



**Department of Public Works – Project
Services**

Final Report

**Ecological Assessment
Spring Creek, Gatton**

May 2007

“IMPORTANT NOTE”

Apart from fair dealing for the purposes of private study, research, criticism, or review as permitted under the Copyright Act, no part of this report, its attachments or appendices may be reproduced by any process without the written consent of Natural Solutions Environmental Consultants Pty Ltd (“Natural Solutions”). All enquiries should be directed to Natural Solutions.

We have prepared this report for the sole purposes of Department of Public Works – Project Services (“Client”) for the specific purpose only for which it is supplied. This report is strictly limited to the Purpose and the facts and matters stated in it and does not apply directly or indirectly and will not be used for any other application, purpose, use or matter.

In preparing this report we have made certain assumptions. We have assumed that all information and documents provided to us by the Client or as a result of a specific request or enquiry were complete, accurate and up-to-date. Where we have obtained information from a government register or database, we have assumed that the information is accurate. Where an assumption has been made, we have not made any independent investigations with respect to the matters the subject of that assumption. We are not aware of any reason why any of the assumptions are incorrect.

This report is presented without the assumption of a duty of care to any other person (other than the Client) (“Third Party”). The report may not contain sufficient information for the purposes of a Third Party or for other uses. Without the prior written consent of Natural Solutions:

- a) this report may not be relied on by a Third Party; and
- b) Natural Solutions will not be liable to a Third Party for any loss, damage, liability or claim arising out of or incidental to a Third Party publishing, using or relying on the facts, content, opinions or subject matter contained in this report.

If a Third Party uses or relies on the facts, content, opinions or subject matter contained in this report with or without the consent of Natural Solutions, Natural Solutions disclaims all risk and the Third Party assumes all risk and releases and indemnifies and agrees to keep indemnified Natural Solutions from any loss, damage, claim or liability arising directly or indirectly from the use of or reliance on this report.

In this note, a reference to loss and damage includes past and prospective economic loss, loss of profits, damage to property, injury to any person (including death) costs and expenses incurred in taking measures to prevent, mitigate or rectify any harm, loss of opportunity, legal costs, compensation, interest and any other direct, indirect, consequential or financial or other loss.

Quality Assurance Statement				
Revision No.	Author	Reviewer	Approved for Issue	
			Name	Date
0	Nicole Lechner, Tyrone Lavery	Rob Friend		
1	Nicole Lechner, Tyrone Lavery	Rob Friend	Rob Friend	11/05/07

NATURAL SOLUTIONS ENVIRONMENTAL CONSULTANTS PTY LTD	
Brisbane Office: Suite 16, Level 2 Central Brunswick, Cnr Brunswick & Martin Streets FORTITUDE VALLEY QLD 4006 PO Box 1156, Fortitude Valley Qld 4006 Tel: (07) 3124 9400 Fax: (07) 3124 9499	Cairns Office: Level 2, 26 Florence Street CAIRNS QLD 4870 PO Box 6935, Cairns Qld 4870 Tel: (07) 4041 3522 Fax (07) 4051 4141
Sunshine Coast Office - Steve Dudgeon PO Box 1522 NOOSA HEADS QLD 4567 Mob: 0437 545 528	Townsville Office - Shayne Lowe Level 4, Northtown Tower 280 Flinders Mall (access via Ogden Street) TOWNSVILLE QLD 4810 PO Box 279, Townsville Qld 4810 Tel: (07) 4772 5033 Fax: (07) 4772 5044 Mob: 0418 783 560

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1.0 INTRODUCTION	3
1.1 Background.....	3
1.2 Site Description	3
1.3 Scope of Work / Objectives.....	3
1.4 Statutory Considerations	6
1.4.1 Federal	6
1.4.2 State	6
1.4.3 Local.....	11
2.0 METHODOLOGY	12
2.1 Background Review	12
2.2 Consultation.....	12
2.3 Field Assessment & Survey Methods	12
2.3.1 General.....	12
2.3.2 Flora Survey Methodology	12
2.3.3 Fauna Survey Methodology	13
3.0 FLORA.....	17
3.1 Vegetation Communities.....	17
3.2 Discussion	18
3.3 Significant Species.....	20
3.4 Weed Species	23
4.0 FAUNA	24
4.1 Species Observed.....	24
4.2 Fauna Habitat.....	27
4.3 Significant Species.....	29
4.4 Pest Species	31
5.0 BIODIVERSITY VALUES	33
5.1 Introduction.....	33
5.2 Site Assessment.....	33
5.3 Corridors and Linkages	34

5.4	Waterways	35
6.0	PROPOSED DEVELOPMENT	36
6.1	Opportunities and Constraints	36
6.2	Ecological Constraints	36
6.3	Recommendations	38
7.0	CONCLUSION	40
8.0	REFERENCES	41

FIGURES

Figure 1	Site Locality	4
Figure 2	Aerial Photograph	5
Figure 3	Regional Ecosystem Mapping	8
Figure 4	Fauna Survey Locations	14
Figure 5	Site Vegetation Communities.....	19
Figure 6	Location of significant species recorded on the site	32
Figure 7	Environmental Constraints.....	37

TABLES

Table 1	Fauna Survey Techniques Utilised	15
Table 2	Site Vegetation Communities.....	17
Table 3	Likelihood of Significant Plant Species Occurring on the Site	21
Table 4	Common weeds occurring on the site.....	23
Table 5	Fauna Species Identified on the Site	24
Table 6	Recognised Koala Food Trees Recorded on the Site.....	28
Table 7	Significant Fauna Potentially Occurring Within the Site.....	30
Table 8	Biodiversity and Conservation Value Assessment Summary	33
Table 9	Categories of environmental constraint mapped on the site.....	36

APPENDICES

APPENDIX 1	Database Search Results	A
APPENDIX 2	RE Descriptions.....	B
APPENDIX 3	Flora Species List	C

EXECUTIVE SUMMARY

Natural Solutions was commissioned by the Department of Public Works – Project Services to undertake an Ecological Assessment on land described as Lots 238 and 240 on CA31519, Lot 242 on CA31612 and Lot 242 on CA31710, Spring Creek (herein referred to as ‘the site’). The primary objective of the assessment was to investigate the potential development opportunities and constraints on the subject site in regards to the site’s ecological values.

Two ecologists from Natural Solutions completed an initial site inspection in early April 2007 and further detailed flora (including transects) and fauna (including trapping) surveys during the 16th – 20th April 2007.

The site consists of very gentle sloping land with a predominantly easterly aspect and a waterway which rises within the Lockyer Forest Reserve and drains to the south boundary of the site.

Ten broad vegetation communities were identified during the field assessment of the site and these included areas of remnant and non-remnant vegetation. Due to past land use, large areas of the site have been cleared for farming / grazing uses. Therefore, the majority of vegetation is regrowth non-remnant open forest dominated by various eucalypt species. Large areas of the site are also dominated by grasslands with isolated trees. Despite this there are portions of the site that are considered remnant vegetation. However, the remnant vegetation communities identified on the site differ from those that are currently mapped by EPA/DNRW on the site. The main differences between the certified mapping and what was identified on site include incorrect landzone identifications and differences in species assemblages.

It is important to note that two endangered REs were located on the site (RE12.5.2 and RE12.3.3c). One of these REs (12.3.3c) is listed as a critically endangered ecological community, under the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*. Also important is the fact that three plant species listed in the *EPBC Act 1999* and / or the *Nature Conservation (Wildlife) Regulations 2006* were recorded on the site, including *Melaleuca irbyana* (Rare), *Eucalyptus taurina* (Vulnerable) and *Grevillea singuliflora* (Rare). Several threatened plants are also considered to be highly likely to occur or may possibly occur on the site.

A fairly large fauna species list was compiled which included a total of nine amphibians, ten reptiles, 67 birds and 30 mammals (including two *NC(W)R 2006* listed significant species, the koala and little pied bat). The greatest habitat asset of the site is that it adjoins the Lockyer Forest Reserve, a large continuous tract of remnant bushland. As a result, species that would normally not be able to permanently exist within the fragmented areas of remnant vegetation on the site may be able to do so with the additional resources provided by the adjacent reserve. The creek that runs through the site also provides another highly significant habitat feature within the study area. A variety of eucalypt and allied species that are known koala food trees were recorded across the site.

The site is considered to have medium to high biodiversity values as the site provides flora and fauna habitat, a movement corridor and foraging resources for native fauna and significant fauna and flora species (including the EPBC critically endangered threatened ecological community).

Any development application made on the site is likely to require compliance under a number of Legislations. The cleared areas as well as areas of non-remnant vegetation provide the best opportunities for development while retaining the ecological integrity of the site. A constraints map has been provided which indicates the areas of the site which present low, medium and high constraints to development based in the ecological values of the area.

On the basis of this ecological assessment, the site appears to offer opportunities for development, which incorporate the site's environmental values. Further detailed assessment (e.g. analysis of environmental impact and mitigation based on development layout and completion of appropriate Codes / Policies etc.) is likely to be required to accompany a Development Application. Also additional mitigation measures may be required / recommended for the site based on the ultimate proposed development layout. Such measures may include a Threatened Species Management Plan for the site and / or other detailed management plans.

1.0 INTRODUCTION

1.1 BACKGROUND

Natural Solutions was commissioned by the Department of Public Works – Project Services to undertake an Ecological Assessment on land in the Spring Creek area, which is situated to the North of Gatton and west of the Gatton – Esk Road (**Figure 1**). The land is described as Lots 238 and 240 on CA31519, Lot 242 on CA31612 and Lot 242 on CA31710, located between Krugers Road and Millers Road, Spring Creek (herein referred to as ‘the site’)(**Figure 2**).

1.2 SITE DESCRIPTION

The site consists of very gentle sloping land with a predominantly easterly aspect and a waterway which rises within the Lockyer Forest Reserve and drains to the south boundary of the site.

The site abuts the Lockyer Forest Reserve (which is managed by Queensland Parks and Wildlife Service (QPWS)) along its western boundary and is bounded by Krugers and Millers Roads to the north and south. The site abuts private land holding on its eastern boundary.

The only allotment which has existing structures (apart from cattle yards) is Lot 244 on CA31710 which contains a number of residential dwelling structures and associated buildings.

1.3 SCOPE OF WORK / OBJECTIVES

The primary objective of the assessment was to investigate the potential development opportunities and constraints on the subject site in regards to the site’s ecological values. The scope of works for this report is to:

- Investigate and describe the sites general ecological features including existing flora and fauna communities and habitats;
- Investigate and describe the Regional Ecosystems occurring on the site;
- Undertake targeted searches for significant flora and fauna species;
- Identify any features of ecological value;
- Identify areas for development opportunities based on ecological constraints; and
- Comment on the current broad development layout and provide advice on how to best conserve, maintain and manage the identified features of ecological value.

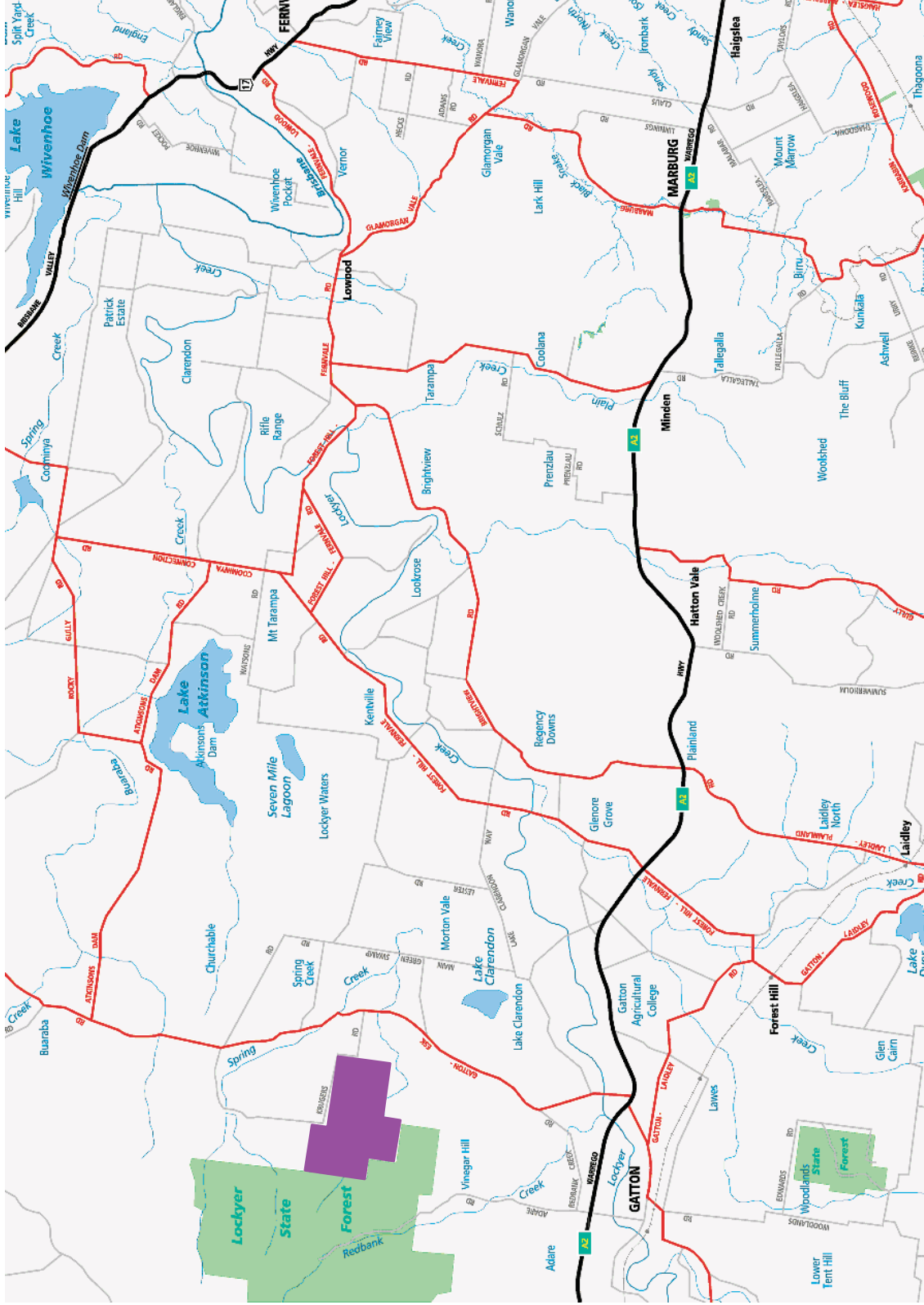


Figure 1: Site Location

Department of Public Works –
Project Services

Scale	Not to Scale	Size	A3
Author	TL	Project Manager	RF
Reference	UBD	Checked	RF

natural solutions
environmental consultants
NATURAL SOLUTIONS ENVIRONMENTAL CONSULTANTS
BRISBANE-CARINS-TOOWOOMBA-SUNSHINE COAST
ABN: 38 03 132 716
Ph: 07 3124 9400
Fax: 07 3124 9499
www.naturalsolutions.com.au

Date 10-05-07
Issue 1
Our Reference J07-035 FIG 1



Legend
Subject site

Important Note
Natural Solutions Environmental Consultants accepts no responsibility for any loss or damage suffered however arising to any person or corporation who may use or rely on this plan in contravention of the terms of this clause or clauses (i) of (vi) hereof.
(i) This plan has been produced for exclusive use of the client and Natural Solutions Environmental Consultants.
(ii) All contours shown are suitable only for the purpose of this plan. The accuracy of the contours shown are best effort and no liability should be placed upon such contours for any purpose other than for the original purpose of this plan.
(iii) Aerial photography and mapping has been overlaid as a best fit on the boundaries shown and position is approximate only.
(iv) The dimensions, area, size and location of improvements shown on this plan are approximate only and may vary.
(v) Scale shown is correct for the original plan and any copies of this plan should be verified by checking against the full scale.
(vi) This plan may not be photocopied unless this note is included.

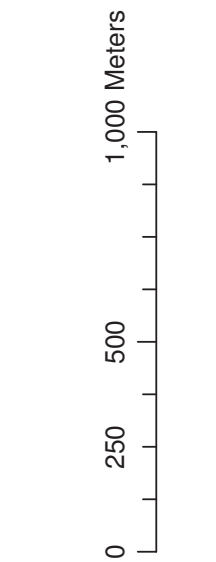


Legend

Cadastre

Figure 2 - Aerial Photograph

Department of Public Works - Project Services	
Scale	Program
1:12,723	ArcGIS
Size	A3
Project Manager	Checked
TL	RF
Date	May 2007
Issue	Final
Drawing No.	Figure 2



DIGITAL CADASTRAL DATA BASE
 (Version 1.0, 2006/2005)
 This data is derived from the Department of Natural Resources and Environment's Digital Cadastral Data Base (DCCDB) and is provided with the permission of the Department of Natural Resources and Environment. It is intended for use in the preparation of maps and plans for the purposes of the Environmental Protection Act 1987. It is not intended for use in any other way and for any reason.
 The Department of Natural Resources and Environment does not accept any liability for any loss or damage, including consequential or special, arising from the use of this data base. It is provided as is, without any warranty, and any copies of this plan must be verified by the user against the original data base.
 The data is mapped at a scale of 1:100,000 with a positional accuracy of 100 metres.

IMPORTANT NOTE
 This plan is a reproduction of the original aerial photograph and is not intended to be used as a substitute for the original photograph. It is provided for information only and any copies of this plan must be verified by the user against the original photograph. It is not intended for use in any other way and for any reason.
 The Department of Natural Resources and Environment does not accept any liability for any loss or damage, including consequential or special, arising from the use of this data base. It is provided as is, without any warranty, and any copies of this plan must be verified by the user against the original data base.
 The data is mapped at a scale of 1:100,000 with a positional accuracy of 100 metres.

1.4 STATUTORY CONSIDERATIONS

The following legislations are likely to be applicable to the site (from an ecological perspective) and may require further detailed consideration and possibly legal evaluation, where appropriate.

1.4.1 Federal

Environment Protection & Biodiversity Conservation Act 1999

The *Environment Protection & Biodiversity Conservation Act 1999* (EPBC Act) provides a mechanism for assessing the environmental impact of activities and developments where “Matters of National Environmental Significance” (MNES) may be significantly affected.

The Act identifies seven MNES, which require consideration and analysis, that is:

- RAMSAR wetland of international importance;
- World Heritage Properties;
- National Heritage Places;
- Commonwealth Marine Areas;
- Nationally listed threatened species and ecological communities;
- Nationally listed migratory species; and
- Nuclear actions (including uranium mining).

A number of threatened and migratory species listed under this legislation do and / or potentially occur in the locality. A list of these species is provided in **Appendix 1** and further discussed in **Sections 3.3** and **4.3**. The site also lies within the same catchment as a RAMSAR wetlands site (Moreton Bay) and two Threatened Ecological Communities potentially occur within the locality (**Appendix 1**).

Under the Act, a referral is required if any future development on the site has or has the potential to significantly impact directly or indirectly on any MNES.

1.4.2 State

Integrated Planning Act 1997

The *Integrated Planning Act 1997* (IPA) seeks to achieve ecological sustainability by:

- a) Coordinating and integrating planning at the local, regional and State levels;
- b) Managing the process by which development occurs; and
- c) Managing the effects of development on the environment (including managing the use of premises).

Compliance under this Act needs to be achieved. The Act identifies referral agencies and their jurisdiction relevant to the assessment of development application. Planning issues need to be dealt with in other specialist reports.

Vegetation Management Act 1999

The purpose of the *Vegetation Management Act 1999* (VMA) is to regulate clearing of remnant vegetation on freehold and leasehold land by:

- Preserving remnant endangered, of concern, and not of concern Regional Ecosystems (RE);
- Vegetation in areas of high nature conservation value; and
- Considering areas vulnerable to land degradation.

The current certified EPA RE mapping (V5.0 December 2005) (**Figure 3**) identifies the following REs on the site:

- **RE 12.9-10.2** - *Corymbia citriodora*, *Eucalyptus crebra* open forest on sedimentary rocks (Not of Concern);
- **RE 12.9-10.5** – Open forest complex often with *Corymbia trachyphloia*, *C. citriodora*, *Eucalyptus crebra*, *E. fibrosa* subsp. *fibrosa* on quartzose sandstone (Not of Concern); and
- **RE 12.3.7** - *Eucalyptus tereticornis*, *Callistemon viminalis*, *Casuarina cunninghamiana* fringing forest (Not of Concern).

A review of the EPA website on the 11 April 2007, confirms Version 5.0 RE mapping is still valid for the site. A summary description of these REs is provided in **Appendix 2**. A discussion on the site's remnant vegetation status is provided in **Section 3.2**.

Generally, any clearing of native vegetation requires a permit from DNRW, although there are exemptions where such activities can be carried out without a permit. However, as the site is zoned rural most of the exemptions do not apply for which the purpose of the clearing on the site is to be undertaken.

Also, under Schedule 2 of the *Integrated Planning Regulation 1998*, DNRW is a concurrence agency for reconfiguration of a lot (ROL) and material change of use (MCU) applications to local Councils.

The criteria for referral to DNRW for an MCU is if:

- “(i) the lot contains –
 - (a) a category 1, 2 or 3 area shown on a property map of assessable vegetation; or
 - (b) if there is no property map of assessable vegetation for the lot –remnant vegetation;and
- (ii) the existing use¹ is a rural or environmental use; and
- (iii) the size of the land is 2 hectares or larger.”

¹ The use refers to the activity occurring on the land (whether approved by IPA or enjoying existing use rights), and does not necessarily reflect the preferred use indicated in the planning scheme.

While the criteria for referral for an ROL is if:

- “(i) the lot contains –
- (a) a category 1, 2 or 3 area shown on a property map of assessable vegetation; or
 - (b) if there is no property map of assessable vegetation for the lot – remnant vegetation; and
- (ii) the size of the lot before reconfiguration is 2 hectares or larger; and
- (iii) 2 or more lots are created; and
- (iv) the size of any lot is 25 hectares or smaller.”

If any proposed development on the site does trigger a referral (concurrence) requirement the Concurrence Agency Policies for the relevant development type (eg MCU and/or ROL) need to be addressed. It is important to note that these Policies state that due to the Rural and Freehold designation of the land, no clearing of Endangered or Of Concern vegetation is permitted.

The current RE mapping also denotes the creek line and a small area in the south-western corner of the site (RE12.3.7 and RE 12.9-10.2) as ‘essential habitat’ for Koalas. The ‘essential habitat’ category is an overlay placed on the RE maps in order to denote areas of important habitat for flora and fauna. The assessment of this category is conducted as part of the aforementioned Concurrence Agency Policies. A discussion on this overlay is provided in **Section 4.2**.

Nature Conservation Act and Regulations

The objectives of the *Nature Conservation Act 1992* (NCA) are to protect native wildlife and its habitat, and to use protected wildlife and areas in an ecologically sustainable manner.

A number of threatened species recorded as being within the locality of the site are listed under the Schedules (*Wildlife Regulations 1994*) of the NCA. If any of these species are identified on the site or it is considered that the site supports suitable critical habitat for any of these threatened species, there may be constraints to development. These species are discussed in **Sections 3.3** and **4.3**.

Biodiversity Planning Assessment (BPA)

As a means to quantify biodiversity or conservation value of a site the EPA Biodiversity Assessment and Mapping Methodology (EPA, 2002) provides the framework for identifying the site’s values through a process of “rating” various criteria. The EPA has designated a number of BPA criteria’s over the site. Generally, the areas on the site are considered of State significance. This is related to a number of criteria’s including the site containing: REs, poorly conserved REs, core habitat for threatened species and biodiversity values (e.g. area of high species richness, wildlife refuge, taxa at limit of range).

South East Queensland Regional Plan 2005-2026

The South East Queensland Regional Plan 2005-2026 is a statutory and planning instrument under the IPA (Qld Government 2005). The primary purpose of the Regional Plan is to provide a sustainable growth management strategy for South East Queensland (SEQ) to the year 2026. The Regional Plan allocates land within SEQ into one of five regional land use categories. Under this Plan the site falls within the ‘Regional Landscape and Rural Production Area’ land use category which identifies land that has regional landscape, rural production or other non-urban values. Certain regulatory provisions apply to this area and further clarification from a qualified town planner should be sought.

Included in the Regional Plan are policies to protect and enhance the region's natural environment, biodiversity and future communities. The following policies are particularly relevant to Environmental Assessments and need to be considered when making a development application:

- Biodiversity (*SEQ Regional Nature Conservation Strategy*);
- Koala Conservation (*Nature Conservation (Koala) Conservation Plan 2006 and Management Program 2006-2016*); and
- Waterways and Wetlands.

The SEQ Regional Nature Conservation Strategy (RNCS) sets the regional framework for nature conservation. The RNCS utilises the Biodiversity Planning Assessment (BPA) in order to identify areas of state, regional and local biodiversity significance. According to the BPA, areas of state significance were identified on the site (see **Section 1.4.2 – Biodiversity Planning Assessment**).

The *Nature Conservation (Koala) Conservation Plan 2006 and Management Program 2006-2016* (Koala Plan) is designed to protect and conserve koalas (and their habitats) in Queensland through a statutory and policy framework. Under the Koala Plan, the state is divided into three districts (A, B and C). South East Queensland has been identified as 'District A', and within this district 'Koala Habitat Areas' have been mapped. Certain new developments occurring in 'Koala Habitat Areas' need to be assessed against koala conservation criteria. Also, in Districts A & B clearing of koala habitat trees is to be done in a sequential manner (to allow koalas to move off site of their own accord) and clearing of koala habitat trees in a 'Koala Habitat Area' must be carried out in the presence of a spotter catcher. The site is located within **District A**, but **does not** contain any mapped '**Koala Habitat Areas**'.

Under the Regional Plan, the intent of the Waterways and Wetlands Policy is to protect, maintain and enhance the region's waterways. This Policy should be considered for the site as it contains a creek. The policy states that development within watercourses should be restricted.

Land Protection (Pest and Stock Route Management) Act 2002

The purpose of this Act is to provide for pest management for land and stock route network management. Under this Act, there are procedures for declaring pest and obligations for landowners to keep land free of declared pests. This Act requires landholders to prevent the spread of declared pest species and control pests within their land. Some declared pests under this Act were identified on this site; these are discussed further in **Sections 3.4 and 4.4**.

Water Act 2000

The *Water Act 2000* regulates the destruction/disturbance of riverine vegetation. A permit under the Water Act will be required if the proposed development plans on "...*destroying*..." vegetation from a watercourse, lake or spring, which includes the banks and beds of these features. Destruction in accordance with the *Water Act 2000* means "...*the removing, clearing, killing, cutting down, felling, ringbarking, digging up, pushing over, pulling over or poisoning of the vegetation*". As there is a creek within the site the relevance of this Act needs to be considered.

1.4.3 Local

Gatton has a Draft Planning Scheme for the Shire which acts as a framework for managing development within the Local Government Area. According to the Planning Scheme the Desired Environmental Outcomes for the Environment within Gatton Shire are as follows:

- a) Gatton Shire's natural environment is protected, so that biodiversity, ecological processes and air, land and water quality are maintained.
- b) The disposal of wastes is effectively managed.
- c) Sustainable land management practices are promoted.
- d) Places, areas or sites identified as being susceptible to land degradation, including erosion, landslip and contamination are protected and further degradation minimised.

The Gatton Planning Scheme has 12 zones (e.g. Rural General Zone) and 8 overlays (e.g. Biodiversity). The site is classified as falling within the Rural General and Rural Agricultural Zones and is mapped with the Biodiversity and Bushfire Risk overlay maps.

The Rural General zone provides for agricultural production, other rural activities and the maintenance of the Shire's landscape quality that is important to the overall character of the Shire (GSC 2007). While the Rural Agriculture zone is good quality agricultural land to be preserved for sustainable agricultural purposes (GSC 2007). The purpose of the Biodiversity Overlay is to protect and enhance the Shire's ecosystems and the species they support in a manner that ensures their long term viability. Also the Bushfire Risk Area Overlay intent is to ensure appropriate design of development in potential bushfire prone areas in order to minimise the number of people and properties subject to bushfire risk. Depending upon the Assessment level of any future development on the site the Biodiversity Overlay and Bushfire Risk Overlay Codes may need to be met.

2.0 METHODOLOGY

2.1 BACKGROUND REVIEW

A number of available documents, databases and relevant legislation (Federal, State and local) have been considered along with local knowledge of the area, including:

- Queensland Herbarium records (HERBRECS) (EPA 2007a) (**Appendix 1**);
- Queensland Museum Records Search (QLD Museum 2007);
- Environmental Protection Agency (EPA) Wildlife Online records (EPA 2007b) (**Appendix 1**);
- Environment Protection & Biodiversity Conservation (EPBC) Act Protected Matters Database (DEWR 2007) (**Appendix 1**);
- EPA Regional Ecosystem Mapping (V5.0) (EPA 2005);
- Birds Australia Birddata database (Birds Australia 2007); and
- Gatton Shire Council Draft Planning Scheme (GSC 2007).

2.2 CONSULTATION

Discussions with the Queensland Herbarium were undertaken in late April regarding the nomenclature and status of *Eucalyptus helidonica*.

2.3 FIELD ASSESSMENT & SURVEY METHODS

2.3.1 General

Two ecologists from Natural Solutions completed an initial site inspection in early April 2007 in order to become familiar with the site and identify the areas that required further investigation. Further detailed flora and fauna surveys (as described below) were undertaken by two ecologists during the 16th – 20th April 2007.

2.3.2 Flora Survey Methodology

Background

The methods used to describe the vegetation communities on the site are considered compatible with those defined by the Queensland Herbarium's Methodology for Survey and Mapping of Vegetation Communities and REs in Queensland (Nelder *et al* 2004).

All background information considered relevant to the vegetation assessment study was compiled and reviewed. This included a review of current RE mapping as well as recent and historical aerial photography.

Aerial Photography Interpretation and Survey Design

Stereoscopic pairs of 1:25,000 scale (1997) colour photography were purchased from the Department of Natural Resources and Water. The photographic line work marked vegetation boundaries directly onto the colour aerial photographs prior to site inspection. Sample sites were selected to ensure that all vegetation types identified during the initial site inspection and initial photographic interpretation were examined on the ground. Emphasis for detailed sampling was on those communities that appeared inconsistent with the existing RE mapping.

Data Collection

Methods used to collect data followed Queensland Herbarium's standards (Nelder *et al* 2004) using a combination of formalised secondary and quaternary level sampling sites, combined with informal observations throughout the site. The general field information recorded included location, site photo references, aspect, landform, slope, altitude, soil type, geology, land zone and broad vegetation community. A broad sweep of the vegetation communities was also undertaken to identify any significant flora species.

Three secondary sites were undertaken and consisted of 10m x 50m transects. The species present and cover in each stratum was recorded along with the estimated stem count of each species and estimated heights of each stratum.

Quaternary sites are considered the major source of ground-truthing data for vegetation mapping (Nelder *et al* 2004). Nine quaternary sites were carried out during the survey and provided information such as location, dominant species in each stratum and the structural and landform data.

Vegetation Community Definitions

The data gathered in the field was analysed and allowed for the vegetation communities on the site to be described. Remnant and non-remnant vegetation was identified according to the 50/70 rule and historical aerial photography. By definition, a remnant vegetation community contains more than 50% of the canopy cover and reaches greater than 70% of the canopy height of the original community (i.e. the 50/70 rule).

As the soil, geology and land form were also investigated, appropriate land zone were also derived for the site. This allowed the designation of appropriate RE classifications to the remnant vegetation communities described across the site.

2.3.3 Fauna Survey Methodology

Data Collection

A detailed fauna survey which utilised a variety of survey methods was undertaken on the site. Survey efforts were focussed upon areas of remnant vegetation as these areas were considered likely to support the most diverse fauna communities of the site including species more sensitive to disturbance and species that are also likely to inhabit disturbed regrowth vegetation and grassland vegetation communities (**Figure 4**).

Each of the four different fauna groups was targeted using a variety of survey methods. **Table 1** provides an outline of the survey methods utilised for the different terrestrial fauna groups

TABLE 1 FAUNA SURVEY TECHNIQUES UTILISED

TARGET GROUP	SURVEY TECHNIQUES UNDERTAKEN
Birds	<ul style="list-style-type: none"> ▪ Diurnal surveys at dawn and dusk; ▪ Incidental bird surveys during other site activities; and ▪ Call broadcast and spotlighting surveys for nocturnal birds.
Reptiles	<ul style="list-style-type: none"> ▪ Pitfall trapping; ▪ Active diurnal searches in areas of suitable habitat; ▪ Spotlighting surveys for nocturnal reptiles; ▪ Cage trapping for larger varanid reptiles; ▪ Type A Elliott trapping - as a useful supplementary technique for some reptile species; ▪ Track searches; and ▪ Incidental searches during other site activities.
Mammals	<ul style="list-style-type: none"> ▪ Type A Elliott traps; ▪ Type B Elliott traps; ▪ Cage trapping for medium sized mammals; ▪ Pitfall trapping for small sized mammals; ▪ Spotlighting surveys for arboreal and other nocturnal mammals; ▪ Call broadcast surveys for arboreal mammals; ▪ Anabat ultrasonic bat call recording for microchiropteran bats¹; ▪ Harp trapping for bats; ▪ Hair-tubes²; and ▪ Scat and track searches².
Amphibians	<ul style="list-style-type: none"> ▪ Pitfall trapping; and ▪ Active nocturnal searches in areas of suitable habitat.

1. Bat call analysis was completed by sub-consultant Greg Ford.

2. Hair and scat analysis was completed by sub-consultant Barbara Triggs.

Four survey transects were established within different habitat types, with an attempt made to distribute survey efforts evenly within areas of remnant vegetation across the site (**Figure 4**). Total survey effort implemented on the site during the survey period of 16 – 20 April 2007 was as follows:

- Type A Elliots – **500** trap nights;
- Type B Elliots – **92** trap nights;
- Cage Traps – **20** trap nights;
- Pitfall Traps – **100** trap nights;
- Hair Tubes – **448** trap nights;
- Harp Trap – **4** trap nights;
- Anabat – total of **40+** hours;
- Active diurnal searches – Approximately 50 hours; and
- Active nocturnal searches – Approximately 32 hours.

Survey conditions were generally fine, with weather observations recorded at Gatton recording temperatures between a minimum of 10.3°C and a maximum of 32.5°C (Bureau of Meteorology 2007). Weather conditions recorded during spotlighting and call playback exercises ranged from 19°C to 25°C

between 7:30pm and 11pm with wind speeds ranging from 0kts to 1kt. No rainfall was recorded on the site during the survey.

Survey Limitations

All fauna surveys are subject to inherent limitations in the detection success of target species. These limitations often result in a degree of false-absence records (i.e. a species is present, but not detected). It is important, therefore, that the limitations to fauna surveys are identified and the fauna survey results are viewed with these constraints in mind. The limitations to the fauna surveys conducted at the site were:

- The survey period not coinciding with the period that some migratory or nomadic species occur in the locality;
- Species with a large home ranges (e.g. owls and raptors) not present in this part of their home range during the survey period;
- The difficulty in detecting certain species during the survey period (e.g. cryptic species, species present in the study area at very low densities, and trap-shy species);
- Biological factors such as sex, age-class, and breeding biology, which may influence species' habitat use and detectability during different times of the year;
- The lack of suitable climatic conditions necessary for the presence and / or detectability of certain species (e.g. amphibians following heavy rainfall);
- The current severe drought being experienced in the Southeast Queensland region will influence the current detection success of various species for a number of reason, for example: population densities may have decreased leading to decreased detection probability; certain species (e.g., amphibians) may enter a state of torpor during the drought conditions; loss of favourable habitat conditions may force species to move outside of the subject site; localised species extinctions (although species migrations into suitable habitats may occur when the drought breaks); and
- No drag netting / aquatic specific survey techniques were used, and so identifications of aquatic vertebrates are likely to be misrepresentative.

The survey results need to be viewed with the above limitations in mind. However, due to the survey limitations the available fauna habitat across the site was also investigated and recorded in order to determine the likelihood of significant species not recorded during the survey.

3.0 FLORA

3.1 VEGETATION COMMUNITIES

Ten broad vegetation communities were identified during the field assessment of the site (**Figure 5**), these included areas of remnant and non-remnant vegetation. A description of the dominant species assemblages encountered in each community is provided below in **Table 2**. A flora species list for the site is provided as **Appendix 3**.

TABLE 2 SITE VEGETATION COMMUNITIES

AREA	COMMUNITY DESCRIPTION	APPLICABLE VMA CODE/STATUS
1a	<p>Eucalypt Open Forest dominated by Brown bloodwoods (<i>Corymbia trachyphloia</i>) and Swamp box (<i>Lophostemon suaveolens</i>). Other canopy species include Gum-topped box (<i>Eucalyptus moluccana</i>), Smoothbark Apple (<i>Angophora leiocarpa</i>) and Red Ash (<i>Alphitonia excelsa</i>). The sub canopy is dominated Red Ash, Swamp box, Hickory Wattle (<i>Acacia disparrima</i>) and Lamb's Tail Wattle (<i>Acacia leiocalyx</i>).</p> <p>The understorey is dominated by Red Ash but other common understorey species include <i>Lantana camara</i>, Swamp box and Lamb's Tail Wattle with occasional Black She Oak (<i>Allocasuarina littoralis</i>) and Dogwood (<i>Jacksonia scoparia</i>). Groundcover species included <i>Imperata cylindrica</i>, <i>Aristida</i> sp, <i>Lomandra filiformis</i> subsp. <i>filiformis</i>, <i>Themeda triandra</i>, various <i>Panicum</i> sp, <i>Entolasia stricta</i> and <i>Dianella</i> sp.</p> <p>Also within this area two threatened plants were located <i>Grevillea quadricauda</i> and <i>Grevillea singuliflora</i>.</p>	<p>12.9-10.5 Not Of Concern</p>
1b	<p>As above however Spotted Gum (<i>Corymbia citriodora</i> subsp. <i>variegata</i>) was more dominate through here. Also Bailey's Stringybark (<i>E. baileyana</i>) and Broad-leaved White Mahogany (<i>Eucalyptus carnea</i>) were found within this area.</p>	<p>12.9-10.5 Not Of Concern</p>
2	<p>This community consists of riparian vegetation found along the creek which runs through the site. Qld Blue Gum (<i>Eucalyptus tereticornis</i>) dominates the canopy with Broad-leaved Paperbark (<i>Melaleuca quinquenervia</i>) was also heavily present within this community.</p>	<p>12.3.7 Not Of Concern</p>
3	<p>This area is similar to Area 1 however Spotted Gum (<i>Corymbia citriodora</i> subsp. <i>variegata</i>) had a higher presence through here.</p>	<p>12.9-10.5 Not Of Concern</p>
4	<p>This area is similar to Area 1 however Spotted Gum (<i>Corymbia citriodora</i> subsp. <i>variegata</i>) had a higher presence through here</p>	<p>12.9-10.5 Not Of Concern</p>
5 & 6	<p>The vegetation community at this site is a tall woodland dominated by Spotted Gum (<i>Corymbia citriodora</i> subsp. <i>variegata</i>), Brown bloodwoods (<i>Corymbia trachyphloia</i>) and Narrow-leaved Ironbark (<i>Eucalyptus crebra</i>). Other canopy species include Swamp box (<i>Lophostemon suaveolens</i>) and Red Ash (<i>Alphitonia excelsa</i>).</p>	<p>12.5.1 Not Of Concern</p>

AREA	COMMUNITY DESCRIPTION	APPLICABLE VMA CODE/STATUS
	<p>The sub canopy is dominated Red Ash, Swamp box, Spotted Gum, Qld Blue Gum (<i>E. tereticornis</i>) and Narrow-leaved Ironbark. The rare (under State legislation) <i>Eucalyptus taurina</i> (a ironbark) is also found in this community.</p> <p>The understorey is dominated by Red Ash but other common understorey species include Dogwood (<i>Jacksonia scoparia</i>), Narrow-leaved Ironbark and Spotted gum. Groundcover species included <i>Imperata cylindrica</i>, <i>Cymbopogon refractus</i>, <i>Aristida</i> sp, <i>Lomandra filiformis</i> subsp. <i>filiformis</i>, and <i>Pimelea linifolia</i>.</p>	
7 & 8	<p>The vegetation community at this site is a Eucalypt Open Forest with Qld Blue Gum (<i>E. tereticornis</i>) and Swamp box (<i>Lophostemon suaveolens</i>). Other canopy species include Smoothbark Apple (<i>Angophora leiocarpa</i>), Lamb's Tail Wattle (<i>Acacia leiocalyx</i>) and Red Ash (<i>Alphitonia excelsa</i>).</p> <p>The understorey is dominated by Lamb's Tail Wattle and Swamp box but other understorey species include Red Ash and Cheese Tree (<i>Glochidion ferdinandii</i>). Groundcover species included <i>Cymbopogon refractus</i>, <i>Imperata cylindrica</i>, <i>Aristida</i> sp, <i>Entolasia stricta</i> and <i>Dianella</i> sp.</p>	12.5.2 Endangered
9	<p>This vegetation community is a low open forest dominated by Bush-house Paperbark (<i>Melaleuca irbyana</i>) with emergent <i>C. citriodora</i>, <i>E. tereticornis</i> and <i>E. crebra</i>. Groundcover species included various <i>Panicum</i> sp, <i>Lobelia purpurascens</i>, <i>Entolasia stricta</i>, <i>Aristida</i> sp, and <i>Cyperus</i> sp.</p>	12.3.3c Endangered
10	<p>This vegetation community is a woodland dominated by Qld blue gum (<i>Eucalyptus tereticornis</i>). The community is grazed by domestic and thus the understorey is largely limited to pasture grasses.</p>	Non-remnant
11	<p>Grasslands with isolated trees.</p>	Non-remnant
12	<p>These areas contain non-remnant vegetation typically consisting of Spotted Gum (<i>C. citriodora</i>), Brown bloodwoods (<i>Corymbia trachyphloia</i>), Gum-topped box (<i>Eucalyptus moluccana</i>), Swamp box (<i>Lophostemon suaveolens</i>) and Red Ash (<i>Alphitonia excelsa</i>).</p>	Non-remnant

3.2 DISCUSSION

Due to past land use, large areas of the site have been cleared for farming / grazing uses. Therefore, the majority of vegetation is regrowth non-remnant open forest dominated by various eucalypt species (see NR description above). Large areas of the site are also dominated by grasslands with isolated trees.

Despite this there are portions of the site that are considered remnant vegetation. However, the remnant vegetation communities identified on the site differ from those that are currently mapped by EPA/DNRW on the site. The main differences between the certified mapping and what was identified on site include incorrect landzone identifications and differences in species assemblages.

The current RE map has designated the majority of the site as Landzone 9-10 and the area occupied by the creek as Landzone 3. The 9-10 Landzone is described as:

- 9 – Gently undulating landscapes on more or less horizontally bedded fine grained sedimentary rocks; and
- 10 – Plateaus, scarps and ledges with shallow soils on more or less horizontally bedded medium to coarse-grained sedimentary rocks.

Site investigations identified that in fact Landzone 5 (5 – Plains and plateaus on Tertiary land surfaces, generally with medium to coarse textured soils) occupies the majority of the site (see **Figure 1**), with Landzone 9-10 only occurring within a small part in the western area of the site. Also as per the certified mapping the area along the creek is still considered Landzone 3 (Alluvial plains); however an additional area of Landzone 3 was identified within a small part of the southern portion of the site.

Apart from the Landzones currently occurring on the site differing from the current certified Regional Ecosystem map, some of the species assemblages of the vegetation communities also differ. Like the certified mapping, the majority of current remnant vegetation is located within the North-western and central areas of the site. Currently, the dominant remnant vegetation type is a Eucalypt Open Forest dominated by Brown Bloodwoods (*Corymbia trachyphloia*), Spotted Gum (*Corymbia citriodora* subsp. *variegata*) and Swamp Box (*Lophostemon suaveolens*) (RE12.9-10.5 Not of Concern). The dominant vegetation community within the certified RE mapping was RE12.9-10.2.

The creek which runs through the site contains RE12.3.7 (Not of Concern) which is dominated by Qld Blue Gum (*Eucalyptus tereticornis*) with Broad-leaved Paperbark (*Melaleuca quinquenervia*). The location and type of community is the same between **Figure 5** and the certified mapping (**Figure 3**).

The main differences between current communities on the site and the certified mapping is in the central portion of the site where the landzone and species assemblages has changed from RE12.9-10.2 to REs 12.5.1 and 12.5.2. This has also caused the status of the vegetation communities to change and the site now contains Endangered remnant vegetation. An area of vegetation in the central portion of the site above the creek and an area below the creek contains a Eucalypt Open Forest with Qld Blue Gum (*E. tereticornis*) and Swamp box (*Lophostemon suaveolens*) (RE12.5.2 Endangered). Two small vegetation communities in the Southern portion of the site contain stands of Bush-house Paperbark (*Melaleuca irbyana*) with emergent *C. citriodora*, *E. tereticornis* and *E. crebra* (RE12.3.3c Endangered). It is important to note that this vegetation community is listed as a critically endangered ecological community, under the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*. The implications of the presence of Endangered REs and ecological communities on the site is discussed in **Section 6.3**.

3.3 SIGNIFICANT SPECIES

Several threatened and / or 'significant' plant species were located on the site. In addition, potentially occurring 'significant' flora species listed under State and Federal Legislation (*Schedule 3, Nature Conservation (Wildlife) Regulations 2006* and EPBC Act) were identified through HERBRECS, Wildlife Online and EPBC Protected Matters database searches (**Appendix 1**). **Table 3** lists those species

that do occur and those considered to have the potential to occur within the site (based on the above-mentioned databases, preferred habitat requirements and site based assessments) and indicate the likelihood of them occurring on the site.

TABLE 3 LIKELIHOOD OF SIGNIFICANT PLANT SPECIES OCCURRING ON THE SITE

SPECIES	COMMON NAME	STATUS	HABITAT	LIKELIHOOD OF OCCURRENCE
<i>Arthraxon hispidus</i>	Hairy Joint Grass	QV, CV	Rainforest margins or Wet Sclerophyll Forest. Tropical & subtropical grass most often found in shaded or semi-shaded areas on the edge of the rainforest and within open wet Eucalypt forests. Rarely found above 700ft elevation & requires high rainfall associated with tropics and subtropics	Unlikely
<i>Brasenia schreberi</i>	Watershield	QR	Found in shallow freshwater lagoons or backwaters	Possible
<i>Callitris baileyi</i>	Bailey's Cypress Pine	QR	Rocky, hilly or mountainous areas, usually near creeks, and on shallow and often clay soils.	Possible
<i>Caustis blakei</i> subsp. <i>macrantha</i>	Koala Fern	QV	Open forest of the Helidon Hills on Helidon sandstone	Likely
<i>Cryptostylis hunteriana</i>	Leafless Tongue-orchid	CV	Variety of rainforests including vine thickets and dry rainforest from 20 to 550m elevation. Occurs on hillsides, mountain tops, lower slopes, rocky headlands and riverbanks.	Unlikely
<i>Eucalyptus taurina</i>	Helidon Ironbark	QV	Open forest of the Helidon Hills and Crows Nest area	Confirmed – recorded along the creek on the site and may also occur within other areas on the site.
<i>Grevillea quadricauda</i>	-	CV, QV	Grows in gravelly loam or in sand as an undershrub in eucalypt woodland usually along creek or drainage lines	Likely
<i>Haloragis exalata</i> subsp. <i>velutina</i>	Tall velvet sea berry	CV	Damp places near watercourses and woodland on the steep rocky slopes of gorges.	Possible
<i>Indigofera baileyi</i>	Bailey's Indigo	QR	Open woodlands on granite or basalt soils.	Unlikely
<i>Melaleuca irbyana</i>	Bush-house Paperbark	QR	Open eucalypt forest near the margins of vine thickets, vine forests and softwood scrubs at altitudes of 80 to 480 m. It occurs in undulating to hilly terrain on gentle to steep dry slopes, rarely on rocky outcrops. The soils are generally well drained, shallow, stony to very rocky in texture and derived from sandstone or acid volcanic rocks.	Confirmed - recorded in Community 9 on the site and may also occur on the site within close proximity to this community.

SPECIES	COMMON NAME	STATUS	HABITAT	LIKELIHOOD OF OCCURRENCE
<i>Paspalidium grandispiculatum</i>	Helidon Hills Panic	QV, CV	Open forest of the Helidon Hills and Crows Nest area	Likely
<i>Rhaponticum australe</i>		QV	Usually grows on heavy soils	Unlikely
<i>Sophora fraseri</i>	Brush Sophora	CV	usually found in moist situations, often near rainforest	Unlikely
<i>Thesium australe</i>	Austral Toadflax	QV, CV	Grows in grassland or woodland, often in damp sites	Possible

Source HERBRECS, Wildlife Online & EPBC Protected Matters Databases

A review of the EPBC database identified 6 nationally significant plant species that may occur on the site (**Appendix 1**). Two of the species within **Table 3** are known from rainforest environments and are unlikely to occur on the site due to the absence of these vegetation types. A review of the HERBRECS and Wildlife Online databases identified 9 state significant plant species that may occur on the site (**Appendix 1**). Once again, two of the species within **Table 3** are known from rainforest environments or particular soil types and are unlikely to occur on the site due to the absence of these habitat factors.

However, some plant species listed in the *EPBC Act 1999* and / or the *Nature Conservation (Wildlife) Regulations 2006* although **not recorded** they may occur on the site:

- *Grevillea quadricauda* (Schedule 3 - Vulnerable NC(W)R 2006)
- *Caustis blakei* subsp. *macrantha* (Schedule 3 - Vulnerable NC(W)R 2006)
- *Paspalidium grandispiculatum* (Schedule - Vulnerable NC(W)R 2006)
- *Leonema obtusifolium* (Schedule 2 – Endangered NC(W)R 2006) (this species is not listed within the database searches however was stated as a possible occurrence within the area in a report by The Lockyer Catchment Association (Boyes 2002))

Most importantly, three plant species listed in the *EPBC Act 1999* and / or the *Nature Conservation (Wildlife) Regulations 2006* **were recorded** on the site:

- *Melaleuca irbyana* (Rare);
- *Eucalyptus taurina* (Vulnerable); and
- *Grevillea singuliflora* (Rare).

Grevillea singuliflora did not appear on the database searches (and therefore is not within **Table 3**) but was recorded on the site within Communities 1a and 3 on the site and may also occur within other areas on the site (as it grows in open dry eucalypt forest in sandy soils, usually close to watercourses).

Another Eucalypt species, *Eucalyptus helidonica* (Helidon white mahogany), has been located in the nearby Helidon Hills and is likely to occur on the site. This species has recently been described and separated from *E. acmenoides* (white mahogany) (Hill. K.D. Telopea 8(2):1999). This species is considered to be restricted to only a few localities within south-east Queensland, however this species has not been listed in *Schedule 3, Nature Conservation (Wildlife) Regulations 2006* and is therefore not considered to be Rare or Endangered under State legislation. Despite this, the species is considered to be locally significant.

3.4 WEED SPECIES

Two declared weed species listed under the *Land Protection (Pest and Stock Route Management) Act* (LPA) 2002 were identified during the site assessment. Declared weeds occurring on the site included:

- Lantana (*Lantana camara*) - Class 3
- Giant Rats Tail Grass (*Sporobolus pyramidalis*) - Class 2

Landholders are obliged under the LPA 2002 to attempt to remove and control Class 2 species on their land. Landholders are encouraged under the Act to control Class 3 species but may only be required to do so if they are considered to be adjacent to an environmentally sensitive area.

Species that are not declared under the LPA 2002 but are generally considered as environmental weeds in south east Queensland occurring on the site includes those listed in **Table 4**.

TABLE 4 COMMON WEEDS OCCURRING ON THE SITE

SPECIES	COMMON NAME
<i>Sida cordifolia</i>	Flannel Weed
<i>Neonotonia wightii</i>	Glycine
<i>Gomphocarpus physocarpus</i>	Balloon Cotton Bush
<i>Sida rhombifolia</i>	Paddy's Lucerne
<i>Melinis repens</i>	Red Natal Grass
<i>Gomphrena celosioides</i>	Gomphrena Weed
<i>Panicum maximum</i>	Guinea Grass
<i>Cynodon dactylon</i>	Green Couch
<i>Chloris gayana</i>	Rhodes Grass
<i>Digitaria ciliaris</i>	Summer Grass
<i>Imperata cylindrica</i>	Blady Grass
<i>Ageratum houstonianum</i>	Blue Billygoat Weed
<i>Emilia sonchifolia</i>	Emilia

4.0 FAUNA

4.1 SPECIES OBSERVED

Considering surveys were completed close to the winter season, a fairly large species list was compiled. This included a total of nine amphibians, ten reptiles, 67 birds and 30 mammals. A list of fauna species recorded during the survey period is provided in **Table 5**.

TABLE 5 FAUNA SPECIES IDENTIFIED ON THE SITE

FAMILY	SCIENTIFIC NAME	COMMON NAME	METHOD
Birds			
Accipitridae	<i>Aviceda subcristata</i>	pacific baza	Observed
Accipitridae	<i>Haliastur sphenurus</i>	whistling kite	Observed
Anatidae	<i>Chenonetta jubata</i>	Australian wood duck	Observed
Anatidae	<i>Anas gracilis</i>	grey teal	Observed
Anatidae	<i>Anas superciliosa</i>	pacific black duck	Observed
Anhingidae	<i>Anhinga melanogaster</i>	darther	Observed
Ardeidae	<i>Egretta novaehollandiae</i>	white-faced heron	Observed
Artamidae	<i>Gymnorhina tibicen</i>	Australian magpie	Observed
Artamidae	<i>Cracticus torquatus</i>	grey butcherbird	Observed
Artamidae	<i>Cracticus nigrogularis</i>	pied butcherbird	Observed
Artamidae	<i>Strepera graculina</i>	pied currawong	Observed
Artamidae	<i>Artamus leucorhynchus</i>	white-breasted woodswallow	Observed
Burhinidae	<i>Burhinus grallarius</i>	bush stone-curlew	Observed
Cacatuidae	<i>Cacatua roseicapilla</i>	galah	Observed
Cacatuidae	<i>Calyptorhynchus funereus</i>	yellow-tailed black-cockatoo	Observed
Campephagidae	<i>Coracina novaehollandiae</i>	black-faced cuckoo-shrike	Observed
Campephagidae	<i>Coracina papuensis</i>	white-bellied cuckoo-shrike	Observed
Caprimulgidae	<i>Aegotheles cristatus</i>	owlet nightjar	Observed
Charadriidae	<i>Vanellus miles novaehollandiae</i>	masked lapwing (southern subspecies)	Observed
Columbidae	<i>Geopelia humeralis</i>	bar-shouldered dove	Observed
Columbidae	<i>Phaps chalcoptera</i>	common bronzewing	Observed
Columbidae	<i>Ocyphaps lophotes</i>	crested pigeon	Observed
Columbidae	<i>Geopelia striata</i>	peaceful dove	Observed
Columbidae	<i>Phaps elegans</i>	brush bronzewing	Observed
Corvidae	<i>Corvus orru</i>	torresian crow	Observed
Dicruridae	<i>Rhipidura fuliginosa</i>	grey fantail	Observed
Dicruridae	<i>Grallina cyanoleuca</i>	magpie-lark	Observed

FAMILY	SCIENTIFIC NAME	COMMON NAME	METHOD
Dicruridae	<i>Dicrurus bracteatus</i>	spangled drongo	Observed
Dicruridae	<i>Rhipidura leucophrys</i>	willie wagtail	Observed
Falconidae	<i>Falco longipennis</i>	Australian hobby	Observed
Falconidae	<i>Falco cenchroides</i>	nankeen kestrel	Observed
Halcyonidae	<i>Dacelo novaeguineae</i>	laughing Kookaburra	Observed
Hirundinidae	<i>Hirundo neoxena</i>	welcome swallow	Observed
Maluridae	<i>Malurus melanocephalus</i>	red-backed fairy-wren	Observed
Meliphagidae	<i>Entomyzon cyanotis</i>	blue-faced honeyeater	Observed
Meliphagidae	<i>Meliphaga lewinii</i>	lewin's honeyeater	Observed
Meliphagidae	<i>Philemon corniculatus</i>	noisy friarbird	Observed
Meliphagidae	<i>Manorina melanocephala</i>	noisy miner	Observed
Meliphagidae	<i>Melithreptus albogularis</i>	white-throated honeyeater	Observed
Meliphagidae	<i>Lichenostomus plumulus</i>	fuscous honeyeater	Observed
Meropidae	<i>Merops ornatus</i>	rainbow bee-eater	Observed
Motacillidae	<i>Anthus novaeseelandiae</i>	Richard's pipit	Observed
Oriolidae	<i>Sphecotheres viridis</i>	figbird	Observed
Pachycephalidae	<i>Falcunculus frontatus</i>	crested shrike-tit	Observed
Pachycephalidae	<i>Pachycephala pectoralis</i>	golden whistler	Observed
Pachycephalidae	<i>Colluricincla harmonica</i>	grey shrike-thrush	Observed
Pachycephalidae	<i>Pachycephala rufiventris</i>	rufous whistler	Observed
Pardalotidae	<i>Acanthiza pusilla</i>	brown thornbill	Observed
Pardalotidae	<i>Pardalotus striatus</i>	striated pardalote	Observed
Pardalotidae	<i>Sericornis frontalis</i>	white-browed scrubwren	Observed
Pardalotidae	<i>Gerygone olivacea</i>	white-throated gerygone	Observed
Pardalotidae	<i>Acanthiza chrysorrhoa</i>	yellow-rumped thornbill	Observed
Passeridae	<i>Taeniopygia bichenovii</i>	double-barred finch	Observed
Passeridae	<i>Neochmia modesta</i>	plum-headed finch	Observed
Passeridae	<i>Neochmia temporalis</i>	red-browed finch	Observed
Petroicidae	<i>Eopsaltria australis</i>	eastern yellow robin	Observed
Petroicidae	<i>Microeca fascinans</i>	jacky winter	Observed
Petroicidae	<i>Petroica rosea</i>	rose robin	Observed
Phalacrocoracidae	<i>Phalacrocorax varius</i>	piebald cormorant	Observed
Podargidae	<i>Podargus strigoides</i>	tawny frogmouth	Observed
Pomatostomidae	<i>Pomatostomus temporalis</i>	grey-crowned babbler	Observed
Psittacidae	<i>Glossopsitta pusilla</i>	little lorikeet	Observed
Psittacidae	<i>Platycercus adscitus palliceps</i>	pale-headed rosella (southern form)	Observed
Psittacidae	<i>Trichoglossus chlorolepidotus</i>	scaly-breasted lorikeet	Observed

FAMILY	SCIENTIFIC NAME	COMMON NAME	METHOD
Strigidae	<i>Ninox novaeseelandiae</i>	southern boobook	Observed
Threskiornithidae	<i>Threskiornis spinicollis</i>	straw-necked ibis	Observed
Tytonidae	<i>Tyto alba</i>	barn owl	Observed
Reptiles			
Colubridae	<i>Tropidonophis mairii</i>	freshwater snake	Capture
Elapidae	<i>Demansia psammophis</i>	yellow-faced whipsnake	Observed
Gekkonidae	<i>Gehyra dubia</i>	dubious gecko	Capture
Ramphotyphlopidae	<i>Ramphotyphlops weidii</i>	a blind snake	Capture
Scincidae	<i>Cryptoblepharus virgatus</i>	lined wall skink	Capture
Scincidae	<i>Carlia vivax</i>	a skink	Capture
Scincidae	<i>Carlia foliorum</i>	a skink	Capture
Scincidae	<i>Carlia pectoralis</i>	a skink	Capture
Scincidae	<i>Eulamprus sp.</i>	a skink	Capture
Varanidae	<i>Varanus sp.</i>	goanna	Observed
Amphibians			
Bufo	<i>Bufo marinus</i>	cane toad	Capture
Hylidae	<i>Litoria caerulea</i>	common green treefrog	Capture
Hylidae	<i>Litoria dentata</i>	bleating treefrog	Capture
Hylidae	<i>Litoria fallax</i>	eastern sedgefrog	Capture
Hylidae	<i>Litoria latopalmata</i>	broad palmed rocketfrog	Capture
Hylidae	<i>Litoria nasuta</i>	striped rocketfrog	Capture
Hylidae	<i>Litoria rubella</i>	ruddy treefrog	Capture
Myobatrachidae	<i>Pseudophryne major</i>	major toadlet	Heard
Myobatrachidae	<i>Limnodynastes ornatus</i>	ornate burrowing frog	Capture
Mammals			
Canidae	<i>Canis familiaris</i>	dog	Spotlight
Emballonuridae	<i>Saccolaimus flaviventris</i>	yellow-bellied sheath-tailed bat	Anabat
Felidae	<i>Felis domesticus</i>	cat	Spotlight
Leporidae	<i>Oryctolagus cuniculus</i>	European rabbit	Spotlight
Leporidae	<i>Lepus europaeus</i>	European hare	Spotlight
Macropodidae	<i>Macropus dorsalis</i>	black-striped wallaby	Spotlight
Macropodidae	<i>Macropus giganteus</i>	eastern grey kangaroo	Observed
Macropodidae	<i>Macropus rufogriseus</i>	red-necked wallaby	Spotlight
Molossidae	<i>Mormopterus sp</i>	eastern free-tail bat	Anabat
Molossidae	<i>Mormopterus beccarii</i>	Beccari's free-tail bat	Anabat
Molossidae	<i>Nyctinomus australis</i>	white-striped freetail bat	Observed
Petauridae	<i>Petaurus norfolcensis</i>	squirrel glider	Spotlight

FAMILY	SCIENTIFIC NAME	COMMON NAME	METHOD
Phalangeridae	<i>Trichosurus vulpecular</i>	brushtail possum	Spotlight
Phascolarctidae	<i>Phascolarctos cinereus</i>	koala	Spotlight
Pseudocheiridae	<i>Petauroides volans</i>	greater glider	Spotlight
Rhinolophidae	<i>Rhinolophus megaphyllus</i>	eastern horseshoe bat	Anabat
Suidae	<i>Sus scrofa</i>	feral pig	Tracks
Vespertilionidae	<i>Chalinolobus gouldii</i>	Gould's wattled bat	Anabat
Vespertilionidae	<i>Chalinolobus nigrogriseus</i>	hoary wattled bat	Anabat
Vespertilionidae	<i>Chalinolobus picatus</i>	little pied bat	Anabat
Vespertilionidae	<i>Miniopterus australis</i>	little bentwing bat	Capture & Anabat
Vespertilionidae	<i>Miniopterus schreibersii oceanensis</i>	eastern bent-winged bat	Anabat
Vespertilionidae	<i>Nyctophilus geoffroyi</i>	lesser long-eared bat	Capture
Vespertilionidae	<i>Nyctophilus</i> sp.	unknown long-eared bat	Anabat
Vespertilionidae	<i>Scoteanax rueppellii</i> ¹ and/ or <i>Scotorepens orion</i> ¹	greater / eastern broad-nosed bat	Anabat
Vespertilionidae	<i>Scotorepens</i> sp. ¹ (Parnaby 1992)	central-eastern broad-nosed bat	Anabat
Vespertilionidae	<i>Vespadelus pumilus</i> ¹	eastern forest bat	Anabat
Vespertilionidae	<i>Vespadelus troughtoni</i>	eastern cave bat	Anabat
Vespertilionidae	<i>Vespadelus vulturinus</i> ¹	little forest bat	Anabat

Species in **bold** = significant under *NC(W)R 2006*

¹ = These species were given a lower (i.e. probable and/or possible) identification confidence within the Anabat results (analysed by Greg Ford).

4.2 FAUNA HABITAT

The site is a matrix of remnant vegetation, regrowth of Eucalypt and Acacia species and grazed grassland with some abandoned orchards also present. The disturbed and fragmented portions of the site reduces the suitability of the site for a number of species that are more sensitive to disturbance and as such, the majority of species recorded are common adaptable species that are indicative of a more disturbed environment. However a number of less common species were also recorded. It is likely that the most valuable habitat provided by the site is within areas of remnant open forest that exemplify vegetation that has been extensively cleared within the region for grazing and agricultural purposes. The areas of open forest investigated on the site provided large amounts of leaf litter and debris suitable for a range of reptilian fauna and also contained trees with hollows suitable for a wide range of arboreal species. Some areas however, are currently grazed and it is likely that removal of understorey vegetation as a result may limit the diversity of some fauna species in these areas.

The greatest habitat asset of the site is that it adjoins the Lockyer Forest Reserve, a large continuous tract of remnant bushland. As a result, species that would normally not be able to permanently exist within the fragmented areas of remnant vegetation on the site may be able to do so with the additional resources provided by the adjacent reserve.

The creek that runs through the site (Community 2) also provides another highly significant habitat feature within the study area. The water course appears to be intermittent and although it is somewhat disturbed with reduced riparian vegetation and significant weed (particularly Lantana) infestation it is still likely to provide significant habitat and forage resources for native fauna. The greater availability of water also means that trees close to this feature are likely to produce significant resources for fauna of the area particularly during flowering periods. An area where the watercourse has been dammed was observed to be providing water resources for a number of bird species and feral dogs. It may also provide habitat for aquatic fauna such as Water Rat (*Hydromys chrysogaster*) and freshwater turtle species.

A variety of eucalypt and allied species that are known koala food trees were recorded across the site. Two species that are generally recognised as primary food tree species were recorded on the site as well as an additional seven species that are recognised as secondary species, these are identified in **Table 6**.

TABLE 6 **RECOGNISED KOALA FOOD TREES RECORDED ON THE SITE**

SPECIES NAME	COMMON NAME
Primary Species	
<i>Eucalyptus microcorys</i>	Tallowwood
<i>Eucalyptus tereticornis</i>	Qld blue Gum
Secondary Species	
<i>Corymbia citriodora</i>	Spotted Gum
<i>Corymbia intermedia</i>	Pink Bloodwood
<i>Corymbia tessellaris</i>	Moreton Bay Ash
<i>Eucalyptus carnea</i>	Broad-leaved White Mahogany
<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark
<i>Eucalyptus moluccana</i>	Gum-topped box
<i>Melaleuca quinquenervia</i>	Broad-leaved Paperbark

Eucalyptus microcorys was recorded as being very rare on the site with one specimen observed on the creek line adjacent to the eastern boundary of Lot 240 on CA31519. This tree appeared to be frequently used by koalas as indicated by the presence of numerous faecal pellets and bark that was heavily abraded. Thus it is considered that areas where *Eucalyptus tereticornis* is dominant provide the most valuable koala habitat on the site. Vegetation communities dominated by *E. tereticornis* include communities 2, 7 and 8 (**Figure 5**).

Portions of the site have also been mapped by the EPA as an Essential Habitat Overlay on Regional Ecosystem mapping for koala. The “essential habitat” overlay matches the distribution of remnant vegetation across the site (note this species is also discussed further in **Section 4.3**).

During the field assessment an observation was made of a number of significant trees which would provide significant habitat for a large number of vertebrate and invertebrate fauna species (*Eucalyptus tereticornis*, *Corymbia trachyphloia* and *E. moluccana*) located along both side of Millers Road which traverses the southern boundary of Lot 238 on CA31519.

4.3 SIGNIFICANT SPECIES

Twenty-three potentially occurring significant species were identified using Wildlife Online, Queensland Museum, Birds Australia and EPBC databases prior to the survey. **Table 7** discusses the likelihood of these species occurring in the study area.

Two species, koala (*Phascolarctos cinereus*) and little pied bat (*Chalinolobus picatus*), were recorded during site inspections. Under the *Nature Conservation (Wildlife) Regulations 2006* the koala is listed as Vulnerable within the southeast Queensland bioregion and the little pied bat is listed as Rare.

Koalas were recorded on 6 occasions feeding on suitable eucalypt species within areas of both remnant and non-remnant vegetation. Due to the open nature of the site and lack of restrictions to the movements of koalas in the region, it is likely that koalas would utilise the majority of portions of the site where eucalypt feed tree species occur. **Figure 6** indicates the locations of koalas recorded during the survey period.

Calls of little pied bat (*Chalinolobus picatus*) were recorded on the site at using Anabat at 5 separate locations (**Figure 6**). Little is known about the species and until recently it was believed to roost only in dry caves or mine shafts (Strahan 1995). This was until to the discovery of a colony of close to 40 individuals encountered roosting tightly clustered behind the door of an abandoned house and additional captures suggest it also uses tree hollows, and other abandoned buildings (Ayers *et al.* 1996). Prior to this it was considered that a lack of suitable roosts may have offered an explanation for the rareness of the species.

It is evident that the bat is utilising the site for foraging resources (i.e. insects). The species is also known to be dependent on readily available access to drinking water in the form of dams, creeks or tanks (Smith *et al.* 1998). A record of the species during the survey period where the Anabat was placed near such water sources indicates that the species may also be drinking from or foraging around these features. It is also a possibility that tree hollows, houses, sheds and other structures present on the site are being utilised as roosting habitat.

One significant species, grey-headed flying fox (*Pteropus poliocephalus*), is considered likely to occur on the site due to the presence of highly suitable habitat occurring on the site. Eleven significant species revealed under database searches are considered to be possible occurrences on the site. The majority of these significant species potentially occurring on the site (Possible in **Table 7**) are considered most likely to occur within areas of remnant vegetation present on the site.

TABLE 7 SIGNIFICANT FAUNA POTENTIALLY OCCURRING WITHIN THE SITE

SPECIES NAME	COMMON NAME	STATUS ¹	HABITAT	LIKELIHOOD OF OCCURRENCE
Amphibians				
<i>Mixophyes iteratus</i>	Giant Barred Frog	QE, CE	Habitat includes shallow, rocky rainforest streams and adjacent to slow-moving rivers in rainforest, Antarctic beech forest and wet sclerophyll forest	Unlikely
Birds				
<i>Calyptorhynchus lathamii</i>	Glossy Black Cuckoo	QV	Allocasuarina species within woodland, forests, timbered water courses.	Unlikely
<i>Cyclopsitta diophthalma coxeni</i>	Coxen's Fig-Parrot	QE, CE	Rainforests, adjacent eucalypt woodlands and coastal scrubs with fig and soft fruit trees	Unlikely
<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	QR	Coastal wetlands, mangroves, tidal mudflats, and estuaries	Unlikely
<i>Erythrorhynchus radiatus</i>	Red Goshawk	QE, CV	Open forests, woodlands especially near rivers, wetlands, rainforest fringes	Possible
<i>Geophaps scripta</i>	Squatter Pigeon	QV, CV	Grassy understorey of eucalypt woodland, usually with ready access to water	Possible
<i>Lathamus discolor</i>	Swift Parrot	CE	Eucalypt forests and woodlands, plantations and banksias	Possible
<i>Lophoictinia isura</i>	Square-tailed Kite	QR	Heathland, Woodland, forests, tropical and subtropical rainforest	Possible
<i>Nettapus coromandelianus</i>	Cotton Pygmy-Goose	QR	Deeper freshwater swamps, lagoons, dams.	Unlikely
<i>Ninox strenua</i>	Powerful Owl	QV	Mountain and coastal forests, gullies and forest margins, woodlands, scrubs, pine plantations and gardens in hollow trunks or limbs	Possible
<i>Rostratula australis</i>	Australian Painted Snipe	CV	Well vegetated shallows and margins of wetlands and other water courses	Unlikely
<i>Rostratula benghalensis</i>	Painted Snipe	QV, CV	Well vegetated shallows and margins of wetlands and other water courses	Unlikely
<i>Turnix melanogaster</i>	Black-breasted Button-quail	QV, CV	Leaf litter in drier rainforests and scrubby woodlands	Unlikely
<i>Xanthomyza phrygia</i>	Regent Honeyeater	QE, CE	Dry open eucalypt forests and woodlands particularly along creek flats	Possible
<i>Falco hypoleucos</i>	Grey Falcon	QR	Varied open habitats including pasture and semi-arid regions	Possible
Reptiles				
<i>Delma toruata</i>	Collared Delma	QV, CV	Found in numerous disturbed habitats throughout Southeast Queensland	Possible
<i>Furina dunmali</i>	Dunmall's Snake	CV	Eucalypt and Callitris Woodland and Brigalow scrub.	Possible

SPECIES NAME	COMMON NAME	STATUS ¹	HABITAT	LIKELIHOOD OF OCCURRENCE
Mammals				
<i>Chalinolobus dwyeri</i>	Large-eared Bat	QR, CV	Caves and mines in dry sclerophyll forests and woodlands as well as higher altitude moist eucalypt forest and edges of rainforest	Possible
<i>Dasyurus maculatus</i>	Spotted-tail Quoll	QV, CE	Rainforest, open forest, woodland, coastal heathland and inland riparian forest from sea-level to sub-alps	Possible
<i>Petrogale penicillata</i>	Brush-tailed wallaby	CV	Rainforest Gullies, wet and dry sclerophyll forest, open woodland and rocky outcrops within its range.	Unlikely
<i>Phascolarctos cinereus</i>	Koala	QV (SEQ)	Eucalypt forest and woodland, particularly with high-nutrient soils	Confirmed
<i>Potorous tridactylus</i>	Long-nosed Potoroo	CV	Subtropical and warm temperate rainforest, wet sclerophyll forest and coastal heathy woodland with dense understorey and light, sandy soils	Unlikely
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	CV	Rainforests, mangroves, Paperbark swamps, wet and dry sclerophyll forest often in gullies and near water	Likely

¹ Status: NC(W)R 2006 - QR = Rare, QV = Vulnerable, QE = Endangered, QV = Vulnerable, CE = Endangered, CV = Vulnerable
 (Source: Birds Australia, Queensland Museum, Wildlife Online and EPBC Databases, 2007)

4.4 PEST SPECIES

Cane toads were captured within pitfall traps placed across the site. Also observed during spotlighting surveys were the European rabbit, European hare, and signs of feral dogs, feral pigs, foxes and feral cats. These species are all likely to have serious detrimental effects on native fauna of the site. Several fox kills which appeared to be wood ducks (*Chenonetta jubata*) were observed on the site, and pig tracks were observed to be fouling a watering point on the western boundary. Consideration for control of these species should be made as part of the management of retained vegetation and open space.



Legend

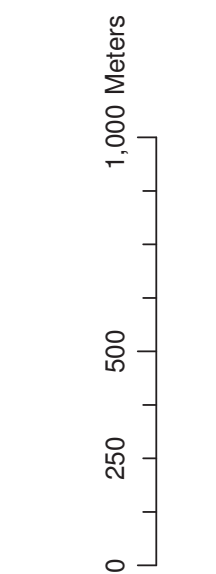
Approximate Significant Species Locations

- Koala
- Little Pied Bat
- Little Pied Bat - near water
- Cadastre

natural solutions
 environmental solutions
 NATURAL SOLUTIONS CONSULTANTS
 BRISBANE, QUEENSLAND, AUSTRALIA
 A.B.N. 98 110 152 716
 Fax: 07 4951 5322
 www.naturalsolutions.com.au

Figure 6 - Significant Species Locations

Department of Public Works -			
Project Services			
Scale	Size	Program	Checked
1:12,463	A3	AreGIS	
Drawn	Project Manager		
TL	RF		
Date	Issue	Drawing No.	
May 2007	Final	Figure 6	



DIGITAL CADASTRAL DATA BASE
 (Version 1.0, 2006/05/05)
 Prepared in accordance with the Department of Natural Resources
 and Environment's Digital Data Base (DDB) Standard (Version 1.0, 2006/05/05).
 This data is provided with the permission of the Department of Natural
 Resources and Environment. It is intended for use as a reference only and
 should not be used for any other purpose. It is not intended to be used
 as a substitute for a cadastral plan or any other legal document.
 The Department of Natural Resources and Environment is not
 responsible for any errors or omissions in this data base. It is the
 user's responsibility to ensure the accuracy of the data for their
 own use.

IMPORTANT NOTE

This plan is prepared for the use of the client and is not to be used for any other purpose. The accuracy of the information shown on this plan is not guaranteed. The client is responsible for ensuring the accuracy of the information shown on this plan. The accuracy of the information shown on this plan is not guaranteed. The client is responsible for ensuring the accuracy of the information shown on this plan. The accuracy of the information shown on this plan is not guaranteed. The client is responsible for ensuring the accuracy of the information shown on this plan.

5.0 BIODIVERSITY VALUES

5.1 INTRODUCTION

An assessment of the conservation values of the site was undertaken using the Common Nature Conservation Classification System (CNCCS) based on the information described in this report. The CNCCS focuses on the classification of remnant vegetation to assess the state, regional and local significance of such areas. However, rather than assess the conservation values for these three prescribed levels, one overall value has been utilised for this project.

The assessment of the conservation values for the proposed site utilised the following criteria from the CNCCS methodology:

- Habitat for significant species;
- Ecosystem value;
- Remnant size;
- Relative Size of Ecosystem;
- Ecosystem Diversity;
- Condition; and
- Context and connectivity.

CNCCS investigations can be undertaken at either a basic, intermediate or advanced level. For this investigation an advanced level of assessment was undertaken which incorporates field survey data.

5.2 SITE ASSESSMENT

The study area is considered to have an overall medium-high biodiversity value due to the vegetation type, connectivity and species diversity (**Table 8**). Based upon the site assessment, the site provides habitat, a movement corridor and foraging resources for native fauna. Two significant fauna species (koala and little pied bat) and appropriate habitat were recorded on the site. The site also contains a number of threatened plant species and one critically endangered EPBC threatened community. However, it is unlikely that the site provides critical habitat for any significant fauna species but is very important for the critically endangered EPBC threatened community. Therefore, the site is considered to have medium to high biodiversity values.

TABLE 8 BIODIVERSITY AND CONSERVATION VALUE ASSESSMENT SUMMARY

CRITERIA	INDICATORS	SITE VALUE	COMMENTS
Significant Habitat for 'At Risk' Species	<ul style="list-style-type: none"> ▪ Database searches (e.g. Wildlife Online) ▪ Flora and Fauna habitat assessment ▪ Flora and Fauna survey 	Medium- High	Two significant fauna species (koala & little pied bat) and appropriate habitat were recorded on the site. Also three significant plant species were recorded. Several other significant species were also considered likely to be found on areas of the site. However, only certain areas of the site contain suitable and/or possible habitat for significant species. Also, it is unlikely given the past disturbances to the site, and the surrounding high quality of vegetation and habitats within the Lockyer Forest

CRITERIA	INDICATORS	SITE VALUE	COMMENTS
			Reserve that the site represents 'critical' habitat for the identified significant species.
Ecosystem Value	<ul style="list-style-type: none"> ▪ RE mapping ▪ Essential Habitat mapping ▪ Significant wetlands 	Medium-High	Although there is RE mapping over the site this mapping is incorrect in some areas. The current vegetation on the site contains 'endangered' and 'of concern' REs. However there are areas of the site that are disturbed and contain little to no vegetation or non-remnant vegetation. Essential Habitat for Koalas is also mapped on the site.
Remnant Size	<ul style="list-style-type: none"> ▪ Area 	Medium	The site is quite large and consequently the areas of Remnant vegetation are also large. However, there are also large areas of non-remnant vegetation on the site. Also the site is in close proximity to Lockyer Forest Reserve which contains a large area of remnant vegetation.
Relative Size of Ecosystem	<ul style="list-style-type: none"> ▪ Percentage of the largest remnant in the bioregion 	Low-Medium	The site is in close proximity to Lockyer Forest Reserve which contains a large area of remnant vegetation with similar REs. Also areas to the north of the site also contain similar sized and type of REs as what is mapped on the site.
Condition	<ul style="list-style-type: none"> ▪ Aerial photo interpretation ▪ Vegetation and habitat survey 	Medium	The site and study area has been highly disturbed and modified due to past/present landuses which have affected the overall condition of the site. However, there are areas of the site which still contain relatively intact vegetation.
Ecosystem Diversity	<ul style="list-style-type: none"> ▪ Simpson's Diversity Index (SDI) 	High	Two significant fauna species (koala & little pied bat) and appropriate habitat were recorded on the site. Also three significant plant species were recorded. Several other significant species were also considered likely to be found on areas of the site. In addition, a number of vegetation communities and flora and fauna species were identified on the site. Considering the survey limitations and context of the site (i.e. past and present disturbances / landuses) the site contains relatively high diversity.
Context & Connection	<ul style="list-style-type: none"> ▪ Natural waterbodies and streams; ▪ Linkages to other contiguous areas of vegetation 	Medium-High	The vegetated portions within the site are relatively well connected. The western portion of the site has high connectivity to Lockyer Forest Reserve. There is some degree of east –west connectivity across the site however the connectivity decreases towards the eastern portion of the site.

5.3 CORRIDORS AND LINKAGES

Apart from the cleared areas, the site is relatively well vegetated and connectivity within the site is quite high. On a broad scale, the vegetation within the western portion of the site is connected with vegetation within the Lockyer Forest Reserve. Connectivity across the site decreases towards the eastern portion of the site and connectivity with land to the east is also decreased as it consists mainly of cleared areas.

Fauna species that require vegetative connectivity will rely heavily on the connectivity currently provided by the site. It is thought that the fauna diversity on the site is in part due to the connectivity the site has with Lockyer Forest Reserve. However, within the overall study area connectivity is generally low to medium (apart from the area containing Lockyer Forest Reserve). This is due to disturbances such as the clearing for farming purposes and roads.

5.4 WATERWAYS

On the site a creek runs in a north-west to south-east direction across the site. This creek originates from within Lockyer Forest Reserve and becomes indefinable towards the end of the creek. It is around this area where obvious 'wet-soaks' are found on the site. It is thought that as the creek banks become indefinable the water (in times of flow) flows out and over the land (overland flow) which creates these 'wet-soak' areas. These areas are important as they currently contain two separate *Melaleuca irbyana* vegetation communities, which is a Critically Endangered Ecological Community under the *EPBC Act* 1999.

6.0 PROPOSED DEVELOPMENT

6.1 OPPORTUNITIES AND CONSTRAINTS

Based on the available background information and the site surveys it is considered that the site contains some significant ecological / environmental values and thus is somewhat constrained. Therefore, the site and surrounds support environmental values that require appropriate management / conservation.

Management and / or incorporation of the following environmental issues should be considered if any development is planned for the site:

- Areas of endangered remnant vegetation;
- Areas containing the Critically Endangered EPBC Threatened Ecological Community;
- Location of threatened flora species;
- Provision of fauna habitat (i.e. hollow bearing trees and koala habitat);
- Maintenance of connectivity within the site and between site and surrounds;
- Presence, movement and management of koalas on the site;
- Presence of the Creek on the site;
- Potential effects upon the creek and adjoining Lockyer Forest Reserve; and
- Management of pest species.

6.2 ECOLOGICAL CONSTRAINTS

A map of potential site environmental constraints is presented in **Figure 7** and summarised below (**Table 9**).

TABLE 9 CATEGORIES OF ENVIRONMENTAL CONSTRAINT MAPPED ON THE SITE

ENVIRONMENTAL CONSTRAINT	BASIS	OPPORTUNITY
HIGH	<ul style="list-style-type: none"> ▪ Endangered REs ▪ Habitat for Significant Species 	<ul style="list-style-type: none"> ▪ No development should occur in these areas
MODERATE	<ul style="list-style-type: none"> ▪ Contains Not of Concern REs ▪ Possible habitat for significant species ▪ Provision of vegetative connectivity 	<ul style="list-style-type: none"> ▪ Retention of some vegetation to allow for habitat and connectivity for significant species (e g Koalas) ▪ Retention of some vegetation to provide a buffer area to High constraint areas and Lockyer Forest Reserve
LOW AND VERY LOW	<ul style="list-style-type: none"> ▪ Cleared areas ▪ Regrowth/Non-remnant vegetation ▪ Low diversity ▪ Disturbed habitat ▪ Low connectivity 	<ul style="list-style-type: none"> ▪ Likely development area

6.3 RECOMMENDATIONS

Any development application made on the site is likely to require compliance under a number of Legislations. It is important to note that the *Vegetation Management Act* 1999 prohibits the clearing of Endangered and Of Concern remnant vegetation on the site. Also any MCU or RaL applications will trigger DNRW as a concurrence agency and will require the development complies with the relevant Concurrence Agency Policies.

Council may require the retention of vegetation on the site due to its presence on the Biodiversity Overlay map. Any development on the site will need to comply with the Biodiversity Overlay Code. Solutions for complying with the Code are provided within the Code and include retention of significant vegetation and fauna habitat, conservation of known populations of threatened species, retention of waterways and vegetated corridors, and buffering for edge effects (see Code for full details). Other Council environmental constraints include provision for Bushfire Management.

The cleared areas (i.e. mapped as very low constraint) as well as areas of non-remnant vegetation (i.e. mapped as low constraint) provide the best opportunities for development while retaining the ecological integrity of the site. Some development (albeit limited and with appropriate mitigation measures) may be possible within the areas of Moderate constraint.

In summary:

- The cleared area has relatively low environmental constraints and could potentially be used for development;
- Limited and/or highly mitigated development only should occur in the area marked as Medium Constraint (**Figure 7**). These areas are considered important as they contain Not of Concern remnant vegetation and provide other ecologically important for fauna habitat (especially koalas). Appropriate development within this area may include carparks (with retention of habitat trees and other ecological features);
- No development should (or is allowed under relevant legislation) occur within the areas marked as High Constraint;
- Consideration should be given to providing a vegetated linkage across the site. It is recommended that this linkage be placed along the creek as well as along the western and northern boundary of the site (**Figure 7**);
- As the site contains koalas, consideration should be given to incorporating koala sensitive design principals within the development. Such principals include retention of mature koala feed trees, providing vegetative linkages across the site, planting of koala feed trees, koala friendly or exclusion fencing and road design and placement;
- As the little pied bat (*Chalinolobus picatus*) has been recorded on the site, consideration should be given to searching for and retaining any hollow trees and waterbodies found on the site;
- It is recommended that a spotter-catcher be employed to oversee any vegetation clearing on the site. This is particularly important due to the presence of koalas and little pied bat on the site. The site-specific methodology for the spotter-catcher should be outlined in the further reporting that is likely to be necessary for the site (see the last points below) but should include

- provisions for searching any structures to be removed for the little pied bat and allowing for any koalas spotted to move off the site of their own accord;
- Consideration should be given to identifying and allowing a specialist to adequately relocate any native bee hives that are situated within trees to be removed;
 - A number of significant trees which provide significant habitat fauna species and contribute to the local scenic amenity are located along both side of Millers Road which traverses the southern boundary of Lot 238 on CA31519. While these trees are outside of the study area it is recognised that Millers Road will require an upgrade to facilitate traffic to and from the proposed development. Therefore detailed design of the proposed development should consider the location of any upgrade of Millers Road and attempt to retain as many of these mature trees as possible;
 - Any development is likely to be required to incorporate the aforementioned environmental values in the proposal and may require a number of Legislative requirements to be met. If any direct or indirect impact is proposed to any Matters of Environmental Significance (as defined under EPBC Act 1999) then an EPBC referral may be required; and
 - Additional mitigation measures may be required / recommended for the site based on the ultimate proposed development layout. Such measures may include a Threatened Species Management Plan for the site (including recommendations for detailed surveys of vegetation to be cleared in order to identify and translocate any threatened species), and / or other detailed management plans (including vegetation / rehabilitation, stormwater, landscaping and an overall environmental management plan). It is likely that these plans will be required as part of a development approval condition.

7.0 CONCLUSION

This assessment provides an indication of potential environmental issues that are likely to require further consideration if a development application is to be submitted to Council. It also provides an indication of the area that has the potential to support some form of development.

On the basis of this ecological assessment, the site appears to offer opportunities for development, which incorporate the site's environmental values.

Further detailed assessment (e.g. analysis of environmental impact and mitigation based on development layout and completion of appropriate Codes / Policies etc.) is likely to be required to accompany a Development Application.

8.0 REFERENCES

- Ayers, D., Nash, S. and Baggett, K., (1996) *Threatened Species of Western New South Wales*. National Parks and Wildlife Service, Hurstville.
- Birds Australia (2007) *Birddata*. Accessed via www.birddata.com.au
- Boyes, B (2002) *Description, Habitat and Threats for the Significant Species and Ecological Communities of Gatton and Laidley Shire, SEQ*. The Lockyer Catchment Association.
- Bureau of Meteorology (2007) *Climate Data for Gatton Region*. Accessed via www.bom.gov.au
- DEWR (2007) *EPBC Act Protected Matters Report* (10 April 2007). Department of Environment and Water Resources, Canberra.
- EPA (2002) *Biodiversity Assessment and Mapping Methodology*. Environmental Protection Agency, Brisbane.
- EPA (2005) *Regional Ecosystem Extract: Digital Data, Zone 56 Version 5.0*. Environmental Protection Agency, Brisbane.
- EPA (2007a) *Queensland Herbarium Database Extract*. (17 April 2007). Environmental Protection Agency, Brisbane.
- EPA (2007b) *Wildlife Online Database Extract* (11 April 2007). Environmental Protection Agency, Brisbane.
- Gatton Shire Council (2007). *Gatton Planning Scheme*. Accessed via www.gatton.qld.gov.au
- Neldner, V.J., Wilson, B.A., Thompson, E.J. and Dilleward, H.A. (2004) *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland (Version 3 2004)*. Botanical Sciences, Queensland Herbarium, Environment Protection Agency.
- Queensland Government (2005) *South East Queensland Regional Plan 2005-2026*. Department of Local Government, Planning Sport and Recreation.
- Queensland Museum (2007) *Records Database Search*. Brisbane.
- Strahan, R. (1995) *The Mammals of Australia*. Reed New Holland, Sydney.
- Smith, J., Ellis, M., Ayers, D., Mazzer, T., Wallace, G., Langdon, A., and Cooper, M. (1998) *The Fauna of Western NSW: The Northern Floodplains Region*. NSW National Parks and Wildlife Service, Hurstville.

APPENDIX 1

Database Search Results



Protected Matters Search Tool

You are here: [Environment Home](#) > [EPBC Act](#) > [Search](#)

10 April 2007 10:11

EPBC Act Protected Matters Report

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: Point
Buffer: 5 km
Coordinates: -27.4710,152.30862



Report Contents: [Summary](#)
[Details](#)

- [Matters of NES](#)
- [Other matters protected by the EPBC Act](#)
- [Extra Information](#)

[Caveat](#)
[Acknowledgments](#)



This map may contain data which are
© Commonwealth of Australia
(Geoscience Australia)
© 2007 MapData Sciences Pty Ltd, PSMA

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
<u>Wetlands of International Significance:</u> (Ramsar Sites)	1
Commonwealth Marine Areas:	None
<u>Threatened Ecological Communities:</u>	2
<u>Threatened Species:</u>	21
<u>Migratory Species:</u>	17

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:	None
<u>Listed Marine Species:</u>	15
Whales and Other Cetaceans:	None
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:	None
Other Commonwealth Reserves:	None
Regional Forest Agreements:	1

Details

Matters of National Environmental Significance

Wetlands of International Significance [[Dataset Information](#)]
(Ramsar Sites)

[MORETON BAY](#)

Within same catchment as Ramsar site

Threatened Ecological Communities [[Dataset Information](#)]

Status Type of Presence

[Swamp Tea-tree \(*Melaleuca irybana*\) Forest of South-east Queensland](#)

Critically Endangered Community may occur within area

[White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland](#)

Critically Endangered Community may occur within area

Threatened Species [[Dataset Information](#)]

Status Type of Presence

Birds

[Cyclopsitta diophthalma coxeni](#)*
Coxen's Fig-Parrot

Endangered Species or species habitat likely to occur within area

[Erythrotriorchis radiatus](#) *
Red Goshawk

Vulnerable Species or species habitat likely to occur within area

[Geophaps scripta scripta](#)*
Squatter Pigeon (southern)

Vulnerable Species or species habitat likely to occur within area

[Lathamus discolor](#) *
Swift Parrot

Endangered Species or species habitat may occur within area

[Rostratula australis](#) *
Australian Painted Snipe

Vulnerable Species or species habitat may occur within area

[Turnix melanogaster](#) *
Black-breasted Button-quail

Vulnerable Species or species habitat likely to occur within area

[Xanthomyza phrygia](#) *
Regent Honeyeater

Endangered Species or species habitat may occur within area

Frogs

[Mixophyes iteratus](#) *
Southern Barred Frog, Giant Barred Frog

Endangered Species or species habitat likely to occur within area

Mammals

[Chalinolobus dwyeri](#) *
Large-eared Pied Bat, Large Pied Bat

Vulnerable Species or species habitat may occur within area

[Dasyurus maculatus maculatus \(SE mainland population\)](#)*
Spot-tailed Quoll, Spotted-tail Quoll, Tiger

Endangered Species or species habitat may occur within area

Quoll (southeastern mainland population)

<i>Petrogale penicillata</i> * Brush-tailed Rock-wallaby	Vulnerable	Species or species habitat may occur within area
<i>Potorous tridactylus tridactylus</i> * Long-nosed Potoroo (SE mainland)	Vulnerable	Species or species habitat may occur within area
<i>Pteropus poliocephalus</i> * Grey-headed Flying-fox	Vulnerable	Species or species habitat likely to occur within area

Reptiles

<i>Delma torquata</i> * Collared Delma	Vulnerable	Species or species habitat may occur within area
<i>Furina dunmali</i> * Dunmall's Snake	Vulnerable	Species or species habitat may occur within area

Plants

<i>Arthraxon hispidus</i> * Hairy-joint Grass	Vulnerable	Species or species habitat likely to occur within area
<i>Cryptostylis hunteriana</i> * Leafless Tongue-orchid	Vulnerable	Species or species habitat may occur within area
<i>Grevillea quadricauda</i> * 	Vulnerable	Species or species habitat likely to occur within area
<i>Haloragis exalata subsp. velutina</i> * 	Vulnerable	Species or species habitat likely to occur within area
<i>Paspalidium grandispiculatum</i> * 	Vulnerable	Species or species habitat likely to occur within area
<i>Thesium australe</i> * Austral Toadflax, Toadflax	Vulnerable	Species or species habitat likely to occur within area
Migratory Species [Dataset Information]	Status	Type of Presence

Migratory Terrestrial Species

Birds

<i>Cyclopsitta diophthalma coxeni</i> * Coxen's Fig-Parrot	Migratory	Species or species habitat likely to occur within area
<i>Haliaeetus leucogaster</i> White-bellied Sea-Eagle	Migratory	Species or species habitat likely to occur within area
<i>Hirundapus caudacutus</i> White-throated Needletail	Migratory	Species or species habitat may occur within area
<i>Merops ornatus</i> * Rainbow Bee-eater	Migratory	Species or species habitat may occur within area
<i>Monarcha melanopsis</i> Black-faced Monarch	Migratory	Breeding may occur within area
<i>Monarcha trivirgatus</i> Spectacled Monarch	Migratory	Breeding likely to occur within area
<i>Myiagra cyanoleuca</i> Satin Flycatcher	Migratory	Breeding likely to occur within area
<i>Rhipidura rufifrons</i> Rufous Fantail	Migratory	Breeding may occur within area
<i>Xanthomyza phrygia</i> Regent Honeyeater	Migratory	Species or species habitat may occur within area

Migratory Wetland Species

Birds

<i>Ardea alba</i> Great Egret, White Egret	Migratory	Species or species habitat may occur within area
<i>Ardea ibis</i> Cattle Egret	Migratory	Breeding likely to occur within area
<i>Gallinago hardwickii</i> * Latham's Snipe, Japanese Snipe	Migratory	Species or species habitat may occur within area
<i>Nettapus coromandelianus albigularis</i> Australian Cotton Pygmy-goose	Migratory	Species or species habitat may occur within area
<i>Rostratula benghalensis s. lat.</i> Painted Snipe	Migratory	Species or species habitat may occur within area

Migratory Marine Birds

<i>Apus pacificus</i> Fork-tailed Swift	Migratory	Species or species habitat may occur within area
<i>Ardea alba</i> Great Egret, White Egret	Migratory	Species or species habitat may occur within area
<i>Ardea ibis</i> Cattle Egret	Migratory	Breeding likely to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species [[Dataset Information](#)]

Birds

Listed Marine Species [Dataset Information]	Status	Type of Presence
<i>Anseranas semipalmata</i> Magpie Goose	Listed - overfly marine area	Species or species habitat may occur within area
<i>Apus pacificus</i> Fork-tailed Swift	Listed - overfly marine area	Species or species habitat may occur within area
<i>Ardea alba</i> Great Egret, White Egret	Listed - overfly marine area	Species or species habitat may occur within area
<i>Ardea ibis</i> Cattle Egret	Listed - overfly marine area	Breeding likely to occur within area
<i>Gallinago hardwickii</i> * Latham's Snipe, Japanese Snipe	Listed - overfly marine area	Species or species habitat may occur within area
<i>Haliaeetus leucogaster</i> White-bellied Sea-Eagle	Listed	Species or species habitat likely to occur within area
<i>Hirundapus caudacutus</i> White-throated Needletail	Listed - overfly marine area	Species or species habitat may occur within area

<u><i>Lathamus discolor</i></u> * Swift Parrot	Listed - overfly marine area	Species or species habitat may occur within area
<u><i>Merops ornatus</i></u> * Rainbow Bee-eater	Listed - overfly marine area	Species or species habitat may occur within area
<u><i>Monarcha melanopsis</i></u> Black-faced Monarch	Listed - overfly marine area	Breeding may occur within area
<u><i>Monarcha trivirgatus</i></u> Spectacled Monarch	Listed - overfly marine area	Breeding likely to occur within area
<u><i>Myiagra cyanoleuca</i></u> Satin Flycatcher	Listed - overfly marine area	Breeding likely to occur within area
<u><i>Nettapus coromandelianus albipennis</i></u> Australian Cotton Pygmy-goose	Listed - overfly marine area	Species or species habitat may occur within area
<u><i>Rhipidura rufifrons</i></u> Rufous Fantail	Listed - overfly marine area	Breeding may occur within area
<u><i>Rostratula benghalensis s. lat.</i></u> Painted Snipe	Listed - overfly marine area	Species or species habitat may occur within area

Extra Information

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.

Last updated:

[Department of the Environment and Water Resources](#)

GPO Box 787 Canberra ACT 2601 Australia

Telephone: +61 (0)2 6274 1111

© Commonwealth of Australia 2004



Queensland Government

Environmental Protection Agency

Queensland Parks and Wildlife Service

Wildlife Online Extract

Search Criteria: Species List for a Specified Point

Species: All

Status: All

Date: Since 1980

Latitude: 27.464667

Longitude: 152.304222

Distance: 5

Email: rob@robfriend.com.au

Date submitted: Wednesday 11 Apr 2007 17:51:13

Date extracted: Wednesday 11 Apr 2007 18:01:02

The number of records retrieved = 457

animals	amphibians	Bufo marinus	cane toad	.	14
animals	amphibians	Litoria nasuta	striped rocketfrog	C	1
animals	amphibians	Litoria dentata	bleating treefrog	C	2
animals	amphibians	Litoria rubella	ruddy treefrog	C	4
animals	amphibians	Litoria wilcoxii		C	5
animals	amphibians	Litoria fallax	eastern sedgefrog	C	2
animals	amphibians	Litoria latopalmata	broad palmed rocketfrog	C	5
animals	amphibians	Uperoleia fusca	dusky gungan	C	1
animals	amphibians	Crinia signifera	clicking froglet	C	1
animals	amphibians	Pseudophryne major	great brown broodfrog	C	6
animals	amphibians	Uperoleia laevigata	eastern gungan	C	1
animals	amphibians	Crinia parinsignifera	beeping froglet	C	3
animals	amphibians	Limnodynastes ornatus	ornate burrowing frog	C	1
animals	amphibians	Limnodynastes peronii	striped marshfrog	C	3
animals	amphibians	Pseudophryne coriacea	red backed broodfrog	C	2
animals	amphibians	Limnodynastes dumerilii	grey bellied pobblebonk	C	1
animals	amphibians	Limnodynastes tasmaniensis	spotted grassfrog	C	1
animals	amphibians	Limnodynastes terraereginae	scarlet sided pobblebonk	C	7
animals	birds	Haliaeetus leucogaster	white-bellied sea-eagle	C	29
animals	birds	Erythrorhynchus radiatus	red goshawk	E	1
animals	birds	Pandion haliaetus	osprey	C	1
animals	birds	Elanus axillaris	black-shouldered kite	C	1
animals	birds	Aquila audax	wedge-tailed eagle	C	6
animals	birds	Lophocitnia isura	square-tailed kite	R	1
animals	birds	Haliastur sphenurus	whistling kite	C	17
animals	birds	Aviceda subcristata	Pacific baza	C	1
animals	birds	Aegothales cristatus	Australian owl-nightjar	C	19
animals	birds	Anas castanea	chestnut teal	C	6
animals	birds	Cygnus atratus	black swan	C	40
animals	birds	Anas gracilis	grey teal	C	39
animals	birds	Anas rhynchosotis	Australasian shoveler	C	9
animals	birds	Oxyura australis	blue-billed duck	C	1
animals	birds	Chenonetta jubata	Australian wood duck	C	26
animals	birds	Dendrocygna arcuata	wandering whistling-duck	C	3
animals	birds	Malacorhynchus membranaceus	pink-eared duck	C	9
animals	birds	Nettapus coromandelianus	cotton pygmy-goose	R	11
animals	birds	Nettapus pulchellus	green pygmy-goose	C	8
animals	birds	Dendrocygna eytoni	plumed whistling-duck	C	6
animals	birds	Anas superciliosa	Pacific black duck	C	40
animals	birds	Aythya australis	hardhead	C	16
animals	birds	Anhinga melanogaster	darter	C	31
animals	birds	Anseranas semipalmata	magpie goose	C	5
animals	birds	Apus pacificus	fork-tailed swift	C	2
animals	birds	Hirundapus caudacutus	white-throated needletail	C	3
animals	birds	Ardea alba	great egret	C	36

animals	birds	Ardeidae	<i>Ardea pacifica</i>	white-necked heron	C	7
animals	birds	Ardeidae	<i>Egretta garzetta</i>	little egret	C	23
animals	birds	Ardeidae	<i>Egretta novaehollandiae</i>	white-faced heron	C	22
animals	birds	Ardeidae	<i>Nycticorax caledonicus</i>	nankeen night heron	C	3
animals	birds	Ardeidae	<i>Ardea intermedia</i>	intermediate egret	C	9
animals	birds	Ardeidae	<i>Ardea ibis</i>	cattle egret	C	14
animals	birds	Artamidae	<i>Gymnorhina tibicen</i>	Australian magpie	C	48
animals	birds	Artamidae	<i>Cracticus torquatus</i>	grey butcherbird	C	13
animals	birds	Artamidae	<i>Cracticus nigrogularis</i>	pie'd butcherbird	C	24
animals	birds	Artamidae	<i>Artamus leucorhynchus</i>	white-breasted woodswallow	C	7
animals	birds	Artamidae	<i>Artamus cyanopterus</i>	dusky woodswallow	C	1
animals	birds	Artamidae	<i>Strepera graculina</i>	pie'd currawong	C	14
animals	birds	Cacatuidae	<i>Cacatua galerita</i>	sulphur-crested cockatoo	C	1
animals	birds	Cacatuidae	<i>Nymphicus hollandicus</i>	cockatiel	C	22
animals	birds	Cacatuidae	<i>Calyptorhynchus funereus</i>	yellow-tailed black-cockatoo	C	1
animals	birds	Cacatuidae	<i>Calyptorhynchus lathami</i>	glossy black-cockatoo	V	3
animals	birds	Cacatuidae	<i>Cacatua roseicapilla</i>	galah	C	23
animals	birds	Campephagidae	<i>Lalage sueurii</i>	white-winged triller	C	2
animals	birds	Campephagidae	<i>Lalage leucomela</i>	varied triller	C	1
animals	birds	Campephagidae	<i>Coracina tenuirostris</i>	cicadabird	C	5
animals	birds	Campephagidae	<i>Coracina novaehollandiae</i>	black-faced cuckoo-shrike	C	22
animals	birds	Campephagidae	<i>Coracina papuensis</i>	white-bellied cuckoo-shrike	C	6
animals	birds	Campephagidae	<i>Coracina maxima</i>	ground cuckoo-shrike	C	1
animals	birds	Caprimulgidae	<i>Eurostopodus mystacalis</i>	white-throated nightjar	C	4
animals	birds	Centropodidae	<i>Centropus phasianinus</i>	pheasant coucal	C	1
animals	birds	Charadriidae	<i>Elseoyornis melanops</i>	black-fronted dotterel	C	16
animals	birds	Charadriidae	<i>Erythronyx cinctus</i>	red-kneed dotterel	C	6
animals	birds	Charadriidae	<i>Vanellus miles novaehollandiae</i>	masked lapwing (southern subspecies)	C	37
animals	birds	Charadriidae	<i>Charadrius ruficapillus</i>	red-capped plover	C	3
animals	birds	Ciconiidae	<i>Ephippiorhynchus asiaticus</i>	black-necked stork	R	1
animals	birds	Cinclosomatidae	<i>Psophodes olivaceus</i>	eastern whippbird	C	10
animals	birds	Cinclosomatidae	<i>Cinclosoma punctatum</i>	spotted quail-thrush	C	1
animals	birds	Climacteridae	<i>Cormobates leucophaeus</i>	white-throated treecreeper	C	10
animals	birds	Climacteridae	<i>Cormobates leucophaeus metastasis</i>	white-throated treecreeper (southern)	C	11
animals	birds	Columbidae	<i>Columba livia</i>	rock dove	.	2
animals	birds	Columbidae	<i>Geophaps scripta scripta</i>	squatter pigeon (southern subspecies)	V	1
animals	birds	Columbidae	<i>Streptopelia chinensis</i>	spotted turtle-dove	.	2
animals	birds	Columbidae	<i>Ocyphaps lophotes</i>	crested pigeon	C	14
animals	birds	Columbidae	<i>Phaps chalcoptera</i>	common bronzewing	C	10
animals	birds	Columbidae	<i>Macropygia amboinensis</i>	brown cuckoo-dove	C	1
animals	birds	Columbidae	<i>Geopelia humeralis</i>	bar-shouldered dove	C	6
animals	birds	Columbidae	<i>Geopelia striata</i>	peaceful dove	C	14
animals	birds	Coraciidae	<i>Eurystomus orientalis</i>	dollarbird	C	9
animals	birds	Cororaciidae	<i>Corcorax melanorhamphos</i>	white-winged chough	C	1
animals	birds	Corvidae	<i>Corvus orru</i>	Torresian crow	C	41

animals	birds	Cuculidae	<i>Cuculus pallidus</i>	pallid cuckoo	C	6
animals	birds	Cuculidae	<i>Chrysococcyx lucidus</i>	shining bronze-cuckoo	C	8
animals	birds	Cuculidae	<i>Cacomantis variolosus</i>	brush cuckoo	C	1
animals	birds	Cuculidae	<i>Scythrops novaehollandiae</i>	channel-billed cuckoo	C	5
animals	birds	Cuculidae	<i>Cacomantis flabelliformis</i>	fan-tailed cuckoo	C	5
animals	birds	Cuculidae	<i>Chrysococcyx minutillus</i>	little bronze-cuckoo	C	2
animals	birds	Cuculidae	<i>Eudynamys scolopacea</i>	common koel	C	7
animals	birds	Dicaeidae	<i>Dicaeum hirundinaceum</i>	mistletoebird	C	9
animals	birds	Dicruridae	<i>Myiagra inquieta</i>	restless flycatcher	C	4
animals	birds	Dicruridae	<i>Dicrurus bracteatus</i>	spangled drongo	C	2
animals	birds	Dicruridae	<i>Myiagra rubecula</i>	leaden flycatcher	C	9
animals	birds	Dicruridae	<i>Grallina cyanoleuca</i>	magpie-lark	C	48
animals	birds	Dicruridae	<i>Rhipidura leucophrys</i>	willie wagtail	C	42
animals	birds	Dicruridae	<i>Rhipidura fuliginosa</i>	grey fantail	C	40
animals	birds	Falconidae	<i>Falco berigora</i>	brown falcon	C	4
animals	birds	Falconidae	<i>Falco longipennis</i>	Australian hobby	C	1
animals	birds	Falconidae	<i>Falco cenchroides</i>	nankeen kestrel	C	16
animals	birds	Falconidae	<i>Falco subniger</i>	black falcon	C	1
animals	birds	Falconidae	<i>Falco peregrinus</i>	peregrine falcon	C	2
animals	birds	Falconidae	<i>Falco hypoleucos</i>	grey falcon	R	1
animals	birds	Halcyonidae	<i>Dacelo novaeguineae</i>	laughing kookaburra	C	40
animals	birds	Halcyonidae	<i>Todiramphus macleayii</i>	forest kingfisher	C	1
animals	birds	Halcyonidae	<i>Todiramphus sanctus</i>	sacred kingfisher	C	18
animals	birds	Hirundinidae	<i>Hirundo arde</i>	fairy martin	C	6
animals	birds	Hirundinidae	<i>Hirundo neoxena</i>	welcome swallow	C	11
animals	birds	Hirundinidae	<i>Hirundo nigricans</i>	tree martin	C	3
animals	birds	Hirundinidae	<i>Irediparra gallinacea</i>	comb-crested jacana	C	17
animals	birds	Jacaniidae	<i>Sterna caspia</i>	Caspian tern	C	2
animals	birds	Laridae	<i>Chlidonias hybridus</i>	whiskered tern	C	1
animals	birds	Laridae	<i>Chlidonias leucopterus</i>	white-winged black tern	C	1
animals	birds	Laridae	<i>Larus novaehollandiae</i>	silver gull	C	2
animals	birds	Laridae	<i>Malurus cyaneus</i>	superb fairy-wren	C	2
animals	birds	Laridae	<i>Malurus melanocephalus</i>	red-backed fairy-wren	C	15
animals	birds	Laridae	<i>Malurus lamberti</i>	variegated fairy-wren	C	7
animals	birds	Megapodiidae	<i>Alectura lathami</i>	Australian brush-turkey	C	4
animals	birds	Meliphagidae	<i>Meliphaga lewinii</i>	Lewin's honeyeater	C	25
animals	birds	Meliphagidae	<i>Lichenostomus chrysops</i>	yellow-faced honeyeater	C	48
animals	birds	Meliphagidae	<i>Myzomela sanguinolenta</i>	scarlet honeyeater	C	25
animals	birds	Meliphagidae	<i>Anthochaera chrysoptera</i>	little wattletbird	C	1
animals	birds	Meliphagidae	<i>Acanthorhynchus tenuirostris</i>	eastern spinebill	C	3
animals	birds	Meliphagidae	<i>Melithreptus brevirostris</i>	brown-headed honeyeater	C	2
animals	birds	Meliphagidae	<i>Plectorhyncha lanceolata</i>	striped honeyeater	C	10
animals	birds	Meliphagidae	<i>Melithreptus albogularis</i>	white-throated honeyeater	C	25
animals	birds	Meliphagidae	<i>Acanthagenys rufogularis</i>	spiny-cheeked honeyeater	C	1
animals	birds	Meliphagidae	<i>Philemon citreogularis</i>	little friarbird	C	11

animals	birds	Meliphagidae	<i>Manorina melanocephala</i>	noisy miner	C	35
animals	birds	Meliphagidae	<i>Philemon corniculatus</i>	noisy friarbird	C	39
animals	birds	Meliphagidae	<i>Lichenostomus fuscus</i>	fuscous honeyeater	C	11
animals	birds	Meliphagidae	<i>Lichmera indistincta</i>	brown honeyeater	C	11
animals	birds	Meliphagidae	<i>Melithreptus lunatus</i>	white-naped honeyeater	C	9
animals	birds	Meliphagidae	<i>Entomyzon cyanotis</i>	blue-faced honeyeater	C	2
animals	birds	Meropidae	<i>Merops ornatus</i>	rainbow bee-eater	C	18
animals	birds	Motacillidae	<i>Anthus novaeseelandiae</i>	Richard's pipit	C	5
animals	birds	Neositidae	<i>Daphoenositta chrysoptera</i>	varied sittella	C	6
animals	birds	Oriolidae	<i>Oriolus sagittatus</i>	olive-backed oriole	C	9
animals	birds	Oriolidae	<i>Sphecotheres viridis</i>	figbird	C	3
animals	birds	Pachycephalidae	<i>Colluricincla harmonica</i>	grey shrike-thrush	C	35
animals	birds	Pachycephalidae	<i>Pachycephala pectoralis</i>	golden whistler	C	20
animals	birds	Pachycephalidae	<i>Pachycephala rufiventris</i>	rufous whistler	C	35
animals	birds	Pardalotidae	<i>Acanthiza nana</i>	yellow thornbill	C	7
animals	birds	Pardalotidae	<i>Sericornis frontalis</i>	white-browed scrubwren	C	12
animals	birds	Pardalotidae	<i>Chthonicola sagittata</i>	speckled warbler	C	1
animals	birds	Pardalotidae	<i>Smicrornis brevirostris</i>	weebill	C	10
animals	birds	Pardalotidae	<i>Acanthiza chrysorrhoa</i>	yellow-rumped thornbill	C	10
animals	birds	Pardalotidae	<i>Pardalotus punctatus</i>	spotted pardalote	C	23
animals	birds	Pardalotidae	<i>Acanthiza pusilla</i>	brown thornbill	C	10
animals	birds	Pardalotidae	<i>Gerygone olivacea</i>	white-throated gerygone	C	17
animals	birds	Pardalotidae	<i>Acanthiza reguloides</i>	buff-rumped thornbill	C	11
animals	birds	Pardalotidae	<i>Pardalotus striatus</i>	striated pardalote	C	31
animals	birds	Pardalotidae	<i>Acanthiza lineata</i>	striated thornbill	C	4
animals	birds	Passeridae	<i>Neochmia modesta</i>	plum-headed finch	C	1
animals	birds	Passeridae	<i>Taeniopygia guttata</i>	zebra finch	C	1
animals	birds	Passeridae	<i>Neochmia temporalis</i>	red-browed finch	C	6
animals	birds	Passeridae	<i>Taeniopygia bichenovii</i>	double-barred finch	C	8
animals	birds	Pelecanidae	<i>Pelecanus conspicillatus</i>	Australian pelican	C	28
animals	birds	Petroicidae	<i>Petroica rosea</i>	rose robin	C	11
animals	birds	Petroicidae	<i>Microeca fascianans</i>	jacky winter	C	12
animals	birds	Petroicidae	<i>Eopsaltria australis</i>	eastern yellow robin	C	11
animals	birds	Phalacrocoracidae	<i>Phalacrocorax carbo</i>	great cormorant	C	21
animals	birds	Phalacrocoracidae	<i>Phalacrocorax varius</i>	piebald cormorant	C	7
animals	birds	Phalacrocoracidae	<i>Phalacrocorax sulcirostris</i>	little black cormorant	C	34
animals	birds	Phalacrocoracidae	<i>Phalacrocorax melanoleucos</i>	little pied cormorant	C	43
animals	birds	Phasianidae	<i>Coturnix ypsilophora</i>	brown quail	C	1
animals	birds	Podargidae	<i>Podargus strigoides</i>	tawny frogmouth	C	6
animals	birds	Podicipedidae	<i>Tachybaptus novaehollandiae</i>	Australasian grebe	C	37
animals	birds	Pomatostomidae	<i>Pomatostomus temporalis</i>	grey-crowned babbler	C	18
animals	birds	Psittacidae	<i>Lathamus discolor</i>	swift parrot	E	1
animals	birds	Psittacidae	<i>Alisterus scapularis</i>	Australian king-parrot	C	8
animals	birds	Psittacidae	<i>Platycercus adscitus</i>	pale-headed rosella	C	33
animals	birds	Psittacidae	<i>Psephotus haematotus</i>	red-rumped parrot	C	2

animals	birds	Psittacidae	<i>Trichoglossus haematodus moluccanus</i>	rainbow lorikeet	C	16
animals	birds	Psittacidae	<i>Trichoglossus chlorolepidotus</i>	scaly-breasted lorikeet	C	10
animals	birds	Psittacidae	<i>Glossopsitta concinna</i>	musk lorikeet	C	2
animals	birds	Psittacidae	<i>Glossopsitta pusilla</i>	little lorikeet	C	25
animals	birds	Psittacidae	<i>Platycercus eximius</i>	eastern rosella	C	1
animals	birds	Ptilonorhynchidae	<i>Ptilonorhynchus violaceus</i>	satin bowerbird	C	1
animals	birds	Rallidae	<i>Fulica atra</i>	Eurasian coot	C	21
animals	birds	Rallidae	<i>Gallinula tenebrosa</i>	dusky moorhen	C	16
animals	birds	Rallidae	<i>Porphyrio porphyrio</i>	purple swamphen	C	8
animals	birds	Recurvirostridae	<i>Himantopus himantopus</i>	black-winged stilt	C	36
animals	birds	Recurvirostridae	<i>Recurvirostra novaehollandiae</i>	red-necked avocet	C	3
animals	birds	Rostratulidae	<i>Rostratula benghalensis</i>	painted snipe	V	1
animals	birds	Scolopacidae	<i>Limosa limosa</i>	black-tailed godwit	C	2
animals	birds	Scolopacidae	<i>Calidris acuminata</i>	sharp-tailed sandpiper	C	8
animals	birds	Scolopacidae	<i>Tringa stagnatilis</i>	marsh sandpiper	C	7
animals	birds	Scolopacidae	<i>Gallinago hardwickii</i>	Latham's snipe	C	2
animals	birds	Scolopacidae	<i>Calidris ruficollis</i>	red-necked stint	C	1
animals	birds	Scolopacidae	<i>Numenius minutus</i>	little curlew	C	1
animals	birds	Scolopacidae	<i>Tringa nebularia</i>	common greenshank	C	1
animals	birds	Strigidae	<i>Ninox strenua</i>	powerful owl	V	3
animals	birds	Strigidae	<i>Ninox novaeseelandiae</i>	southern boobook	C	8
animals	birds	Sturnidae	<i>Sturnus vulgaris</i>	common starling	C	3
animals	birds	Sturnidae	<i>Acridotheres tristis</i>	common myna	C	13
animals	birds	Sylviidae	<i>Cisticola exilis</i>	golden-headed cisticola	C	13
animals	birds	Sylviidae	<i>Cincloramphus cruralis</i>	brown songlark	C	3
animals	birds	Sylviidae	<i>Acrocephalus stentoreus</i>	clamorous reed-warbler	C	1
animals	birds	Threskiornithidae	<i>Platalea regia</i>	royal spoonbill	C	12
animals	birds	Threskiornithidae	<i>Platalea flavipes</i>	yellow-billed spoonbill	C	15
animals	birds	Threskiornithidae	<i>Threskiornis molucca</i>	Australian white ibis	C	12
animals	birds	Threskiornithidae	<i>Threskiornis spinicollis</i>	straw-necked ibis	C	11
animals	birds	Threskiornithidae	<i>Plegadis falcinellus</i>	glossy ibis	C	9
animals	birds	Turnicidae	<i>Turnix varia</i>	painted button-quail	C	6
animals	birds	Tytonidae	<i>Tyto novaehollandiae novaehollandiae</i>	masked owl (southern subspecies)	C	3
animals	birds	Zosteropidae	<i>Zosterops lateralis</i>	silveryeye	C	18
animals	bony fish	Eleotrididae	<i>Mogurnda adspersa</i>	southern purplespotted gudgeon	C	1
animals	insects	Lycaenidae	<i>Prosotas dubiosa dubiosa</i>	small purple line-blue	C	1
animals	insects	Lycaenidae	<i>Zizina labradus labradus</i>	common grass-blue (Australian subspecies)	C	3
animals	insects	Nymphalidae	<i>Hypocysta euphemia</i>	rock ringlet	C	1
animals	insects	Nymphalidae	<i>Euploea core corinna</i>	common crow	C	2
animals	insects	Nymphalidae	<i>Junonia villida calybe</i>	meadow argus	C	3
animals	insects	Nymphalidae	<i>Hypolimnas bolina nerina</i>	varied eggfly	C	1
animals	insects	Nymphalidae	<i>Danaus plexippus plexippus</i>	monarch	C	3
animals	insects	Nymphalidae	<i>Dodeschallia bisaltide australis</i>	leafwing	C	1
animals	insects	Nymphalidae	<i>Acraea andromacha andromacha</i>	glasswing	C	1
animals	insects	Nymphalidae	<i>Danaus chrysippus petilia</i>	lesser wanderer	C	4

animals	insects	Nymphalidae	<i>Tirumala hamata hamata</i>	blue tiger	.	4
animals	insects	Nymphalidae	<i>Melanitis leda bankia</i>	common evening-brown	.	3
animals	insects	Papilionidae	<i>Papilio anactus</i>	dingy swallowtail	.	1
animals	insects	Papilionidae	<i>Papilio aegaeus aegaeus</i>	orchard swallowtail (Australian subspecies)	.	1
animals	insects	Pieridae	<i>Belenois java teutonia</i>	caper white	.	2
animals	insects	Pieridae	<i>Catopsilia pomona pomona</i>	lemon migrant	.	1
animals	insects	Pieridae	<i>Eurema hecabe phoebus</i>	large grass-yellow	.	4
animals	insects	Pieridae	<i>Pieris rapae</i>	cabbage white	.	1
animals	insects	Pieridae	<i>Catopsilia pyranthe crokera</i>	white migrant	.	2
animals	mammals	Acrobatidae	<i>Acrobates pygmaeus</i>	feathertail glider	C	1
animals	mammals	Canidae	<i>Vulpes vulpes</i>	red fox	.	3
animals	mammals	Canidae	<i>Canis familiaris</i>	dog	.	1
animals	mammals	Dasyuridae	<i>Planigale maculata</i>	common planigale	C	2
animals	mammals	Dasyuridae	<i>Sminthopsis murina</i>	common dunnart	C	1
animals	mammals	Dasyuridae	<i>Phascogale tapoatafa</i>	brush-tailed phascogale	C	1
animals	mammals	Emballonuridae	<i>Saccolaimus flaviventris</i>	yellow-bellied sheath-tail bat	C	3
animals	mammals	Felidae	<i>Felis catus</i>	cat	.	1
animals	mammals	Leporidae	<i>Lepus capensis</i>	brown hare	.	3
animals	mammals	Macropodidae	<i>Wallabia bicolor</i>	swamp wallaby	C	1
animals	mammals	Macropodidae	<i>Macropus dorsalis</i>	black-striped wallaby	C	1
animals	mammals	Macropodidae	<i>Macropus robustus</i>	common wallaroo	C	1
animals	mammals	Macropodidae	<i>Petrogale penicillata</i>	brush-tailed rock-wallaby	V	6
animals	mammals	Macropodidae	<i>Macropus rufogriseus</i>	red-necked wallaby	C	3
animals	mammals	Macropodidae	<i>Macropus giganteus</i>	eastern grey kangaroo	C	2
animals	mammals	Molossidae	<i>Mormopterus sp.</i>		.	1
animals	mammals	Molossidae	<i>Tadarida australis</i>	white-striped freetail bat	C	2
animals	mammals	Muridae	<i>Mus musculus</i>	house mouse	.	15
animals	mammals	Muridae	<i>Rattus fuscipes</i>	bush rat	.	13
animals	mammals	Muridae	<i>Melomys cervinipes</i>	fawn-footed melomys	C	3
animals	mammals	Petramelidae	<i>Isoodon macrourus</i>	northern brown bandicoot	C	2
animals	mammals	Petauridae	<i>Petaurus breviceps</i>	sugar glider	C	6
animals	mammals	Petauridae	<i>Petaurus norfolcensis</i>	squirrel glider	C	1
animals	mammals	Phalangeridae	<i>Trichosurus vulpecula</i>	common brushtail possum	C	21
animals	mammals	Phascolarctidae	<i>Phascolarctos cinereus</i>	koala	C	4
animals	mammals	Phascolarctidae	<i>Phascolarctos cinereus (southeast Queensland bioregion)</i>	koala (southeast Queensland bioregion)	V	5
animals	mammals	Potoroidae	<i>Aepyprymnus rufescens</i>	rufous bettong	C	1
animals	mammals	Potoroidae	<i>Potorous tridactylus tridactylus</i>	long-nosed potoroo	V	2
animals	mammals	Pseudocheiridae	<i>Petauroides volans</i>	greater glider	C	11
animals	mammals	Pseudocheiridae	<i>Pseudocheirus peregrinus</i>	common ringtail possum	C	1
animals	mammals	Pteropodidae	<i>Pteropus poliocephalus</i>	grey-headed flying-fox	C	2
animals	mammals	Vespertilionidae	<i>Nyctophilus sp.</i>		.	1
animals	mammals	Vespertilionidae	<i>Scotorepens sp.</i>		.	1
animals	mammals	Vespertilionidae	<i>Scotorepens orion</i>	south-eastern broad-nosed bat	C	1
animals	mammals	Vespertilionidae	<i>Nyctophilus geoffroyi</i>	lesser long-eared bat	C	2
animals	reptiles	Agamidae	<i>Pogona barbata</i>	bearded dragon	C	2

animals	reptiles	Agamidae	<i>Amphibolurus nobbi</i>		C	1
animals	reptiles	Agamidae	<i>Diporiphora australis</i>		C	4
animals	reptiles	Agamidae	<i>Physignathus lesueurii</i>	eastern water dragon	C	1
animals	reptiles	Boidae	<i>Morelia spilota</i>	carpet python	C	3
animals	reptiles	Boidae	<i>Antaresia maculosa</i>		C	1
animals	reptiles	Chelidae	<i>Chelodina longicollis</i>	eastern snake-necked turtle	C	3
animals	reptiles	Chelidae	<i>Emydura macquarii signata</i>	Brisbane short-necked turtle	C	1
animals	reptiles	Colubridae	<i>Boiga irregularis</i>	brown tree snake	C	3
animals	reptiles	Colubridae	<i>Tropidonophis mairii</i>	freshwater snake	C	2
animals	reptiles	Colubridae	<i>Dendrelaphis punctulata</i>	common tree snake	C	1
animals	reptiles	Eliapidae	<i>Pseudechis porphyriacus</i>	red-bellied black snake	C	1
animals	reptiles	Eliapidae	<i>Rhinoplocephalus nigrescens</i>	eastern small-eyed snake	C	3
animals	reptiles	Gekkonidae	<i>Gehyra dubia</i>		C	2
animals	reptiles	Gekkonidae	<i>Oedura robusta</i>	robust velvet gecko	C	1
animals	reptiles	Gekkonidae	<i>Diplodactylus vittatus</i>	wood gecko	C	5
animals	reptiles	Gekkonidae	<i>Oedura tryoni</i>	southern spotted velvet gecko	C	5
animals	reptiles	Scincidae	<i>Carlia sp.</i>		C	3
animals	reptiles	Scincidae	<i>Carlia munda</i>		C	1
animals	reptiles	Scincidae	<i>Carlia vivax</i>		C	5
animals	reptiles	Scincidae	<i>Eulamprus sp.</i>		C	2
animals	reptiles	Scincidae	<i>Carlia foliorum</i>		C	11
animals	reptiles	Scincidae	<i>Lerista fragilis</i>		C	1
animals	reptiles	Scincidae	<i>Carlia pectoralis</i>		C	8
animals	reptiles	Scincidae	<i>Carlia schmeltzii</i>		C	1
animals	reptiles	Scincidae	<i>Ctenotus eurydice</i>		C	1
animals	reptiles	Scincidae	<i>Eulamprus martini</i>		C	6
animals	reptiles	Scincidae	<i>Ctenotus taeniolatus</i>		C	2
animals	reptiles	Scincidae	<i>Lampropholis amicula</i>	copper-tailed skink	C	2
animals	reptiles	Scincidae	<i>Anomalopus verreauxii</i>		C	1
animals	reptiles	Scincidae	<i>Lampropholis delicata</i>		C	5
animals	reptiles	Scincidae	<i>Morethia taeniopleura</i>	fire-tailed skink	C	3
animals	reptiles	Scincidae	<i>Cryptoblepharus virgatus</i>		C	8
animals	reptiles	Typhlopidae	<i>Ramphotyphlops sp.</i>		C	2
plants	cycads	Zamiaceae	<i>Macrozamia lucida</i>	pineapple zamia	C	3
plants	ferns	Adiantaceae	<i>Cheilanthes sieberi</i>		C	4
plants	ferns	Blechnaceae	<i>Doodia aspera</i>	prickly rasp fern	C	4
plants	ferns	Cyatheaceae	<i>Cyathea cooperi</i>		C	1
plants	ferns	Dennstaedtiaceae	<i>Pteridium esculentum</i>	common bracken	C	11
plants	ferns	Polypodiaceae	<i>Drynaria rigidula</i>		C	1
plants	higher dicots	Acanthaceae	<i>Brunoniella australis</i>	blue trumpet	C	1
plants	higher dicots	Acanthaceae	<i>Pseuderanthemum variabile</i>	pastel flower	C	1
plants	higher dicots	Apiaceae	<i>Xanthosia pilosa</i>	woolly xanthosia	C	1
plants	higher dicots	Apiaceae	<i>Hydrocotyle acutiloba</i>		C	1
plants	higher dicots	Apiaceae	<i>Trachymene incisa subsp. incisa</i>		C	1
plants	higher dicots	Caesalpinaceae	<i>Chamaecrista nomame var. nomame</i>		C	1

plants	higher dicots	Campanulaceae	<i>Lobelia purpurascens</i>	white root	C	1
plants	higher dicots	Casuarinaceae	<i>Allocasuarina torulosa</i>		C	10
plants	higher dicots	Casuarinaceae	<i>Casuarina cunninghamiana</i>		C	2
plants	higher dicots	Convolvulaceae	<i>Dichondra repens</i>	kidney weed	C	5
plants	higher dicots	Dilleniaceae	<i>Hibbertia aspera</i>		C	4
plants	higher dicots	Dilleniaceae	<i>Hibbertia stricta</i>		C	4
plants	higher dicots	Dilleniaceae	<i>Hibbertia linearis</i> var. <i>obtusifolia</i>		C	4
plants	higher dicots	Epacridaceae	<i>Leucopogon biflorus</i>		C	1
plants	higher dicots	Epacridaceae	<i>Acrotriche aggregata</i>	red cluster heath	C	4
plants	higher dicots	Epacridaceae	<i>Trochocarpa laurina</i>	tree heath	C	1
plants	higher dicots	Epacridaceae	<i>Melichrus urceolatus</i>	honey gorse	C	3
plants	higher dicots	Euphorbiaceae	<i>Glochidion ferdinandi</i>		C	1
plants	higher dicots	Euphorbiaceae	<i>Phyllanthus hirtellus</i>		C	1
plants	higher dicots	Euphorbiaceae	<i>Petalostigma pubescens</i>	quinine tree	C	3
plants	higher dicots	Euphorbiaceae	<i>Phyllanthus mitchellii</i>		C	1
plants	higher dicots	Euphorbiaceae	<i>Chamaesyce dallachyana</i>	mat spurge	C	1
plants	higher dicots	Fabaceae	<i>Glycine tabacina</i>	glycine pea	C	1
plants	higher dicots	Fabaceae	<i>Pultenaea spinosa</i>		C	3
plants	higher dicots	Fabaceae	<i>Glycine cyrtoloba</i>		C	2
plants	higher dicots	Fabaceae	<i>Hovea planifolia</i>		C	4
plants	higher dicots	Fabaceae	<i>Daviesia villosa</i>		C	1
plants	higher dicots	Fabaceae	<i>Glycine tomentella</i>	prickly davesia	C	1
plants	higher dicots	Fabaceae	<i>Kennedia rubicunda</i>	woolly glycine	C	1
plants	higher dicots	Fabaceae	<i>Mirrabella speciosa</i> subsp. <i>ringrosei</i>	red Kennedy pea	C	1
plants	higher dicots	Fabaceae	<i>Macropitilium atropurpureum</i>		C	4
plants	higher dicots	Fabaceae	<i>Desmodium rhytidophyllum</i>	siratro	C	1
plants	higher dicots	Fabaceae	<i>Hardenbergia violacea</i>		C	5
plants	higher dicots	Fabaceae	<i>Pultenaea petiolaris</i>		C	7
plants	higher dicots	Fabaceae	<i>Indigofera australis</i>		C	3
plants	higher dicots	Fabaceae	<i>Flemingia parviflora</i>		C	1
plants	higher dicots	Fabaceae	<i>Galactia tenuiflora</i>	flemingia	C	1
plants	higher dicots	Fabaceae	<i>Pultenaea flexilis</i>		C	1
plants	higher dicots	Fabaceae	<i>Gompholobium virgatum</i> var. <i>virgatum</i>		C	1
plants	higher dicots	Fabaceae	<i>Jacksonia scoparia</i>		C	2
plants	higher dicots	Fabaceae	<i>Daviesia wyattiana</i>	long-leaved bitter pea	C	9
plants	higher dicots	Goodeniaceae	<i>Brunonia australis</i>	blue pincushion	C	1
plants	higher dicots	Goodeniaceae	<i>Goodenia rotundifolia</i>		C	1
plants	higher dicots	Lamiaceae	<i>Teucrium argutum</i>		C	2
plants	higher dicots	Lamiaceae	<i>Chloanthes parviflora</i>		C	2
plants	higher dicots	Malvaceae	<i>Sida subspicata</i>	spiked sida	C	4
plants	higher dicots	Mimosaceae	<i>Acacia implexa</i>	lightwood	C	1
plants	higher dicots	Mimosaceae	<i>Acacia leiocalyx</i>		C	1
plants	higher dicots	Mimosaceae	<i>Acacia concurrens</i>		C	11
plants	higher dicots	Mimosaceae	<i>Acacia penninervis</i>		C	5
plants	higher dicots	Mimosaceae	<i>Acacia julifera</i> subsp. <i>julifera</i>		C	1

plants	higher dicots	Mimosaceae	<i>Acacia melanoxylon</i>	blackwood	C	1
plants	higher dicots	Mimosaceae	<i>Acacia complanata</i>	flatstem wattle	C	2
plants	higher dicots	Mimosaceae	<i>Acacia hispidula</i>		C	1
plants	higher dicots	Mimosaceae	<i>Acacia julifera</i>		C	4
plants	higher dicots	Mimosaceae	<i>Acacia maidenii</i>	Maiden's wattle	C	1
plants	higher dicots	Myoporaceae	<i>Eremophila debilis</i>	winter apple	C	1
plants	higher dicots	Myrtaceae	<i>Lophostemon suaveolens</i>	swamp box	C	12
plants	higher dicots	Myrtaceae	<i>Rhodomyrtus psidioides</i>	native guava	C	2
plants	higher dicots	Myrtaceae	<i>Eucalyptus taurina</i>	Helidon ironbark	V	3
plants	higher dicots	Myrtaceae	<i>Corymbia gummifera</i>	red bloodwood	C	4
plants	higher dicots	Myrtaceae	<i>Eucalyptus crebra</i>	narrow-leaved red ironbark	C	1
plants	higher dicots	Myrtaceae	<i>Eucalyptus carnea</i>		C	1
plants	higher dicots	Myrtaceae	<i>Eucalyptus major</i>	mountain grey gum	C	1
plants	higher dicots	Myrtaceae	<i>Corymbia henryi</i>	large-leaved spotted gum	C	3
plants	higher dicots	Myrtaceae	<i>Eucalyptus planchoniana</i>		C	3
plants	higher dicots	Myrtaceae	<i>Eucalyptus tereticornis</i>		C	12
plants	higher dicots	Myrtaceae	<i>Leptospermum lamellatum</i>		C	1
plants	higher dicots	Myrtaceae	<i>Backhousia myrtifolia</i>	carrol	C	1
plants	higher dicots	Myrtaceae	<i>Angophora subvelutina</i>		C	8
plants	higher dicots	Myrtaceae	<i>Eucalyptus pilularis</i>	blackbutt	C	10
plants	higher dicots	Myrtaceae	<i>Corymbia tessellaris</i>	Moreton Bay ash	C	2
plants	higher dicots	Myrtaceae	<i>Syncarpia verecunda</i>		C	1
plants	higher dicots	Myrtaceae	<i>Corymbia intermedia</i>	pink bloodwood	C	11
plants	higher dicots	Myrtaceae	<i>Corymbia citriodora</i>	spotted gum	C	11
plants	higher dicots	Myrtaceae	<i>Angophora woodsiana</i>	smudgee	C	13
plants	higher dicots	Myrtaceae	<i>Angophora leiocarpa</i>	rusty gum	C	2
plants	higher dicots	Myrtaceae	<i>Eucalyptus eugenioides</i>		C	2
plants	higher dicots	Myrtaceae	<i>Eucalyptus biturbinata</i>		C	3
plants	higher dicots	Myrtaceae	<i>Lophostemon confertus</i>	brush box	C	10
plants	higher dicots	Myrtaceae	<i>Eucalyptus microcorys</i>		C	6
plants	higher dicots	Myrtaceae	<i>Eucalyptus acmenoides</i>		C	11
plants	higher dicots	Myrtaceae	<i>Corymbia trachyphloia</i>		C	3
plants	higher dicots	Myrtaceae	<i>Leptospermum trinervium</i>	woolly tea-tree	C	2
plants	higher dicots	Myrtaceae	<i>Lysicarpus angustifolius</i>	budgeroo	C	2
plants	higher dicots	Myrtaceae	<i>Corymbia trachyphloia</i> subsp. <i>trachyphloia</i>		C	5
plants	higher dicots	Oxalidaceae	<i>Oxalis chnoodes</i>		C	1
plants	higher dicots	Oxalidaceae	<i>Oxalis corniculata</i>		C	1
plants	higher dicots	Polygalaceae	<i>Comesperma hispidulum</i>		C	1
plants	higher dicots	Proteaceae	<i>Hakea eriantha</i>		C	1
plants	higher dicots	Proteaceae	<i>Banksia spinulosa</i> var. <i>collina</i>		C	1
plants	higher dicots	Proteaceae	<i>Xylomelum cunninghamianum</i>		C	1
plants	higher dicots	Proteaceae	<i>Hakea plurinervis</i>	crinkle bush	C	2
plants	higher dicots	Proteaceae	<i>Lomatia silaifolia</i>		C	3
plants	higher dicots	Proteaceae	<i>Xylomelum salicinum</i>		C	4
plants	higher dicots	Proteaceae	<i>Banksia oblongifolia</i>	dwarf banksia	C	1

plants	higher dicots	Proteaceae	<i>Persoonia sericea</i>	silky geebung	C	7
plants	higher dicots	Rhamnaceae	<i>Alphitonia excelsa</i>	soap tree	C	10
plants	higher dicots	Rhamnaceae	<i>Pomaderris lanigera</i>		C	1
plants	higher dicots	Rubiaceae	<i>Spermacoce brachystema</i>		C	2
plants	higher dicots	Santalaceae	<i>Exocarpos cupressiformis</i>		C	2
plants	higher dicots	Sapindaceae	<i>Dodonaea triquetra</i>	native cherry	C	1
plants	higher dicots	Solanaceae	<i>Solanum capsicoides</i>	large-leaved hop bush	C	1
plants	higher dicots	Thymelaeaceae	<i>Pimelea linifolia</i>	devil's apple	C	2
plants	higher dicots	Thymelaeaceae	<i>Pimelea latifolia subsp. altior</i>		C	2
plants	higher dicots	Ulmaceae	<i>Trema tomentosa var. viridis</i>		C	1
plants	higher dicots	Verbenaceae	<i>Lantana camara</i>		C	7
plants	higher dicots	Vitaceae	<i>Tetragium nitens</i>	shining grape	C	2
plants	higher dicots	Vitaceae	<i>Cayratia clematidea</i>	slender grape	C	1
plants	lower dicots	Eupomatiaceae	<i>Eupomatia bennettii</i>	small bolwarra	C	1
plants	lower dicots	Menispermaceae	<i>Stephania japonica</i>		C	1
plants	monocots	Araceae	<i>Gymnostachys anceps</i>	settler's flax	C	2
plants	monocots	Cyperaceae	<i>Cautis blakei</i>		C	2
plants	monocots	Cyperaceae	<i>Lepidosperma laterale</i>		C	5
plants	monocots	Cyperaceae	<i>Eleocharis equisetina</i>		C	1
plants	monocots	Haemodoraceae	<i>Haemodorum astroqueenslandicum</i>		C	2
plants	monocots	Orchidaceae	<i>Pterostylis</i>		C	1
plants	monocots	Orchidaceae	<i>Pterostylis nutans</i>		C	1
plants	monocots	Orchidaceae	<i>Caladenia carnea</i>		C	1
plants	monocots	Orchidaceae	<i>Caladenia catenata</i>		C	1
plants	monocots	Poaceae	<i>Aristida</i>		C	2
plants	monocots	Poaceae	<i>Melinis repens</i>	red natal grass	C	3
plants	monocots	Poaceae	<i>Aristida ramosa</i>	purple wiregrass	C	1
plants	monocots	Poaceae	<i>Panicum effusum</i>		C	6
plants	monocots	Poaceae	<i>Cynodon dactylon</i>		C	2
plants	monocots	Poaceae	<i>Themeda triandra</i>	kangaroo grass	C	12
plants	monocots	Poaceae	<i>Entolasia stricta</i>	wiry panic	C	6
plants	monocots	Poaceae	<i>Entolasia whiteana</i>		C	2
plants	monocots	Poaceae	<i>Opilismenus aemulus</i>	creeping shade grass	C	4
plants	monocots	Poaceae	<i>Imperata cylindrica</i>	blady grass	C	4
plants	monocots	Poaceae	<i>Cymbopogon refractus</i>	barbed-wire grass	C	18
plants	monocots	Poaceae	<i>Digitaria parviflora</i>		C	4
plants	monocots	Poaceae	<i>Heteropogon contortus</i>	black speargrass	C	1
plants	monocots	Poaceae	<i>Aristida queenslandica</i>		C	9
plants	monocots	Poaceae	<i>Capillipedium spicigerum</i>	spicytop	C	2
plants	monocots	Poaceae	<i>Aristida queenslandica var. queenslandica</i>		C	2
plants	monocots	Smilacaceae	<i>Smilax australis</i>	barbed-wire vine	C	1
plants	monocots	Xanthorrhoeaceae	<i>Xanthorrhoea johnsonii</i>		C	6
plants	monocots	Xanthorrhoeaceae	<i>Xanthorrhoea latifolia subsp. latifolia</i>		C	1
plants	monocots	Hemerocallidaceae	<i>Dianella</i>		C	3
plants	monocots	Hemerocallidaceae	<i>Dianella caerulea</i>		C	1
plants					C	4

plants	Hemerocallidaceae	<i>Geitonoplesium cymosum</i>	scrambling lily	C	:	1
plants	Laxmanniaceae	<i>Lomandra</i>		C	:	1
plants	Laxmanniaceae	<i>Lomandra longifolia</i>		C	:	1
plants	Laxmanniaceae	<i>Lomandra multiflora</i>		C	:	2
plants	Laxmanniaceae	<i>Eustrephus latifolius</i>	wombat berry	C	:	3
plants	Laxmanniaceae	<i>Lomandra filiformis</i> subsp. <i>filiformis</i>		C	:	1
plants	Laxmanniaceae	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>		C	:	1

CODES

NCA - Indicates the 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 ().

EPBC - Indicates the conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999*.

The codes are Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Extinct in the Wild (XW) and Vulnerable (V).

Recs - Indicates the number of records of the species contained within the database for the area searched.

APPENDIX 2

RE Descriptions

Regional Ecosystems Spring Creek Gatton

Regional Ecosystem:	12.3.7
Vegetation Management Act status (December 2005):	Not of concern
Biodiversity Status:	No concern at present
Subregion:	(1), 2, 3, 5, 6, 7, 10.
Estimated Extent:	In September 2003, remnant extent was > 10,000 ha and >30% of the pre-clearing area remained.
Extent in Reserves:	Low Wetland: Riverine wetland or fringing riverine wetland

Short Description:

Eucalyptus tereticornis, Callistemon viminalis, Casuarina cunninghamiana fringing forest

Structure Category:

Mid-dense

Description:

Narrow fringing community of Eucalyptus tereticornis, Callistemon viminalis, Casuarina cunninghamiana ± Waterhousea floribunda. Other species associated with this RE include Melaleuca bracteata, M. trichostachya and M. fluviatilis in north of bioregion. Lomandra hystrix often present in stream beds. Occurs on Quaternary alluvial plains along watercourses. Major vegetation communities include: 12.3.7a: Melaleuca bracteata open-forest. Occurs in drainage depressions on Quaternary alluvial plains. 12.3.7b: Naturally occurring waterholes and lagoons, generally permanent. Includes exposed stream bed and bars. Occurs in the beds of river channels. 12.3.7c: Billabongs and ox-bow lakes containing either permanent or periodic water bodies. Old river beds now cut off from regular flow.

Supplementary Description:

Bean et al. (1998), E11, E12

Protected Areas:

Goodnight Scrub NP, Goodnight Scrub RR

Comments:

Prone to invasions by weeds such as Chinese elm *Celtis sinensis*, broad leaved pepper tree *Schinus terebinthifolius* and cat's claw creeper *Macfadyena unguis-cati*. Too small to map at 1:100 000 scale. 12.3.7a: Prone to invasions by weeds such as Chinese elm *Celtis sinensis*, broad leaved pepper tree *Schinus terebinthifolius* and cat's claw creeper *Macfadyena unguis-cati*. Too small to map at 1:100 000 scale. 12.3.7b: Vegetation may occur on infrequently inundated areas. 12.3.7c: Vegetation occurs on infrequently inundated areas.

Regional Ecosystem:	12.9-10.5
Vegetation Management Act status (December 2005):	Not of concern
Biodiversity Status:	No concern at present
Subregion:	2, 5, 6.
Estimated Extent:	In September 2003, remnant extent was > 10,000 ha and >30% of the pre-clearing area remained.
Extent in Reserves:	Low

Short Description:

Open forest complex often with *Corymbia trachyphloia*, *C. citriodora*, *Eucalyptus crebra*, *E. fibrosa* subsp. *fibrosa* on quartzose sandstone

Structure Category: Mid-dense

Description:

Shrubby open-forest complex. More widely distributed and abundant species include *Corymbia trachyphloia*, *C. citriodora*, *Eucalyptus crebra*, *E. fibrosa* subsp. *fibrosa*, *E. major*, *Angophora leiocarpa*, *E. helidonica*. Understorey of sclerophyllous shrubs. Localised occurrences of *Eucalyptus baileyana*, *E. pilularis*, *Corymbia henryi*, *E. dura*, *E. decorticans* (extreme west of bioregion), *E. taurina*, *Angophora woodsiana*, *Lysicarpus angustifolius* and *Lophostemon confertus*. Tends to shrubland or monospecific woodland of species such as *Eucalyptus dura* on shallow lithosols. Occurs on quartzose sandstone scarps and crests. Major vegetation communities include:

- 12.9-10.5a: Open-forest of *Eucalyptus helidonica*, *Corymbia trachyphloia*, *C. citriodora* ± *E. taurina*, *E. dura*, *E. baileyana*, *C. gummifera*, *Angophora woodsiana*, *Lysicarpus angustifolius*. Occurs on quartzose sandstone scarps and crests.
- 12.9-10.5b: *E. decorticans* ± *C. trachyphloia* open-forest with *Acacia blakei* mid strata and grassy ground layer of *Paspalidium grandispiculatum*, *P. distans*, *P. criniforme*, *Cleistochloa subjuncea* and *Zieria cytisoides*. Occurs on quartzose sandstone.

Supplementary Description:

Bean et al. (1998), H20 (in part), H25 (in part), and J16 (in part)

Protected Areas:

Moogerah Peaks NP, Mount Barney NP

Values:

Habitat for rare and threatened flora species including *Eucalyptus curtisii*, *E. melanoleuca*, *Leucopogon recurvisepalus*, *Paspalidium grandispiculatum*, *Leionema obtusifolium* and *Grevillea singuliflora*. 12.9-10.5a: Habitat for rare and threatened flora species including *Eucalyptus taurina*, *Caustis blakei* subsp. *macrantha*, *Paspalidium grandispiculatum*, *Leionema obtusifolium*, *Grevillea singuliflora* and *Grevillea quadricauda*. 12.9-10.5b: Habitat for rare and threatened flora species including *Paspalidium grandispiculatum*.

Comments:

Helidon hills region.

Regional Ecosystem:	12.9-10.2
Vegetation Management Act status (December 2005):	Not of concern
Biodiversity Status:	No concern at present
Subregion:	(1), 2, (5), 7, 8, (10).
Estimated Extent:	In September 2003, remnant extent was > 10,000 ha and >30% of the pre-clearing area remained.
Extent in Reserves:	Low

Short Description:

Corymbia citriodora, Eucalyptus crebra open forest on sedimentary rocks

Structure Category:

Mid-dense

Description:

Open-forest or woodland of Corymbia citriodora, usually with Eucalyptus crebra. Other species such as Eucalyptus tereticornis and Corymbia intermedia may be present in scattered patches or in low densities. Understorey can be grassy or shrubby. Shrubby understorey of whipstick Lophostemon (supplejack) often present in northern parts of bioregion. Occurs on Cainozoic and Mesozoic sediments.

Supplementary Description:

Bean et al. (1998), H19 (in part)

Protected Areas:

Deepwater NP, Denmark Hill CP, Flinders Peak CP, Knapp Creek CP, Moogerah Peaks NP, Mount Barney NP, Mount Perry CP, White Rock CP

Values:

Habitat for rare and threatened flora species including Notelaea lloydii.

APPENDIX 3

Flora Species List

Family	Species	Common Name
Asteraceae	<i>Chrysocephalum apiculatum</i>	Yellow Buttons
	<i>Ozothamnus</i> sp	-
Blechnaceae	<i>Doodia aspera</i>	Prickly Rasp Fern
Campanulaceae	<i>Lobelia purpurascens</i>	White Root
Casuarinaceae	<i>Allocasuarina littoralis</i>	Black She Oak
	<i>Casuarina cunninghamiana</i>	River She-oak
Dennstaedtiaceae	<i>Pteridium esculentum</i>	Common Bracken Fern
Euphorbiaceae	<i>Breynia oblongifolia</i>	Coffee Bush
	<i>Glochidion ferdinandi</i>	Cheese Tree
	<i>Petalostigma pubescens</i>	Quinine Bush
Juncaceae	<i>Juncus usitatus</i>	Common Rush
Fabaceae	<i>Hardenbergia violacea</i>	Native Sarsaparilla
	<i>Jacksonia scoparia</i>	Dogwood
Lamiaceae	<i>Westringia eremicola</i>	Twiggy Westringia
Menispermaceae	<i>Stephania japonica</i>	Snake Vine
Mimosaceae	<i>Acacia complanata</i>	Flat-stemmed Wattle
	<i>Acacia concurrens</i>	Black Wattle
	<i>Acacia disparrima</i>	Hickory Wattle
	<i>Acacia leiocalyx</i>	Lamb's Tail Wattle
	<i>Acacia penninervis</i>	Mountain Hickory Wattle
	<i>Acacia podalyriifolia</i>	Silver Wattle
Myrtaceae	<i>Angophora leiocarpa</i>	Smoothbark Apple
	<i>Corymbia citriodora</i> ssp. <i>variegata</i>	Spotted Gum
	<i>Corymbia intermedia</i>	Pink Bloodwood
	<i>Corymbia tessellaris</i>	Moreton Bay Ash
	<i>Corymbia trachyphloia</i>	Brown bloodwoods
	<i>Eucalyptus acmenoides</i>	White Mahogany
	<i>Eucalyptus baileyana</i>	Bailey's Stringybark
	<i>Eucalyptus carnea</i>	Broad-leaved White Mahogany
	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark
	<i>Eucalyptus major</i>	-
	<i>Eucalyptus microcorys</i>	Tallowwood
	<i>Eucalyptus moluccana</i>	Gum-topped box
	<i>Eucalyptus taurina</i>	-
	<i>Eucalyptus tereticornis</i>	Qld blue Gum
	<i>Leptospermum polygalifolium</i>	Wild May
	<i>Lophostemon confertus</i>	Brush Box
	<i>Lophostemon suaveolens</i>	Swamp box
<i>Melaleuca irbyana</i>	Bush-house Paperbark	
<i>Melaleuca quinquenervia</i>	Broad-leaved Paperbark	
Myoporaceae	<i>Eremophila</i> sp	-
Phormiaceae	<i>Dianella caerulea</i>	Blueberry Lily
Poaceae	<i>Aristida calycina</i> var <i>calycina</i>	Dark Wire Grass
	<i>Aristida benthamii</i>	Bentham's Wire Grass

	<i>Aristida caput-medusae</i>	Many-Headed Wire Grass
	<i>Aristida gracilipes</i>	Three-awn Spear Grass
	<i>Aristida leptopoda</i>	White Wire Grass
	<i>Aristida personata</i>	Purple Wire Grass
	<i>Aristida ramosa</i>	Com Wiregrass
	<i>Austrodanthonia bipartita</i>	Wallaby Grass
	<i>Bromus</i> sp.	-
	<i>Chloris gayana</i>	Rhodes Grass
	<i>Chloris truncata</i>	Windmill Grass
	<i>Chloris virgatus</i>	Feathertop Rhodes Grass
	<i>Cymbopogon refractus</i>	Barbed Wire Grass
	<i>Cynodon dactylon</i>	Common Couch
	<i>Digitaria brownii</i>	Cotton Panic Grass
	<i>Digitaria ciliaris</i>	Summer Grass
	<i>Entolasia stricta</i>	Wiry Panic
	<i>Eragrostis sororia</i>	Woodland Lovegrass
	<i>Heteropogon contortus</i>	Black Spear Grass
	<i>Imperata cylindrica</i>	Blady Grass
	<i>Melinis repens</i>	Red Natal Grass
	<i>Panicum coloratum</i>	Coolah Grass
	<i>Panicum compositum</i>	Native Millet
	<i>Panicum effusum</i> var <i>effusm</i>	Hairy Panic
	<i>Panicum maximum</i>	Green Panic
	<i>Panicum queenslandicum</i>	Yablia Grass
	<i>Poa siebriana</i>	Snow Grass
	<i>Themeda triandra</i>	Kangaroo Grass
	<i>Tragus australianus</i>	Small Burrgrass
Pittosporaceae	<i>Bursaria spinosa</i>	Prickly Box
Philesiaceae	<i>Eustrephus latifolius</i>	Wombat Berry
Proteaceae	<i>Banksia integrifolia</i>	Coast Banksia
	<i>Grevillea quadricauda</i>	-
	<i>Grevillea singuliflora</i>	-
Rhamnaceae	<i>Alphitonia excelsa</i>	Red Ash
Thymeliaceae	<i>Pimelea linifolia</i>	Rice Flower
Ulmaceae	<i>Trema tomentosa</i>	Poison Peach
Verbenaceae	<i>Lantana camara</i>	Lantana
Xanthorrhoeaceae	<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	Wattle Mat Rush
	<i>Lomandra multiflora</i>	Many -flowered Mat Rush
	<i>Xanthorrhoea johnsonii</i>	Forest Grass Tree