET
	Bos	*taurus*	Cattle			VO
	Canis	*familiaris*	Dog			VO
	Equus	*caballus*	Horse			VO
	Felis	*catus*	Cat			VO
	Isoodon	*macrourus*	Northern Brown Bandicoot			FS
	Lepus	*capensis*	European Hare			VO
	Macropus	*giganteus*	Eastern Grey Kangaroo			VO
	Melomys	*cervinipes*	Fawn-footed Melomys			ET
	Mus	*musculus*	House Mouse			ET
	Phascolarctos	*cinereus*	Koala	V		VO,SC,TR
	Pseudocheirus	*peregrinus*	Common Ringtail Possum			SP,N
	Rattus	*fuscipes*	Bush Rat			ET
	Rattus	*lutreolus*	Swamp Rat			VO
	Rattus	*rattus*	Black Rat			VO
	Sus	*scrofa*	Pig (feral)			SC,FS
	Tachyglossus	*aculeatus*	Short-beaked Echidna			SC
	Trichosurus	*vulpecula*	Common Brushtail Possum			SP
	Vulpes	*vulpes*	Fox			VO
	Wallabia	*bicolor*	Swamp Wallaby			VO
Birds	*Acanthiza*	*pusilla*	Brown Thornbill			VO
	Accipiter	*fasciatus*	Brown Goshawk			VO
	Acridotheres	*tristis*	Indian Miner			VO
	Aegintha	*temporalis*	Red-browed Firetail			VO
	Alcedo	*azurea*	Azure Kingfisher			VO
	Alectura	*lathami*	Australian Brush-turkey			VO,N
	Anas	*superciliosa*	Pacific Black Duck			VO
	Anhinga	*melanogaster*	Darter			VO
	Ardea	*alba*	Great Egret		M	VO
	Ardea	*pacifica*	Pacific Heron			VO
	Arenaria	*interpres*	Ruddy Turnstone		M	VO
	Artamus	*leucorhynchus*	White-breasted Woodswallow			VO
	Burhinus	*magnirostris*	Bush Curlew			VO
	Butorides	*striatus*	Striated Heron			VO
	Cacatua	*galerita*	Sulphur-crested Cockatoo			VO
	Cacatua	*roseicapilla*	Galah			VO
	Centropus	*phasianinus*	Pheasant Coucal			VO
	Chenonetta	*jubata*	Australian Wood Duck			VO

TERRESTRIAL VERTEBRATE FAUNA OBSERVED AT THE NEBP SITE

Conservation Status Codes:
NC Act - E=Endangered**; V**=Vulnerable**; R**=Rare
EPBC Act - E=Endangered; **V**=Vulnerable; **M** = Migratory

Sightings Codes:
ET=elliott trapping*; **VO**=visual observation; **SP**=spot light; **CI**=call identification; **SC**=scats; **TR**=tracks; **FS**=feeding signs; **N**=nest
(* : all elliott trapping observations based on surby work carried out by Yurrah Pty Ltd (2004)).

Genus	***Species***	**Common Name**	**Status**		**Sighting**
			NC Act	***EPBC Act***	
Colluricincla	*harmonica*	Grey Shrike-thrush			VO
Columba	*leucomela*	White-headed Pigeon			VO
Coracina	*novaehollandiae*	Black-faced Cuckoo-shrike			VO
Cormobates	*leucophaeus*	White-throated Treecreeper			VO
Corvus	*orru*	Torresian Crow			VO
Coturnix	*ypsilophora*	Brown Quail			VO
Cracticus	*nigrogularis*	Pied Butcherbird			VO
Cracticus	*torquatus*	Grey Butcherbird			VO
Dacelo	*novaeguineae*	Laughing Kookaburra			VO
Dicaeum	*hirundinaceum*	Mistletoebird			VO
Dicrurus	*bracteatus*	Spangled Drongo			VO
Entomyzon	*cyanotis*	Blue-faced Honeyeater			VO
Eopsaltria	*australis*	Eastern Yellow Robin			VO
Eudynamys	*scolopacea*	Common Koel			CI
Fulica	*atra*	Eurasian Coot			VO
Gallinula	*tenebrosa*	Dusky Moorhen			VO
Geopelia	*humeralis*	Bar-shouldered Dove			VO
Geopelia	*placida*	Peaceful Dove			VO
Geophaps	*lophotes*	Crested Pigeon			VO
Gerygone	*olivacea*	White-throated Gerygone			VO
Grallina	*cyanoleuca*	Magpie-lark			VO
Gymnorhina	*tibicen*	Australian Magpie			VO
Haliaeetus	*leucogaster*	White-bellied Sea-Eagle		M	VO,N
Haliastur	*indus*	Brahminy Kite			VO
Haliastur	*sphenurus*	Whistling Kite			VO
Hirundo	*nigricans*	Tree Martin			VO
Hirundo	*neoxena*	Welcome Swallow			VO
Lichenostomus	*chrysops*	Yellow-faced Honeyeater			VO
Lichenostomus	*versicolor*	Mangrove Honeyeater			VO
Lichmera	*indistincta*	Brown Honeyeater			VO
Lopholaimus	*antarcticus*	Topknot Pigeon			VO
Macropygia	*amboinensis*	Brown Cuckoo-Dove			VO
Malurus	*cyaneus*	Superb Fairy-wren			VO
Malurus	*lamberti*	Variegated Fairy-wren			VO
Malurus	*melanocephalus*	Red-backed Fairy-wren			VO
Manorina	*melanocephala*	Noisy Miner			VO
Meliphaga	*lewinii*	Lewin's Honeyeater			VO
Melithreptus	*lunatus*	White-naped Honeyeater			VO
Merops	*ornatus*	Rainbow Bee-eater		M	VO

TERRESTRIAL VERTEBRATE FAUNA OBSERVED AT THE NEBP SITE

Conservation Status Codes:
NC Act - E=Endangered**; V**=Vulnerable**; R**=Rare
EPBC Act - E=Endangered; **V**=Vulnerable; **M** = Migratory

Sightings Codes:
ET=elliott trapping*; **VO**=visual observation; **SP**=spot light; **CI**=call identification; **SC**=scats; **TR**=tracks; **FS**=feeding signs; **N**=nest
(* : all elliott trapping observations based on surby work carried out by Yurrah Pty Ltd (2004)).

	Genus	***Species***	**Common Name**	**Status**		**Sighting**
				NC Act	***EPBC Act***	
	Myzomela	*sanguinolenta*	Scarlet Honeyeater			VO
	Nycticorax	*caledonicus*	Nankeen Night Heron			VO
	Pachycephala	*pectoralis*	Golden Whistler			VO
	Pachycephala	*rufiventris*	Rufous Whistler			VO
	Pandion	*haliaetus*	Osprey			VO
	Pardalotus	*striatus*	Striated Pardalote			VO
	Pelecanus	*conspicillatus*	Australian Pelican			VO
	Phalacrocorax	*sulcirostris*	Little Black Cormorant			VO
	Phalacrocorax	*varius*	Pied Cormorant			VO
	Phaps	*chalcoptera*	Common Bronzewing			VO
	Philemon	*corniculatus*	Noisy Friarbird			VO
	Platalea	*regia*	Royal Spoonbill			VO
	Platycercus	*adscitus*	Pale-headed Rosella			VO
	Podargus	*strigoides*	Tawny Frogmouth			VO
	Rhipidura	*rufifrons*	Rufous Fantail			VO
	Rhipidura	*fuliginosa*	Grey Fantail			VO
	Rhipidura	*leucophrys*	Willie Wagtail			VO
	Scythrops	*novaehollandiae*	Channel-billed Cuckoo			VO
	Sericornis	*frontalis*	White-browed Scrubwren			VO
	Sphecotheres	*viridis*	Figbird			VO
	Sterna	*sumatrana*	Black-naped tern			VO
	Sternus	*vulgaris*	Starling			VO
	Strepera	*graculina*	Pied Currawong			VO
	Streptopelia	*chinensis*	Spotted Turtle-dove			VO
	Taeniopygia	*bichenovii*	Double-barred Finch			VO
	Threskiornis	*molucca*	Australian White Ibis			VO
	Threskiornis	*spinicollis*	Straw-necked Ibis			VO
	Trichoglossus	*chlorolepidotus*	Scaly-breasted Lorikeet			VO
	Trichoglossus	*haematodus*	Rainbow Lorikeet			VO
	Tringa	*brevipes*	Grey-tailed Tattler		M	VO
	Vanellus	*miles*	Masked Lapwing			VO
	Zosterops	*lateralis*	Silvereye			VO
Amphibians	*Adelotus*	*brevis*	Tusked Frog	V		VO
	Bufo	*marinus*	Cane Toad			VO
	Crinia	*signifera*	Common Eastern Froglet			VO
	Limnodynastes	*peronii*	Stripped Marsh Frog			VO,CI
	Litoria	*caerulea*	Green Tree Frog			VO
	Litoria	*fallax*	Eastern Dwarf Tree Frog			VO

TERRESTRIAL VERTEBRATE FAUNA OBSERVED AT THE NEBP SITE

Conservation Status Codes:
NC Act - E=Endangered**; V**=Vulnerable**; R**=Rare
EPBC Act - E=Endangered; **V**=Vulnerable; **M** = Migratory

Sightings Codes:
ET=elliott trapping*; **VO**=visual observation; **SP**=spot light; **CI**=call identification; **SC**=scats; **TR**=tracks; **FS**=feeding signs; **N**=nest
(* : all elliott trapping observations based on surby work carried out by Yurrah Pty Ltd (2004)).

	Genus	***Species***	**Common Name**	**Status**		**Sighting**
				NC Act	***EPBC Act***	
	Litoria	*peronii*	Peron's Tree Frog			CI
Reptiles	*Carlia*	*vivax*	Tussock Rainbow Skink			VO
	Cryptoblepharus	*virgatus*	Wall Lizard			VO
	Demansia	*psammophis*	Yellow-faced Whip Snake			VO
	Dendrelaphis	*punctulata*	Green Tree Snake			VO
	Lampropholis	*delicata*	Grass Skink			VO
	Morelia	*spilota*	Carpet or Diamond Python			VO
	Morethia	*taeniopleura*	Fire-tailed skink			VO
	Pogona	*barbata*	Bearded Dragon			VO
	Pseudechis	*porphyriacus*	Red-bellied Black-snake			VO
	Pseudonaja	*textilis*	Eastern Brown Snake			VO
	Tiliqua	*scincoides*	Eastern Blue-tongued Lizard			VO
	Physignathus	*lesueurii*	Eastern water dragon			VO

APPENDIX F

Caboolture Plan Code Compliance Assessments

Nature Conservation Overlay Code Compliance Assessment

Specific Outcomes	Probable Solutions	Compliance Assessment
Assessment and Retention of Nature Conservation Areas and Ecological Corridors		
SO1 Development does not adversely affect Significant Vegetation, Wetlands, ecological corridors or habitat for endangered, vulnerable or rare species and other values of biodiversity significance.	**S1.1** Development is sited on existing cleared land and is not located within an ecological corridor.	The site encompasses an area of approximately 769 ha, including 9km of frontage to the Caboolture River, of which approximately: • 349.4 ha (or 45%) will be developed for industry, marina, commercial and residential purposes; and • 419.6 ha (or 55%) will encompass the Open Space precincts, including the golf club, championship golf course, community multi-use area and public open space areas. The majority of the 349.4 ha that will be developed for industry, marina, commercial and residential purposes currently supports cleared grassland that is of relatively low ecological value owing to a history of vegetation clearance, on-going disturbance (i.e. livestock grazing) and extensive weed invasion. Native vegetation remaining on the site has generally been reduced to isolated patches and narrow bands associated with various drainage lines that traverse the site. Approximately 77% of the native vegetation remaining on the site will be incorporated within the Open Space precincts. Notwithstanding the above, the northern sectors of the site that adjoin the Caboolture River are mapped as forming part of an ecological corridor pursuant to Overlay Map CO10: Nature Conservation of the Caboolture Shire Plan. The ecological values and features of these mapped areas, as observed during field surveys, can be summarised as follows. 1. The majority of land included within the ecological corridor has an extensive history of disturbance including broad-scale vegetation clearance, cultivation of exotic pine plantations and more recently livestock production. As such, the ecological corridor values of this area are low owing to its floristic depaucity, poor structural complexity and high density and diversity of weed species. 2. With, the exception of the Scribbly gum and paperbark forest along the western boundary, native vegetation remaining within the site has generally been cleared to thin bands that line the Caboolture River and associated drainage lines that traverse the site. 3. The open nature of vegetation across most of the site, limit its value as habitat to small ground dwelling fauna that would essentially be exposed to predators whilst moving between areas that remain vegetated. It is more likely that the northern sections of the site are utilised by highly mobile species such as birds and bats, during broader movements throughout the locality. With regard to the above, the Structure Plan provides for the retention of the majority of land that is identified as forming part of an ecological corridor within the Open Space Precinct. However, it is recognised that there will be some minor incursion on the connectivity of this Open Space precinct resulting from the construction of the marina entrance. In this regard the following are noted. 1. The Structure Plan provides for the retention of approximately 419.6 ha of land, including 9 km of river frontage, as public open space. The Open Space precinct in the northern section of the site

Specific Outcomes	Probable Solutions	Compliance Assessment
		encompasses approximately 261 ha and will effectively form a corridor ranging from 100 – 750m in width, with an average width of over 350 m, between the development and the Caboolture River. 2. As previously discussed, avifauna are the most frequently observed fauna group utilising habitat resources along the Caboolture River and it is unlikely the marina mouth will present a major impediment to the movement of these species. 3. As outlined in the Landscape Master Plan Report (LMPR) prepared by PLACE planning and Design, it is intended for the Caboolture River Riparian zone to be rehabilitated and revegetated in a manner that increases the ecological values and functions of the degraded habitats that currently exist within the riparian zone. 4. The Championship Golf Course will also function as an ecological corridor facilitating the movement of ground dwelling and arboreal fauna around the southern edge of the marina to the western boundary of the site. In conclusion, the Structure Plan provides an overall net benefit to the ecological corridor values of the northern section of the site through the retention, protection and rehabilitation of native vegetation. As such, the Structure Plan for the development of NEBP is not contrary to the purpose and intent of **S.1.1.**
	S1.2 Significant Vegetation, Wetlands, habitats for endangered, vulnerable and rare species within nature conservation areas and ecological corridors indicated on the overlay map, are not disturbed.	Pursuant to the administrative definition in Part 2 of the Caboolture Shire Plan the site is identified as supporting the following. **Significant Vegetation** Pursuant to the Central Planning Overlay Map CO10 – Nature Conservation, a number of areas of the site are identified as supporting State, Regional and Local Nature Conservation Areas, including: • the paperbark communities within the southern portions of the site • sections of the mixed marine communities associated with Caboolture River and drainage lines that traverse the central portion of the site; • the cultivated vegetation associated with the old homestead sites; • the Scribbly gum forest and areas of the paperbark regrowth vegetation along the western boundary of the site; • an area of cleared grassland adjoining the north-eastern boundary of the Scribbly gum vegetation; and • areas of disturbed Saltwater couch grassland. **Wetlands** Pursuant to the definitions provided in Part 2 of the Caboolture Shire Plan, the site supports natural and artificial drainage lines with marine and terrestrial riparian vegetation and constructed dams.

Specific Outcomes	Probable Solutions	Compliance Assessment
		Habitat for endangered, vulnerable and rare species The remnant vegetation along the western boundary of the site has been identified by the EPA as supporting 'essential habitat' (refer Appendix A) for the following fauna species of recognised conservation significance pursuant to the *NC Act*: • Koala (*Pascolarctos cinereus*) – essential habitat - Scribbly gum forest identified as RE 12.5.3 on the Certified RE Map; and • Wallum froglet (*Crinia tinnula*) – essential habitat - Paperbark open forest identified as RE 12.3.5 on the Certified RE Map. Both of these vegetation types within the site are also recognised as Nature Conservation Areas (State and Regional) pursuant to Central Planning Overlay Map CO10 – Nature Conservation. The Structure Plan provides the retention and protection of the majority of the Significant Vegetation identified along the Caboolture River and associated drainage lines that traverse the site. Similarly, the majority of natural wetland areas will also be retained and protected within the Open Space Precincts. However, development of the site in general accordance with the Structure Plan will necessitate the removal of approximately: • 1.7 ha (or 15%) of the paperbark forest in the south-eastern portion of the site; • 0.81 ha (or 17%) of the paperbark forest in the south western corner of the site; • 12.2 ha (or 79%) of remnant vegetation identified as supporting RE 12.5.3 (i.e. Scribbly gum forest) and 'essential habitat' for the Koala, along the western boundary of the site; and • 2.0 ha of disturbed Saltwater couch grassland associated with a drainage line along the north-eastern boundary of the site for the purposes of constructing the marina. As such, development of the site in general accordance with the Structure Plan can not achieve compliance with **S1.2.** In this regard, the following material is submitted that demonstrates the development satisfies **SO1** in how it responds to significant vegetation, wetlands and habitat for threatened species through alternative measures. In the first instance it is recognised that development of the site will have an impact on some areas of significant vegetation, wetlands and habitat for threatened wildlife through the removal of the aforementioned communities. However development of NEBP will incorporate a number of strategies to compensate for any adverse effects on areas of ecological value. These strategies are discussed in detail in Section 7.4: Impact Mitigation and Management Strategies and can be summarised as follows. 1. The majority of the site (i.e. approximately 55%) will form part of the Open Space Precinct which encompasses the Caboolture River riparian zone, the majority of marine vegetation communities and the majority of Paperbark vegetation on the site. These areas are currently in a degraded state owing to a history of disturbance and on-going edge effects (i.e. weed invasion). Extensive revegetation and rehabilitation of the Open Space precincts will be undertaken in order to

Specific Outcomes	Probable Solutions	Compliance Assessment
		reinstate and enhance the ecological values and features of the currently degraded habitats. 2. A vegetation offset in accordance with DNRW's "*Policy for Vegetation Management Offsets - 23 August 2007"* will be provided to compensate for the removal of vegetation identified as supporting RE 12.5.3. 3. The site currently supports infestations of a variety of declared pest plants which are functioning as source populations for the invasion of native vegetation remaining on the site. Development of the site will remove these source populations and provide management measures for weed infestations within areas of retained native vegetation. 4. Livestock are a significant degrading force currently in action on the site. The impact of these animals on remaining native vegetation communities is highly evident through trampling, grazing and increased wee invasion. Development of the site would result in the removal of this degrading factor and hence improve the ecological values of native vegetation remaining on the site. 5. Education facilities and increased public surveillance will serve to protect wetland and native communities retained on the site from adverse activities such as rubbish dumping, vandalism. 6. Areas of retained native vegetation will be protected through best practice management measures (i.e. storm water quality treatment, roadway design) and the incorporation of appropriate buffers between conflicting land uses. In conclusion, development of the site will have some negative impacts on areas of native vegetation and fauna habitat within the site. However, these impacts will be offset through greater benefits to the overall ecological integrity of the site through the protection and enhancement of native vegetation that will be retained within areas of Open Space. Development of the site in general accordance with the Structure Plan is considered to satisfy the purpose and intent of **SO1** through: • achieving compliance with **S1.1**; and • compensating for negative impacts on areas with ecological value by providing a net increase in the ecological integrity and function attributes of the site as a whole.

Specific Outcomes	Probable Solutions	Compliance Assessment
SO2 Development layout and planning maximises the functioning of ecological corridors which: (a) ensures low intensity land uses are situated directly adjacent to the corridor; (b) ensures viability and (c) functionality of the corridor; (d) maximises connectivity to neighbouring ecological (e) corridors; (f) maximises connectivity to other large areas of habitat retained on-site or on neighbouring sites; (g) ensures retained vegetation is configured to provide low edge to area ratios and avoid narrowing or bottlenecks within the corridor; and (h) ensure road infrastructure avoids core corridor vegetation, or where not possible, provides for wildlife under / overpasses and minimises the intrusion, length and width.	**S2.1** A core ecological corridor of at least 100.0 metres in width is provided.	The Structure Plan provides for the dedication of approximately 261 ha of land along northern boundary of the site, including 9 km of frontage to the Caboolture River, as Open Space. This Open Space area effectively provides a buffer ranging from 100 – 750m with an average width in excess of 300 m. As outlined in the Landscape Master Plan Report prepared for the site the intent for this area is the: • conservation of existing vegetation; • enhancement of the ecological values of the area through revegetation and rehabilitation; and • creation of controlled public access to the area for passive recreational opportunities along Caboolture River (i.e. canoeing, walking, bird watching etc). With regard to the above, the Open Space precinct will effectively provide an ecological corridor in accordance with the requirement of **S2.2**. While, it is recognised that there is some minor incursion of the continuity of the buffer by the marina entrance, the ecological implications are considered to be low given that: • the corridor is most likely to be utilised by highly mobile species (i.e. birds, bats, macropods and koala); and • an additional movement corridor to the south of the marina will be provided through the Championship golfcourse.
	S2.2 Revegetation or rehabilitation occurs in degraded or weed infested areas.	The Landscape Master Plan Report (LMPR) prepared for the site recognises the need to rehabilitate and revegetate degraded areas that will be incorporated within the Open Space precincts. The LMPR provides a conceptual context for the manner in which Open Space areas will be rehabilitated to facilitate the desired conservation objectives as well as allowing for future occupants to enjoy the natural aspects of the Caboolture River through the provision passive recreational opportunities and facilities.
	S2.3 Local native species that reflect the structural and floristic diversity of vegetation on the site or surrounds are used to rehabilitate and revegetate ecological corridors and Nature Conservation Areas.	The Landscape Master Plan Report (LMPR) provides preliminary specifications for the selection of species to be used in revegetation programs throughout the site. These specifications are summarised as follows. • revegetation and environmental rehabilitation will be undertaken by combination of direct planting, seeding and regeneration of endemic species; • buffer zones and open space areas are to be revegetated using native species endemic to native vegetation types that occur with the site locality; • plant species to the inherent plant communities within the site will be utlised relevant to topographic and environmental parameters; and • endemic provenance is to be ensured as far as practicable through the collection of seed and propagules from native vegetation within and site locality;

Specific Outcomes	Probable Solutions	Compliance Assessment
	S2.4 Revegetation assists in consolidating and linking existing Significant Vegetation.	The majority of revegetation works will take place within areas that are to be dedicated to the Open Space precinct. With reference to the Structure Plan the open space precincts encompass the majority of areas identified as supporting Significant Vegetation. In addition to retaining the connectivity of these communities within the Open Space network, the development of NEBP will include extensive landscaping works in accordance with the Landscape Master Plan Report (LMPR) which aims to: • rehabilitate degraded habitats within the site, particularly the Caboolture River riparian zone; • enhance the ecological values and health of open space areas; • protect ecological values and functions of the Caboolture River and ultimately Moreton Bay; and • control and manage weed populations. In conclusion, the Structure Plan achieves compliance with **S2.4** through maintaining connectivity between the majority of areas identified as Significant Vegetation within the site and also providing for the enhancement of these areas to achieve a net ecological benefit.
SO3 Ecological corridors are retained and protected from development to facilitate wildlife movement and link significant vegetation, wetlands, habitat for endangered, vulnerable or rare species and other values of biodiversity significance.	**S3.1** No solution provided.	As previously discussed, the majority of vegetation that contributes to the "corridor" mapped across the northern sections of the site will be retained within the 261 ha of Open Space along the Caboolture River. Some fragmentation of this "corridor" would be required in order to establish the entry point to the proposed marina. However, as previously discussed, the majority of species that currently utilise this corridor are likely to be highly mobile (e.g. birds and bats) and, as such, their movement along the "corridor" would not be significantly impeded by the creation of the marina entrance. Given the above the Structure Plan achieves satisfies **S03** through achieving compliance with **S3.1.**
Buffering of Nature Conservation Areas		
SO4 Separation buffers are provided to protect Nature Conservation Areas, ecological corridors and areas of coastal hazard from the edge effects of development.	**S4.1** Developed areas should be separated from Nature Conservation Areas by a vegetated access way or park of at least 20.0 metres.	Not all areas that are identified as Nature Conservation Areas on Map CO10: Nature Conservation of the Caboolture Shire Plan will be retained as part of the development. However, the Structure Plan does retain the majority of Nature Conservation Areas within: • the 261 ha of open space associated with the Caboolture River; • 151 ha of Championship Golf Course; and • 8 ha of opens space in the north-western corner of the site. In most instances, the open space boundaries accommodate the required 20 m between development

Specific Outcomes	Probable Solutions	Compliance Assessment
		and the Nature Conservation Areas. In some areas this will not be possible, but as previously discussed the overall ecological net benefit that will be generated through development of the site compensates for any adverse effects that may occur as a result of non-compliance with **S4.1**.
	S4.2 Developed areas should be separated from the Conservation Estate by a vegetated access way or park of at least 100.0 metres.	No Conservation Estates occur within or directly adjacent to the site.
	S4.3 Ecological corridors are separated from development by a vegetated access way or park of at least 20.0 metres.	The majority of the area of the site identified as contributing to an Ecological Corridor on Overlay Map CO10 of the Caboolture Shire Plan will be included in the 261 ha of open space within the northern boundary of the site. This Open Space precinct will encompass the Caboolture River Riparian zone and larger areas of degraded grassland. In this regard, the Caboolture River riparian zone has a greater value as a fauna movement corridor than the surrounding degraded grassland and will be sufficiently protected through the: • provision of a buffer ranging from 100 – 750m between the Caboolture River and the developed areas of the site; • the revegetation and rehabilitation of adjoining degraded grasslands; and • removal of source populations for existing and future weed infestations. In conclusion the Structure Plan achieves compliance with **S4.3.**
Works associated with the development		
SO5 The location of infrastructure does not disturb Significant Vegetation and Wetlands.	**S5.1** Infrastructure does not traverse Significant Vegetation and Wetlands.	Development of the site general accordance with the Structure Plan will necessitate the removal of some areas identified as Significant Vegetation and Wetlands pursuant to the Caboolture Shire Plan. As such, the proposal can not achieve compliance with **S5.1**. However, the response to **S1.2** demonstrates that the overall ecological net benefit that will provided by the development through the retention and protection of approximately 55% of the site is considered to more than adequately compensate for the loss of these small areas of vegetation.
	S5.2 Roads adjacent to Significant Vegetation and Wetlands incorporate traffic calming devices to minimise disturbance to wildlife.	The feasibility of incorporating traffic calming devices on roads adjacent to retained areas of significant vegetation would be investigated and addressed in the relevant traffic report submitted in support of the development application.

Specific Outcomes	Probable Solutions	Compliance Assessment
	S5.3 Wildlife under/overpasses are provided to facilitate wildlife movement.	The provision of wildlife under/overpasses in appropriate locations will be addressed during the detailed design phase of development.

Catchment Protection Overlay Code Compliance Assessment

Specific Outcomes	Probable Solution	Compliance Assessment
Assessment of Retention of Significant Vegetation		
SO1 Significant Vegetation is retained and consolidated so as to: (a) Protect the Shire's nature conservation and aesthetic values; (b) Maintain a healthy and productive agricultural environment including protection from salinity, erosion and land degradation; (c) Maintain and enhance water quality, in-stream and riparian habitat, to protect Potable Water Catchments; (d) Maintain and enhance water quality and riparian vegetation in order to protect freshwateraquatic ecosystems and receiving systems, particularly estuarine and marine environments; (e) Provide a linkage with existing Nature Conservation areas; and (f) Maintain natural ecosystem functions and assist in the control of weeds and pests.	**S1.1** No solution provided.	The site is currently in highly degraded state owing to a history of vegetation clearance and agricultural land management practices. As such, Significant Vegetation on the site has been reduced to disjunct areas of remaining native vegetation interspersed amongst cleared and degraded grassland. Native vegetation remaining on the property is exposed to a variety of degrading processes, most notably weed invasion and livestock grazing. As previously discussed, the NEBP Development will provide a net ecological benefit to the entire site, including retained areas of Significant Vegetation, through: • the retention of approximately 55% of the site within the Open Space network; • extensive rehabilitation of degraded habitats within the site, including the Caboolture River riparian zone; • enhancement of the ecological values and health of open space areas; • protection on ecological values and function of the Caboolture River and ultimately Moreton Bay; • weed control and management; • controlled public access for the enjoyment of the environmentally sensitive areas (i.e. Caboolture River); • provision of local job opportunities in the fields of landscape construction, landscape maintenance, revegetation and environmental rehabilitation; • provision of cooperative partnership arrangements and other opportunities for community based groups such as Caboolture Regional Environmental Education Centre (CREEC) to contribute in a mutually beneficial way to the development of the site; and • the implementation of Water Sensitive Urban Design (WSUD) and Crime Prevention Through Environmental Design (CPTED) principles.
SO2 The environmental values of Significant Vegetation, Wetlands and Waterways are maintained by: (a) retention of Significant Vegetation and vegetation associated with Wetlands and Waterways;	**S2.1** Revegetation utilises local native species that reflect the structural and floristic diversity of Significant Vegetation, Waterway or Wetland vegetation on the site or surrounds and assists in consolidating and linking existing Significant Vegetation.	The material given in response to Specific Outcome 2 (**SO2**) of the Nature Conservation Overlay Code demonstrates that the proposal achieves compliance with **S2.1** of the Catchment Protection Overlay Code.

Specific Outcomes	Probable Solution	Compliance Assessment
(b) consolidating and linking existing Significant Vegetation.		
Bank Stability and In-Stream Habitat		
SO3 Bank stability and in-stream habitat is protected from degradation and maintained or improved at a standard commensurate with pre-development environmental conditions.	**S3.1** No solution provided.	Owing to a history of vegetation clearance the Caboolture River riparian zone is currently in highly degraded state and is displaying varying levels of instability. The NEBP development provides for the retention and protection of the Caboolture River riparian zone as part of the 261 ha of open space area that will encompass the northern sectors of the site. The inclusion of this open space area in the Structure Plan and other facets of the development will protect and improve bank stability and in-stream habitat through: • appropriate buffering between the Caboolture River and developed area of the site; • the enhancement of fish habitat and a decrease in erosion and bank instability through the rehabilitation of the riparian buffer zone; • improved water quality through improved site drainage and the implantation of Water Sensitive Urban Design principles ; • education of the public to increase awareness and appreciation of the sensitive nature of the riparian zone; and • controlled public access to the riparian zone to conserve it's ecological integrity whilst enabling future occupiers to enjoy the Caboolture River. The construction and establishment of the marina basin will be designed in a manner that protects these ecological values and that is consistent with the purpose and intent of the relevant provisions of the *CPM Act*, the *Fisheries Act 1994* and the *Environmental Protection Act 1994*.

Specific Outcomes	Probable Solution	Compliance Assessment
Buffering of Waterways and Wetlands		
S04 Protect and maintain waterway corridors and their hydrologic, water quality and ecological function by: (a) providing adequate buffers to waterways; and (b) protecting natural drainage (c) channels and riparian habitat; and (d) providing adequate habitat connectivity between waterways.	**S4.1** Development is set back from the edge of the top of the bank or HAT level (whatever is greater) of a Waterway or Wetland a distance of: (a) at least forty (40) metres to all Catchment Protection Minor waterways; (b) at least one hundred (100) metres to Wetland Protection Areas; and (c) at least one hundred (100) metres to Catchment Protection Major Waterways.	The set backs required to achieve compliance with **S4.1** will not be achievable in some areas of the NEBP development. However the NEBP development will incorporate a number of strategies that will compensate for any adverse effects that may result from non-compliance with the nominated buffer distances stipulated in **S4.1.**
	S4.2 Constructed or artificial waterways that are to discharge into existing waterways should have a minimum vegetated buffer width of: (a) 10.0 metres for a constructed freshwater, marine, estuarine or brackish waterway. (b) 40.0 metres for freshwater constructed waterways greater than 1.0 metre excavation depth. (c) 100.0 metres for marine or estuarine constructed waterways greater than 1.0 metre excavation depth.	The proposed plan of development does not contain provisions for the incorporation of constructed or artificial waterways.
SO5 Protect and maintain the environmental values of receiving environments by: (a) reducing the cumulative impact of pollutant transport and deposition; (b) protecting higher order streams and ephemeral waterways; and (c) providing successive buffering of waterways between freshwater, estuarine and marine environments.	**S5.1** No solution provided.	This Specific Outcome is not considered as part of this Terrestrial Ecology Assessment. ***Note:*** *It may be appropriate for the setback to incorporate vegetated areas or areas to be rehabilitated. Refer to Planning Scheme Policy 14 Landscaping for details to include in revegetation plans.* ***Note:*** *Classification of a constructed waterway, with regard to determining buffer width, is dependant upon the type of waterway that the constructed waterway discharge will be received by (i.e. if a constructed waterway discharges directly into a marine or estuarine waterway the constructed waterway will be considered a marine/estuarine waterway (regardless of water quality attributes of the constructed waterway)).When a*

Specific Outcomes	Probable Solution	Compliance Assessment
		constructed waterway is to discharge into another currently unmapped constructed waterway the buffer width is determined by the buffer width of the receiving constructed waterway.
Drainage and Other Works		
SO6 The natural hydrological regimes of Waterways and Wetlands, are maintained.	**S6.1** The height of groundwater tables is not altered and natural seasonal height fluctuations maintained.	This Specific Outcome is not considered as part of this Terrestrial Ecology Assessment. ***Note:*** *Natural hydrological regimes include natural water quality, quantity and groundwater conditions including sub-surface drainage paths. The purpose of maintaining these regimes is to protect and encourage natural recharge rates to aquifers and contributions to base flow in streams (environmental flows).* ***Note:*** *Development should be carried out in accordance with an approved hydrological assessment report that ensures any changes to overland flow or groundwater do not adversely affect the hydrological conditions or water quality within a waterway or receiving waterway. A site based stormwater management plan may be required in accordance with Planning Scheme Policy 19 Stormwater.*
SO7 Development does not increase the discharge or movement of groundwater and associated contaminants, such as iron, aluminium, nutrients or total organic carbon, to a waterway or to a place where contaminants may be transported to a waterway.	**S7.1** Development works maintain or enhance groundwater aquifer interactions with waterways to a standard commensurate with pre-development environmental conditions.	This Specific Outcome is not considered as part of this Terrestrial Ecology Assessment.
SO8 The natural water quality of specific waterway types is protected.	**S8.1** No solution provided.	This Specific Outcome is not considered as part of this Terrestrial Ecology Assessment.
SO9 Significant Vegetation and Wetlands are retained.	**S9.1** Infrastructure does not traverse Significant Vegetation.	This issue is addressed in response to **S5.1** of the Nature Conservation Code.
	S9.2 Roads adjacent to Significant Vegetation and Wetlands incorporate traffic calming devices to minimize disturbance to wildlife.	The feasibility of incorporating traffic calming devices on roads adjacent to retained areas of significant vegetation and wetlands would be investigated and addressed in the relevant traffic report submitted in support of the development application.

Specific Outcomes	Probable Solution	Compliance Assessment
	S9.3 Wildlife under/overpasses are provided to facilitate wildlife movement. ***Note:*** *Refer to the Planning Scheme Policy 6 Ecological Assessment which contains information about designing infrastructure to facilitate wildlife movement.*	The feasibility of incorporating wildlife under/over passes on roads adjacent to retained areas of significant vegetation and wetlands would be investigated and addressed at the detailed design phase of development.
SO10 The biodiversity of specific vegetation types associated habitat values, in particular endangered, vulnerable or rare species is protected or enhanced.	**S10.1** Vegetation corridors between significant vegetation and other vegetation are maintained or provided.	This issue is addressed in response to the Specific Outcomes contained within the Nature Conservation Code.
Erosion Prone Areas		
SO11 Natural coastal processes are able to be managed and life and property are protected from development by ensuring that: (a) development does not occur within Erosion Prone Areas, except for temporary or relocatable structures for safety or recreational purposes (eg. picnic tables, barbeques, walking trails, bikeways, lookouts and elevated decks) associated with a development can be located within erosion prone areas; (b) existing intensities of development are not exceeded; and (c) existing building alignments of neighbouring properties are not exceeded.	**S11.1** No solution provided.	The 'Preliminary Assessment of Riverbank Erosion' report ("the Bank Erosion report") prepared by Cardno (QLD) Pty Ltd concluded that the Caboolture River is currently displaying varying degrees in bank instability and erosion. The Bank erosion report concluded that the primary cause of the observed bank instability and erosion is the history of vegetation clearance and the general lack of appropriate buffers between altered land uses (i.e. plantation forests and livestock grazing) and the river edge. The Structure Plan has been designed with great emphasis on the design, construction and operational phases of the NEBP development to mitigate potential anthropogenic impacts through good environmental, social and economic planning. The NEBP development will address disturbance to riparian vegetation associated with altered land uses and unmanaged surface water runoff through: • the revegetation and rehabilitation of 9km of the riparian zone within the NEBP project area that is severely degraded; • maintenance a 100m riparian buffer between the development and high water mark (with the exception of the marina lock allowing boat access to and from the Caboolture River by marina users); • investing $18 million in managing stormwater runoff from a previously unmanaged 763 ha former pine plantation; • committing to a mariner education program by the Marina Management about the Caboolture River ecosystem; and

Specific Outcomes	Probable Solution	Compliance Assessment
		• adhering to Government objectives for protecting and preserving the environment. A riparian restoration plan for the open space precinct will be prepared in consultation with a number of relevant stakeholders including the Department of Primary Industries and Fisheries (DPIF), Department of Natural Resources Mines and Water (DNRW), Caboolture Shire Council, consultants, land owners and local catchment/environment groups (e.g. Caboolture Regional Environmental Education Centre). The Landscape Master Plan Report (LMPR) prepared for NEBP by PLACE Planning and Design also recognises the importance of the riparian zone and the necessity to conduct rehabilitation works to improve the ecological values and functions of the existing riparian vegetation. The LMPR highlights the potential for construction of controlled public access (i.e tracks, boardwalks and bike paths) and passive recreational infrastructure (e.g. canoe landings, bird hides, interpretive displays etc) to facilitate enjoyment of the Caboolture River. The design and construction of this infrastructure will need to compliment the objectives of the restoration plan and be carried out in a manner that minimises disturbance to the riparian zone while enhancing the values of the Caboolture River.