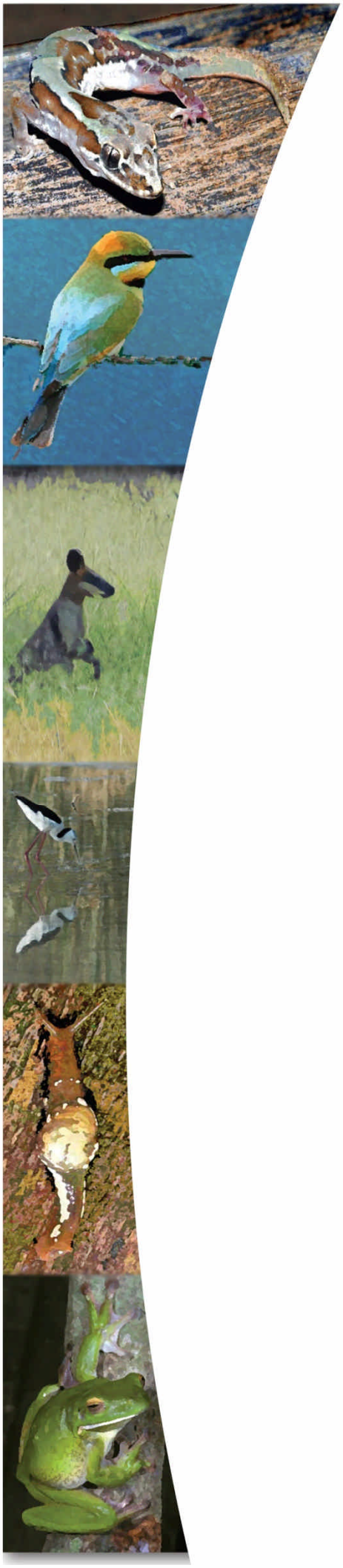

KOALA HABITAT REVIEW AND MAPPING – VERSION 2

REDLAND CITY

Report prepared for Redland City Council

BAAM ECOLOGICAL CONSULTANTS

Document Control Sheet

File Number: 0015-069

Project Manager: Jedd Appleton

Client: Redland City Council

Project Title: Review and map Koala habitats within Redland City – Version 2.

Project Author/s: Dr Jo Chambers, Maree Gilbert

Project Summary: An assessment of Koala habitats and Koala habitat usage within Redland City to inform the Redlands Planning Scheme (2015).

Draft Preparation History

Draft	Date Draft Completed	Checked By	Issued By
0015-069 Draft A	31/10/2014	Paulette Jones	Jo Chambers

Revision/Checking History Track

Version	Date Issued	Checked By	Issued By
0015-069 Version 0	02/12/2014	Jedd Appleton	Jo Chambers
0015-069 Version 2.1	09/7/2015	Jedd Appleton	Jo Chambers

Destination	Dispatch History					
		Date Dispatched		Date Dispatched		Date Dispatched
Client Copy 1 - digital	A	31/10/2014	0	03/12/2014	2.1	9/7/2015
Client Copy 1- hard copy						
PDF - server	A	31/10/2014	0	03/12/2014	2.1	9/7/2015
PDF – backup – archived Disk/tape	A	31/10/2014	0	03/12/2014	2.1	9/7/2015

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Biodiversity Assessment and Management Pty Ltd

Date: 9th July, 2015

Director

EXECUTIVE SUMMARY

Biodiversity Assessment and Management (BAAM) was commissioned by Redland City Council (RCC) to develop a definitive urban Koala habitat mapping product for the Mainland and North Stradbroke Island (NSI) township areas of Redland City for use in the Redland Planning Scheme 2015. To achieve this objective, BAAM adopted the following approach:

1. Review and compilation of all recent datasets on Koala location and habitat in Redlands City from all available sources to develop a single dataset of Koala location records to inform the habitat mapping;
2. Field survey to ground-truth habitat values for Koala and evidence of Koala occurrence, with survey site selection guided by RCC planning, land-use and conservation requirements;
3. Development of mapping rules for the mapping of Koala habitat of different value classes based on known food tree preferences of Koalas for specific *Eucalyptus* tree species;
4. Development of definitive Koala habitat mapping layer based on remnant, high value regrowth and urban tree mapping developed as a product of the Natural Environment Decision Support (NEDS Phase 2) project; and
5. Validation of the mapping rules by intersecting field habitat assessment and Koala survey results with the Koala habitat mapping.

Dataset review and compilation identified a total of 3,345 sightings of Koala from the 17 years of Koala Action Group data capture, with a further 9,665 entries contained within the DEHP Koala mortality dataset as Koala point location records. The utility of these records to inform habitat mapping was limited by the relative imprecision of the point location data (precision to 1.65 km) relative to that of the fine-scale vegetation mapping. Records from both datasets were therefore not included in the mapping process.

The field survey included survey of 146 separate locations, resulting in 14 Koala sightings and location of Koala scats (indicating recent Koala visitation) at 61 locations.

The Koala habitat mapping layer was developed in accordance with the following mapping rules for remnant/regrowth and non-remnant (urban tree) vegetation respectively:

- Primary Koala habitat – Regional Ecosystems (REs) described as containing primary Koala food tree species as dominant or subdominant components of the vegetation; or
- Secondary Koala habitat – REs not containing primary Koala food tree species as dominant or subdominant components of the vegetation, but containing secondary Koala food tree species as dominant or subdominant components of the vegetation; or
- Non-preferred habitat (null) – REs not containing either primary or secondary Koala food tree species as dominant or subdominant components of the vegetation; or
- Primary urban tree Koala habitat – primary Koala food tree species present; or
- Secondary urban tree Koala habitat – primary Koala food tree species not recorded present, but secondary Koala food tree species present; or
- Null urban tree habitat –primary and secondary Koala food tree species not recorded present, or no survey data to confirm species composition.

The Koala habitat mapping identified a total of 3,966 ha of primary Koala habitat (3,819 ha of which is remnant or regrowth vegetation), 6,665 ha of secondary Koala habitat (6,632 ha of which is remnant or regrowth vegetation), and 3,804 ha of non-preferred remnant or regrowth habitat. Field habitat assessment confirmed that vegetation communities mapped as primary and secondary habitats at a broad scale generally support highly suitable to suitable Koala habitat as ground-truthed at a finer spatial scale. The field surveys confirmed that Koalas were sighted or Koala scats were found substantially more frequently within mapped primary habitat (43% of survey sites) than mapped secondary habitat (3%) or non- habitat (5%), providing strong support for the Koala habitat associations that underpin the habitat mapping rules.

The Koala habitat map maps Koala habitat values at a finer spatial scale (1:5,000) than previous Koala habitat mapping and includes previously overlooked but important urban tree habitats, providing a highly informative map of Koala habitat values for planning and conservation purposes across Redland City.

KOALA HABITATS REVIEW AND MAPPING
REDLAND CITY– VERSION 2

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List of Abbreviations

BAAM	Biodiversity Assessment and Management Pty Ltd
DEHP	Queensland Department of Environment and Heritage Protection
DSEWPaC	Commonwealth Department of Sustainability, Environment, Water, Populations and Communities
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
KAG	Redland City Koala Action Group
KSPRP	*South East Queensland Koala State Planning Regulatory Provisions (February 2010)*
NC Act	Queensland's *Nature Conservation Act 1992*
RCC	Redland City Council
RE	Regional Ecosystem
SEQ	South East Queensland

1.0 INTRODUCTION

1.1. AIMS AND OBJECTIVES

Biodiversity Assessment and Management (BAAM) was commissioned by Redland City Council (RCC) to develop a definitive urban Koala habitat mapping product for the Mainland and North Stradbroke Island (NSI) Township areas of Redland City for use in the Redland Planning Scheme 2015.

The purpose of this project is to improve the accuracy of the urban Koala habitat layer with the addition of local data not included in the State government Koala habitat mapping datasets. It is expected that the resultant Koala habitat mapping layer will be included in the Natural Environment Decision Support (NEDS) system that will inform the Redlands Planning Scheme 2015.

The overall aims of this project were to:

1. Research, network, collate, acquire and compile from all available sources all recent datasets on koala location and habitat in Redlands City, particularly through review and analyses of data collected from the Natural Environment Decision Support (NEDS Phase 2 project);

2. Develop as data layers within NEDS mapping a koala urban habitat map for use in the Redlands Planning Scheme; and

3. Prepare a final report detailing methods used in the above (identifying data limitation issues) and recommendations for incorporating koala protection within the Redlands Planning Scheme.

1.2. BACKGROUND

The entire Redland City LGA is identified in the *South East Queensland Koala State Planning Regulatory Provisions (February 2010)* (KSPRP) (DERM 2010) as Priority Koala Assessable Development Area.

In May 2012, Koala populations in Queensland, NSW and the ACT were listed as Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) because of the apparent decline of Koala in these regions. Prior to the EPBC Act listing, Koala was listed as Vulnerable only in the South-east Queensland bioregion under the *Nature Conservation Act 1992* (NC Act).

Data from the most recent Koala Coast Koala surveys indicate that Koala populations in the Koala Coast region, which includes Redland City (DERM 2009), have declined by 51% over the three years between 2005 and 2008, and 64% over the 10 years since the original 1996-1999 population estimate. Of all Koalas lost from the survey area, 62% were lost from the Redland City population, which has declined by 49% since the previous survey in 2005 (DERM 2009).

1.2.1. Qld Government and RCC Koala Planning

RCC Planning Scheme V5.1 uses open space, bushland protection and other zoning overlays to help guide land use decision-making. Planning and development decisions relating to protection of Koala habitats are currently based on broadscale State Government mapping, such as KSPRP and State Planning Provisions (KSPP) Koala mapping and Regional Ecosystem mapping of 'essential habitat'. These State Government mapping tools are generally produced at a 1:25,000 scale.

The KSPRP and KSPP aim to ensure that Koala habitat conservation is taken into account in planning processes by informing future amendments to local government planning schemes and priority infrastructure plans.

The KSPRP and KSPP Koala mapping is based on the known association of Koala with particular landscape features, including slope, elevation and landzone. Landzone is one of three tiers of characteristics used to define different vegetation communities or Regional Ecosystems (REs) in Queensland. The analysis that underpinned the KSPRP mapping determined that Koalas were most regularly recorded from landzones 1, 2, 5, 9-10 and 11 (GHD 2009). Habitat rankings were based on the known presence of Koala and the number of identified landscape features (i.e. slope, elevation, landzone), and scaled from 'high value bushland' if they comprised all preferred landscape features, down to unsuitable habitats if no preferred features were present (GHD 2009).

Under the KSPRP, clearing of Koala habitat trees within an area mapped as high value bushland is prohibited. However, it appears that vegetation communities growing on landzone 3, which supports some REs dominated by *Eucalyptus tereticornis*, a well-known primary Koala food tree (refer to **Section 2.2**), were not assigned to the high value bushland category as landzone 3 was not recognised as a preferred habitat feature

under the KSPRP. Instead, habitats on landzone 3 were assigned as medium value if associated with records of Koala presence or low value if not (GHD 2009). The oversight of not including some important Koala habitats as high value habitats in the State government mapping could lead to the loss of critical Koala habitats, and ultimately hasten the decline of Koala populations in some areas if they have not been sufficiently protected under State government legislation.

The State government essential habitat for Koala overlay mapping is based on broadscale remnant and high value regrowth (HVR) mapping. Essential habitat was identified on the basis of REs known to provide important Koala food resources, and within a buffered distance of 1,000 m centred on post 1975 records of Koala sightings within a precision ≤500 m (EPA 2002). The buffering around known sightings may include areas of non-preferred habitat.

Time and budget constraints often mean that detailed field surveys conducted by experienced personnel to define Koala habitat quality of a particular site/ area are not always undertaken; therefore RCC must often rely on the State Government broadscale mapping to assist with planning decisions. The value of the Koala Habitat Mapping product as part of the current exercise will provide a higher resolution mapping product to which Redlands City Council can refer when planning and making decisions with the potential to affect the extent of Koala habitat within the LGA (Local Government Area).

2.0 METHODOLOGY

2.1. DATASET COLLATION

A total of 42 separate datasets relating to Koala location sightings and mortalities were provided by RCC for interrogation and compilation. These datasets included:

- records from the Redlands Koala Watch (resident phone-in and online recording) (2006-2012);
- records from the Redlands Koala Action Group (KAG) (1996-2012);
- Department of Environment and Heritage (DEHP) data on reported Koala sightings, deaths, injuries or ill-health within Redland City (1997-2012); and
- records from individual property surveys.

These datasets were initially reviewed for consistency and accuracy of data input, by visually inspecting each record for irregularities, where after they were collated into a single dataset of Koala location records.

2.2. FIELD SURVEYS

One of the main shortcomings of the current State and Local government broadscale Koala mapping is that, often, small patches of bushland or isolated clumps of Koala food trees are not identified as important Koala habitat, when in fact they may contain significant resources for the local Koala population. RCC have recognised this situation is prevalent in many urban areas of Redland City; therefore the main aim of the field-based Koala habitat assessment component of this project was to visit as many unmapped, potential Koala habitats within Redland City that could be surveyed within the constraints of time and budget, to identify whether they supported Koala habitat or habitat of potential value to Koala.

Areas deemed to contain potentially suitable Koala habitat were prioritised for inclusion in field surveys based on appraisal of aerial imagery and State mapping. The ground-truthing exercise included areas that fell outside of State mapping, such as sports fields, parkland and street plantings.

In addition to aerial imagery and State mapping, criteria for selection of sites included the relevance of locations to future planning, land-use and conservation decisions and initiatives, such as sportsfields, transport hubs, schools, parklands and significant road corridors such as Dinwoodie Road, Denham Boulevard and Bankswood Drive, areas within west Capalaba and southern Redland Bay, and private properties subject to some form of conservation agreement with Council. Meetings between BAAM and relevant RCC staff, from both the planning and environment departments of Council, were conducted prior to commencing the field surveys to identify additional focal areas within which to conduct surveys from a strategic planning perspective, so that a better understanding of Koala habitat value within these locations could be attained. This information will assist with future planning decisions at these locations.

Due to potential access issues, all survey sites were located within either RCC or State Government owned lands, including road reserves and within private properties that have

some form of conservation agreement with Council.

The field survey sites ranged in area from roadside tree plantings and small (<1/2 ha) parklands, to rural residential dwellings, sporting fields, school grounds, parks and nature/ conservation reserves of <5 ha in area. Each survey site was traversed on foot whilst searching trees for Koala presence. If sighted, a Koala's GPS location was recorded along with its apparent state of health, its age and its sex-status if those details could be determined. In addition, approximately two minutes were spent searching around the base of potential Koala feed trees for scats. If scats were present, the GPS location of the tree was recorded. The proforma used for data collection are provided in **Appendix 1**.

In addition to searching for Koala or evidence of their presence (scats), an assessment of the suitability of locations as habitat for Koala was undertaken. Due to aforementioned budget constraints and the fact that most survey sites were smaller than 1 ha in area, line transect surveys, as defined in the *Interim Koala Referral Advice for Proponents* (DSEWPaC 2012), were not conducted. Instead, whilst traversing the survey site, the percentage that each species of potential Koala food tree contributed to the total canopy cover of vegetation was estimated. This provided the necessary information to allow designation of a Koala habitat value to each survey site on the basis of the criteria outlined in **Table 2.1**.

Table 2.1. Koala habitat classes derived from McAlpine *et al.* (2006).

Habitat class	Proportion of overstorey tree species		
	Primary food species	Primary & secondary food species	Secondary food species (primary species absent)
Highly suitable *	≥30%	or ≥50%	or ≥50%
Suitable	10<30%	or 30 < 50%	or 10 < 50%
Marginal	<10%	or <30%	or <10%
Unsuitable	Scattered trees	Scattered trees	Scattered trees

* Equivalent to the class of 'habitat critical to the survival of Koala' in the interim referral advice (DSEWPaC 2012)

To determine which tree species are considered to be primary feed trees within Redland City, the Australian Koala Foundation's *National Koala Tree Protection List; Recommended Tree Species for Protection and Planting of Koala Habitat* (AKF 2012) was consulted. From this, the primary food tree species within Redland City (AKF 2012) are identified as:

- *Eucalyptus tereticornis;*
- *Eucalyptus microcorys;*
- *Eucalyptus robusta; and*
- *Eucalyptus bancroftii.*

Secondary food tree species that occur within Redland City are considered to comprise the following (AKF 2012):

- *Eucalyptus grandis;*
- *Eucalyptus major;*
- *Eucalyptus moluccana;*
- *Eucalyptus planchoniana;*
- *Eucalyptus propinqua;*
- *Eucalyptus racemosa ssp. racemosa;*
- *Eucalyptus resinifera ssp. hemilampra;*
- *Eucalyptus seeana;*
- *Eucalyptus siderophloia; and*
- *Eucalyptus tindaliae.*

In addition to the species listed by AKF (2012), research has shown that Koala on North Stradbroke Island (NSI) also regularly consume *Eucalyptus pilularis* (Woodward *et al.* 2008; Cristescu *et al.* 2011; Melzer *et al*. 2014) and, occasionally, *Lophostemon* species (Cristescu *et al.* 2011). *Eucalyptus pilularis* has therefore been added as a primary food tree for NSI and at the request of RCC, *Lophostemon* records have been added as 'important supplementary food tree' for NSI.

Species of several eucalypt and non-eucalypt genera, including *Corymbia, Lophostemon, Angophora and Melaleuca*, are cited as potential Koala habitat trees (KSPP, KSPRP, RCC) because Koalas may seek refuge in these species and occasionally feed on them. The contribution of these habitat tree species to the daily diet of Koalas is generally small, at <10% of the diet (Woodward *et al.* 2008). As the

importance of these habitat tree species to the long-term persistence of Koalas in the landscape is not fully understood, habitat tree species not identified as primary or secondary food tree species were not considered when ranking Koala habitats.

2.3. FIELD DATA PROCESSING

The comments field of the data (see **Appendix 2**) was used to inform the spatial correlation of data points with aerial imagery, so that points to be used for mapping were aligned with the polygons to which they referred. For example, where a data point was taken just outside of the polygon to which it referred, that point was moved to overlap with the appropriate polygon to allow for greater spatial accuracy of data and for associations between Koala habitat and polygons from the NEDS Phase 2 mapping to be detected.

Where a single point taken in the field was derived from observations of a broad area such as a park or the length of a linear patch, the single point was replicated and spatially correlated with the areas within which observations were made. As such, 146 data proforma (see **Appendix 1**) were used to derive a total of 348 mapped data points substantiated by observations recorded in the comments field during surveys. The addition of these points enabled mapping to be extended across the full extent of areas assessed during field surveys, rather than pertaining exclusively to the GPS reference points. However, while derived data points were replicated to support higher resolution mapping, only the original field points were used for data presentations (**Section 3.3**).

2.4. KOALA HABITAT MAPPING

The Koala Habitat Mapping exercise focused on delivering a refined mapping tool that identifies primary and secondary Koala habitats within Redland City at a finer scale than existing State mapping. A map of Koala habitat areas was created by combining the results of the field data and NEDS Phase 2 mapping products, which were based on vegetation mapping derived from LiDAR data (refer to BAAM 2013 for methodologies applied). As aerial imagery was not made available for Peel Island during the main vegetation mapping phase of the project, mapping was not produced for this area as part of NEDS Phase 2. Consequently, the Koala Habitat Mapping also does not cover this area.

Koala habitat value categories are based on the well documented food tree preferences of Koalas for specific *Eucalyptus* tree species (AKF 2012). NEDS Phase 2 Regional Ecosystem mapping was used to map Koala habitats in remnant, regrowth and non-remnant vegetation. Koala habitats in remnant or regrowth vegetation were mapped to recognise three habitat categories on the basis of Regional Ecosystem dominant or subdominant tree species composition (Qld Herbarium 2013):

- Primary koala habitat – REs described as containing primary Koala food tree species as dominant or subdominant components of the vegetation; or
- Secondary koala habitat – REs not containing primary Koala food tree species as dominant or subdominant components of the vegetation, but containing secondary Koala food tree species as dominant or subdominant components of the vegetation; or
- Non-preferred habitat (null) – REs not containing either primary or secondary Koala food tree species as dominant or subdominant components of the vegetation.

The revised vegetation mapping undertaken as part of NEDS Phase 2 (BAAM 2013) identified a total of five REs recognised as primary Koala habitat and 17 REs recognised as secondary habitat (**Table 2.2**).

Table 2.2. REs and Koala habitat associations

Primary habitat REs	Secondary habitat REs
12.3.11	12.11.23
12.3.11a	12.11.3
12.3.6	12.11.5a
12.5.2	12.11.5e
12.9-10.4	12.11.5h
	12.11.5j
	12.11.5k
	12.12.14
	12.2.5
	12.2.5a
	12.2.6
	12.2.8
	12.3.3d
	12.5.3
	12.5.6c
	12.9-10.17c
	12.9-10.17d
	12.9-10.19a

In instances of mixed RE mapping polygons (i.e. defined patches of vegetation identified as comprising a mosaic of different REs), if a primary habitat RE was included in the mosaic, the entire polygon was mapped as primary Koala habitat, and if no primary habitat RE was included but a secondary habitat RE was included, the entire polygon was mapped as secondary Koala habitat.

Vegetation polygons (i.e. defined patches of vegetation) that did not meet the criteria to be mapped as remnant or regrowth vegetation were designated as a Non-RE habitat layer within the NEDS framework. The Non-RE habitat layer only captured areas of vegetation of sufficient size and canopy cover to constitute a polygon in the NEDS vegetation mapping (see BAAM (2013) for detailed methodology). Of these Non-RE habitat polygons, polygons containing part native vegetation were identified through aerial image interpretation and assigned a classification of "urban_trees". These "urban_trees" polygons were characterised as:

- Primary urban tree Koala habitat – primary Koala tree species present; or
- Secondary urban tree Koala habitat – primary Koala food tree species not recorded present, but secondary Koala food tree species present; or
- Null urban tree habitat –primary and secondary Koala food tree species not recorded present, or no survey data to confirm species composition.

The species composition of the "urban_trees" polygons was determined using information on Koala food trees captured in three GIS point layers, namely RCC's "all_trees_captured" point layer and "tree_planting" point layer, and BAAM's Koala field survey points. These point layers identified primary (5,471 records) and secondary (6,919 records) trees.

The polygons comprising the "urban_trees" designation within the Non-RE habitat layer are all relatively small, often less than a hectare. Consequently the food tree(s) identified within them could be assumed to contribute a significant proportion of an overall polygon's size. It should be noted that the RCC "all_trees_captured" dataset relates to areas only within the mapped urban footprint. Therefore associations between urban vegetation polygons and Koala food trees could not be made using this dataset for areas outside of the urban footprint.

The more individual primary and secondary food trees that are identified outside remnant and regrowth vegetation, the more urban tree polygons in the Non-RE habitat layer can be used for Koala habitat mapping purposes.

3.0 RESULTS AND DISCUSSION

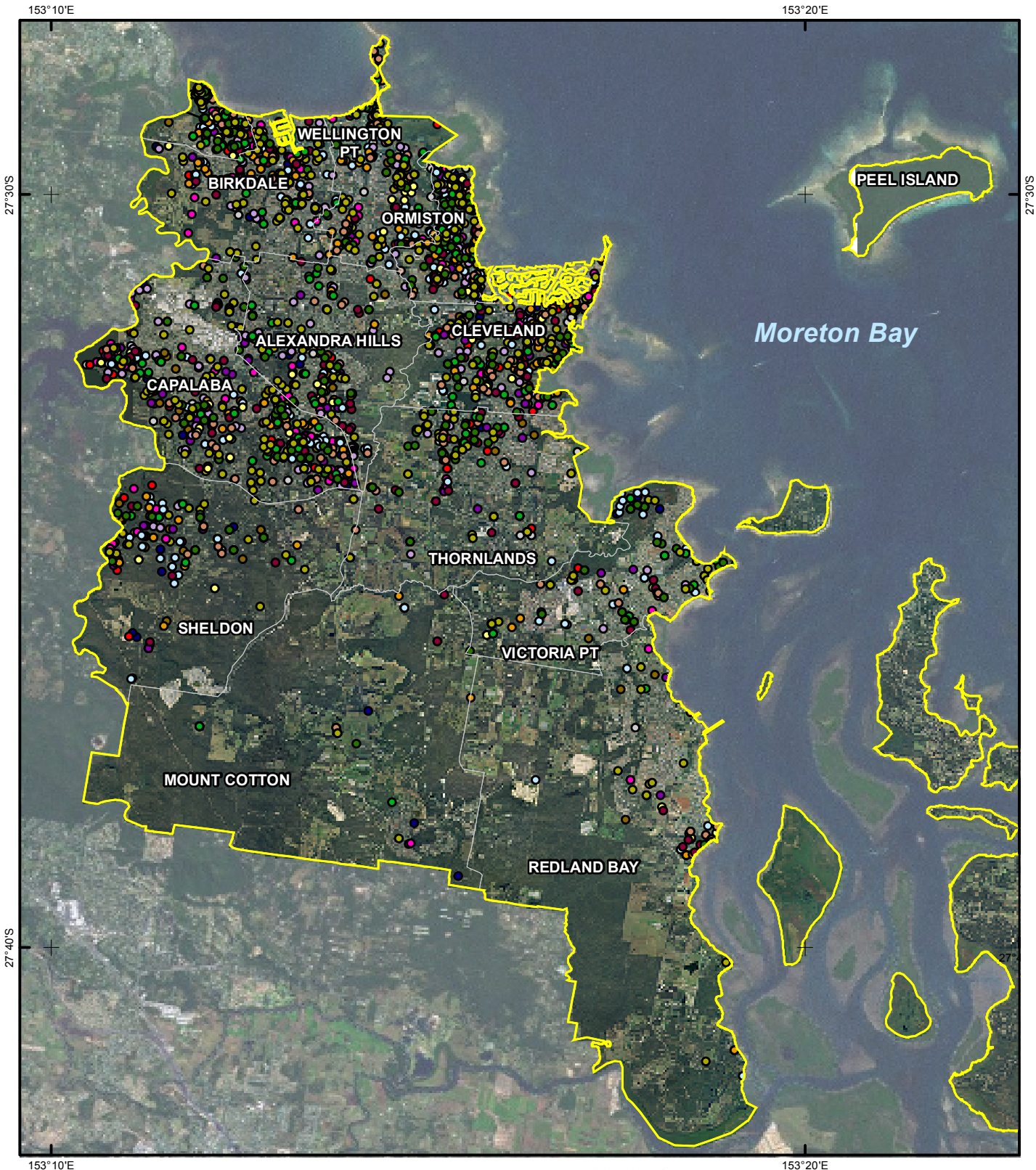
3.1. DATASET COLLATION

A total of 3,345 sightings of Koala were included in the compiled dataset of Koala location from the 17 years of RCC KAG data capture. **Figure 3.1** shows the locations of all RCC records for all years from 1996 to 2012, whereas **Figure 3.2** shows the locations of records from the last five years, 2008 to 2012. A further 9,665 entries contained within the DEHP Koala mortality dataset were available as Koala location records; the locations of these records are shown in **Figure 3.3**, split by primary cause of mortality.

Data Limitations

Accurate compilation of the provided datasets was impeded by a number of limitations, the most important of which was in regard to the precision of point location data. Many records identified the location of a Koala record on the basis of an address and/or area description; such records are then associated with imprecision in the actual location of the animal at that address or within the area described. Inspection of the location data determined that the precision of the least-precise records in the compiled data was in the order of 1.65 km i.e. the actual location of the animal could be anywhere within a 1.65 km radius of the GPS co-ordinate for the record.

The DEHP Koala mortality dataset of reported Koala mortalities between 1997 and 2012 also contained inconsistencies in location naming. For example, Thorneside was spelt three different ways, and Point Talburpin was included as a suburb rather than a location within the suburb of Redland Bay. These irregularities were corrected by amalgamating the alternate spellings of place names and definitions of place boundaries, respectively. The Koala Watch dataset included records with missing or incorrectly entered values for GPS locations of sightings, which impacted the GIS presentation of the data and showed that numerous records were from outside the Redland City boundary. Such records were excluded from the compiled data.



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Datum: GDA 1994
Units: Degree

1:135,000 at A4
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Notes:
Koala Sightings from Koala Action Group Annual Survey data. Boundary data and RCC image supplied by Redland City Council.
Background image source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

LEGEND

Year of Sighting:

- 1996
- 1997
- 1998
- 1999
- 2000
- 2001
- 2002
- 2003
- 2004
- 2005
- 2006
- 2007
- 2008
- 2010
- 2011
- 2012

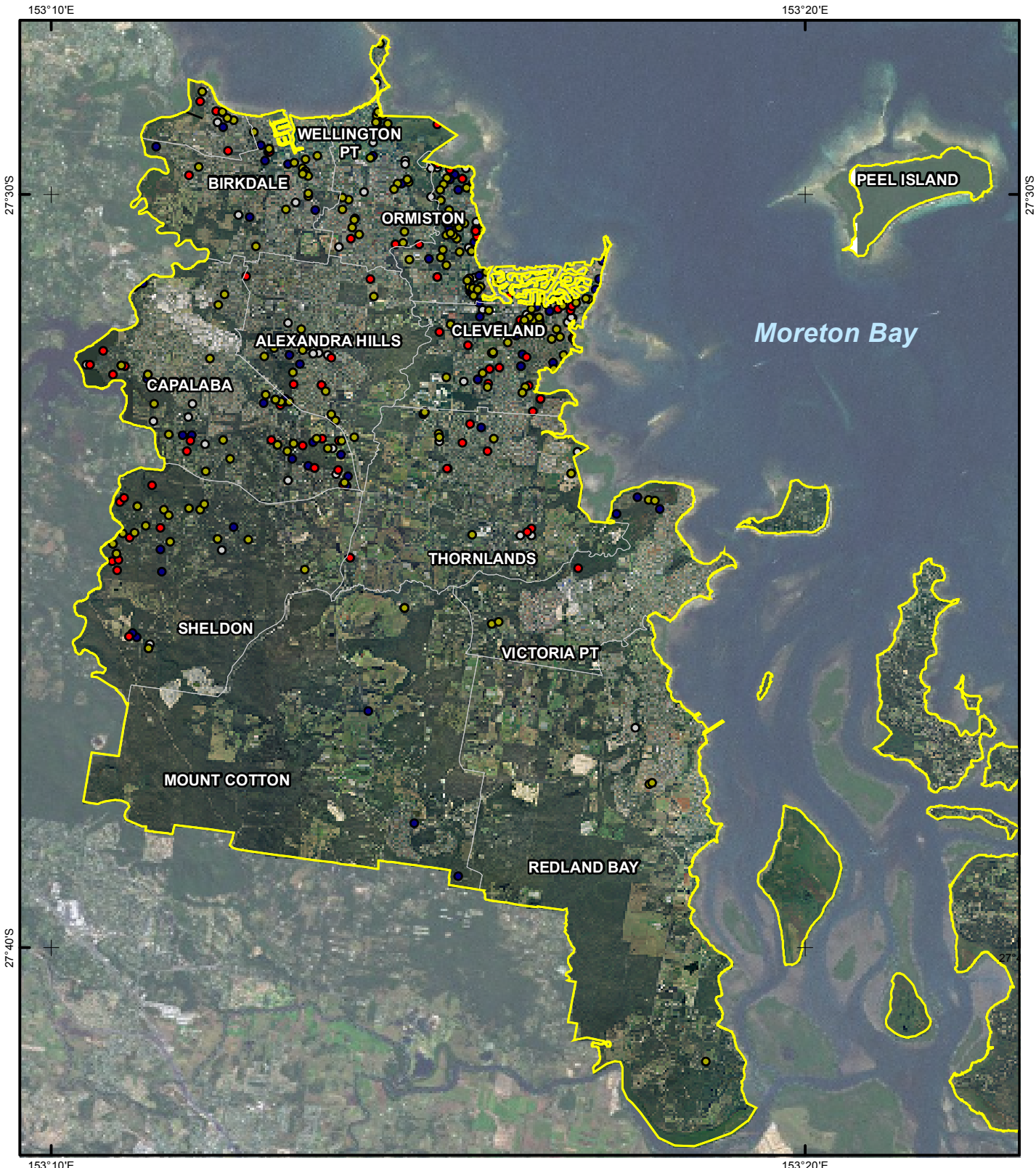
Suburbs
Shire Outline

Figure:	**3-1**
Title:	Locations of all Koala sightings 1996-2012 (from RCC data)
Project:	**Koala Habitat Review and Mapping - Redland City Mainland**
Client:	**Redland City Council**

BAAM ECOLOGICAL CONSULTANTS

Drawn By: MG Reviewed by: JC Date: 29/05/2013

Document Location: \\BAAM-SERVER\baamdata\BAAM\Operations\BAAM Jobs\Active BAAM Jobs\0015-061 Review and map Koala habitat data RCC\GIS\MXDs\ReportFigures\Figure 3-1 Locations of Koala sightings.mxdDate: 29/05/2013 3:13:01 PM



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Background image source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

LEGEND

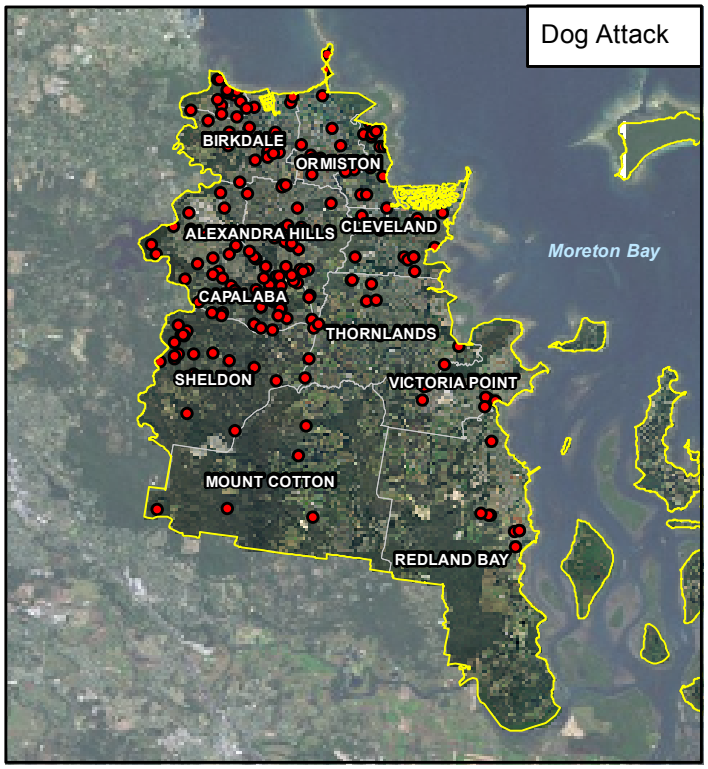
- 2008
- 2010
- 2011
- 2012
- Suburbs
- Shire Outline

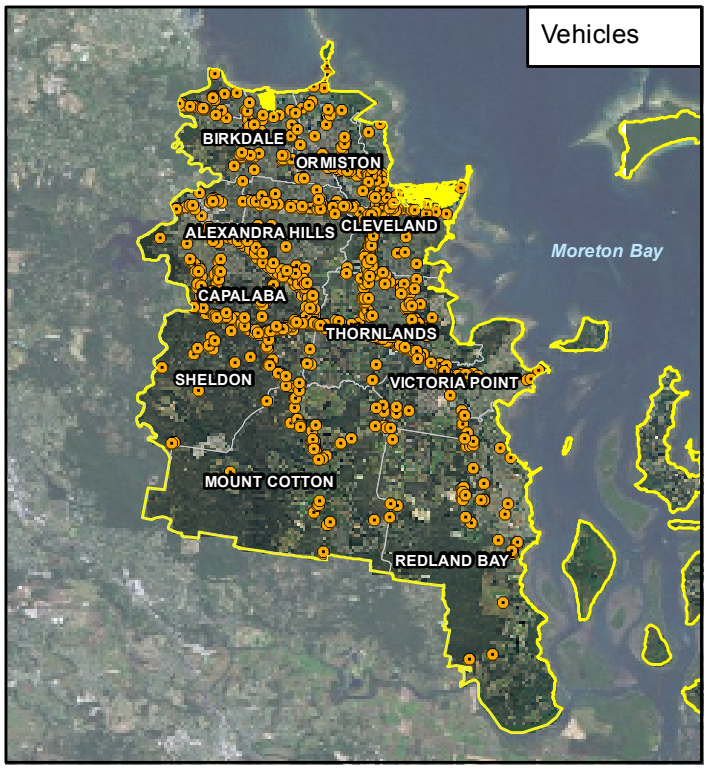
Figure:	**3-2**
Title:	Locations of Koala sightings 2008-2012 (from RCC data)
Project:	**Koala Habitat Review and Mapping - Redland City Mainland**
Client:	**Redland City Council**

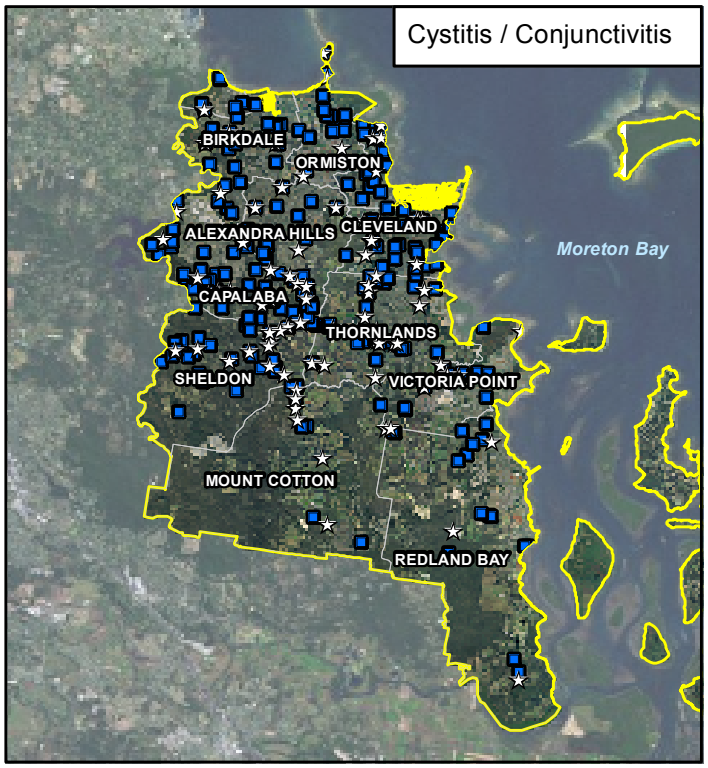
BAAM ECOLOGICAL CONSULTANTS

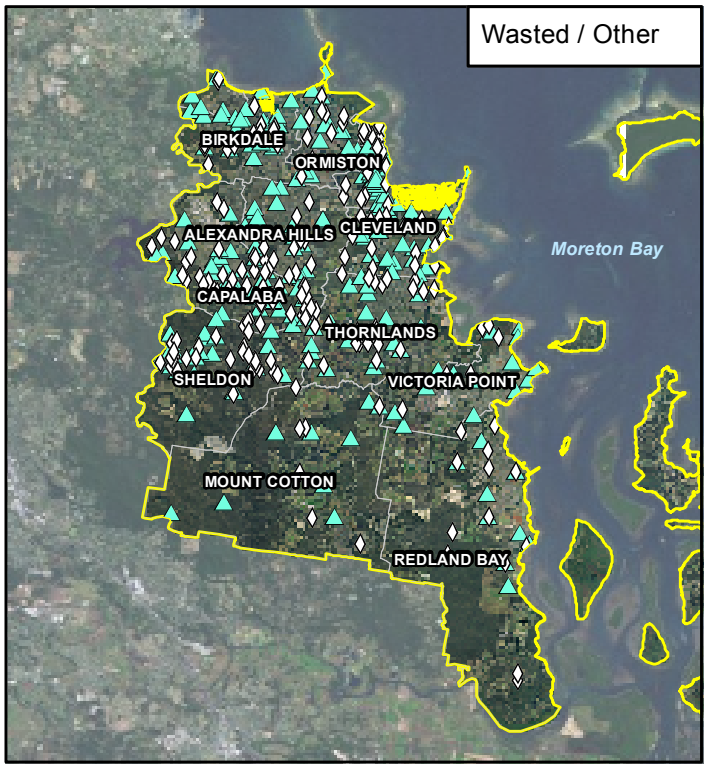
Drawn By: MG Reviewed by: JC Date: 29/05/2013

Document Location: \\BAAM-SERVER\baamdata\BAAM\Operations\BAAM Jobs\Active BAAM Jobs\0015-061 Review and map Koala habitat data RCC\GIS\MXDs\ReportFigures\Figure 3-1 Locations of Koala sightings 08-12.mxdDate: 29/05/2013 3:19:49 P









Coordinate System: GCS GDA 1994
Datum: GDA 1994

1:300,000 at A4

0 1.5 3 6 9 12 Kilometers

Notes:
Koala Mortality data from QLD Government 1997 - 2012
Boundary data and RCC image supplied by Redland City Council.
Background image source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

LEGEND

Koala reported mortality by event:

- Dog attack
- Vehicles
- Cystitis
- ☆ Conjunctivitis
- ◊ Wasted
- △ Other
- Shire Outline
- Suburbs

Figure:	**3-3**
Title:	Locations of Koala deaths, split by cause of mortality (from QLD Government data)
Project:	**Koala Habitat Review and Mapping - Redland City Mainland**
Client:	**Redland City Council**

BAAM ECOLOGICAL CONSULTANTS

Drawn By: MG Reviewed by: JC Date: 29/05/2013

Document Location: \\BAAM-SERVER\baamdata\BAAM\Operations\BAAM Jobs\Active BAAM Jobs\0015-061 Review and map Koala habitat data RCC\GIS\MXDs\ReportFigures\Figure 2-2 Locations of Koala deaths.mxdDate: 29/05/2013 3:24:22 PM

The compiled data on Koala location across Redland City are affected by differences in survey effort across the Redland City study area. Most survey effort, and therefore most records of Koala occurrence, is from urban areas where observers are concentrated (see **Figures 3.1** to **3.2**). Bushland habitat areas, particularly larger areas, appear to have been subject to less survey effort. This bias in the distribution of survey effort across Redland City has implications for the use of Koala occurrence data to weight habitat.

Historical Records of Koala where not used in the habitat mapping. This is because spatial analysis revealed that the dataset was so large (over 20,000 records) that once the records were buffered to reflect the precision of the coordinates (see BAAM (2013) for more detail on the buffering methodology), all mapped areas were covered. As the Koala records did not, on aggregate, provide any extra information on the species' habitat distribution and habitat values (once coordinate precision was corrected for), and apparent bias in Koala recording effort, they were excluded from the mapping process.

3.2. FIELD SURVEY

The following field survey results relating to Koala evidence include data recorded during the ground-truthing component of a previous stage of NEDS (Aecom and BAAM 2012) and those collected during December 2012 as part of the current project. It should be noted that the earlier surveys were conducted prior to the release of the EPBC *Interim Koala referral advice for proponents* (DSEWPaC 2012); therefore habitat assessments were not conducted in accordance with these guidelines. The surveys undertaken in December 2012 were carried out in general accordance with the rationale established by DSEWPaC (2012), using a rapid assessment approach (outlined in **Section 2.2**) to ascribe a ranking to habitat based on the proportion of canopy cover attributed to primary and secondary Koala food trees. For this reason, the results of Koala habitat assessments (see **Section 3.2.3**) are restricted to those recorded during the latest survey, which inspected a total of 146 separate locations.

3.2.1. Koala evidence

A total of 14 Koalas were sighted on the mainland during the two survey periods, the locations of which are shown on **Figure 3.4**, together with the locations where Koala evidence (scats) was observed. All Koalas sighted were located in habitats supporting *Eucalyptus tereticornis* and were found resting in either primary or secondary habitat trees. All were adults and healthy, with the exception of one observed at Redland Bay, which appeared to be suffering from a bowel problem. However, inspection by officers from the Daisy Hill Koala Centre found that this individual appeared to be recovering from illness and it was therefore not captured.

Evidence of Koala visitation (scats) was located at 61 locations. Of these, 69% were located within the northern urban areas of Redland City (**Figure 3.4**). Koalas, or evidence of their presence, were observed at or near all railway stations within Redland City, with the exception of Thorneside.

3.2.2. Koala habitat assessments at survey locations

A total of 146 locations were visited during the five-day December 2012 survey. The GPS locations, percentage cover of Koala feed trees, and a general description of the visited sites are provided in **Appendix 2**. A total of 80 (55%) sites supported Koala habitats ranked as highly suitable, 21 (14%) were ranked as suitable, 23 (16%) as of marginal value and 22 (15%) as unsuitable (**Figure 3.5**).

3.3. KOALA HABITAT MAPPING

The PDF version of the Koala Habitat Map for the Mainland area of Redland City is presented in **Figure 3.6.** The map for North Stradbroke Island presented in **Figure 3.7**. The digital version of the GIS data layers has been presented separately to RCC.

Most of the mapped primary Koala habitat is distributed across the lower-lying and more urbanised northern and eastern portions of Mainland Redland City, whereas mapped secondary Koala habitat is concentrated in the more forested southern and south-western portions of the mainland (**Figure 3.6**). This is consistent with the high density of Koala location records in the northern and eastern areas (**Figures 3.1** to **3.4**) and the known preferences of Koalas for vegetation communities on lower-lying, more fertile soils (Moore *et al*. 2004, Crowther *et al*. 2009).The NSI townships support mainly secondary habitats (**Figure 3.7**).

Coordinate System: GCS GDA 1994
Datum: GDA 1994
Units: Degree

1:135,152 at A4

0 0.5 1 2 3 4 Kilometers

Notes:
Boundary data and RCC image supplied by Redland City Council.
Background image source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

LEGEND

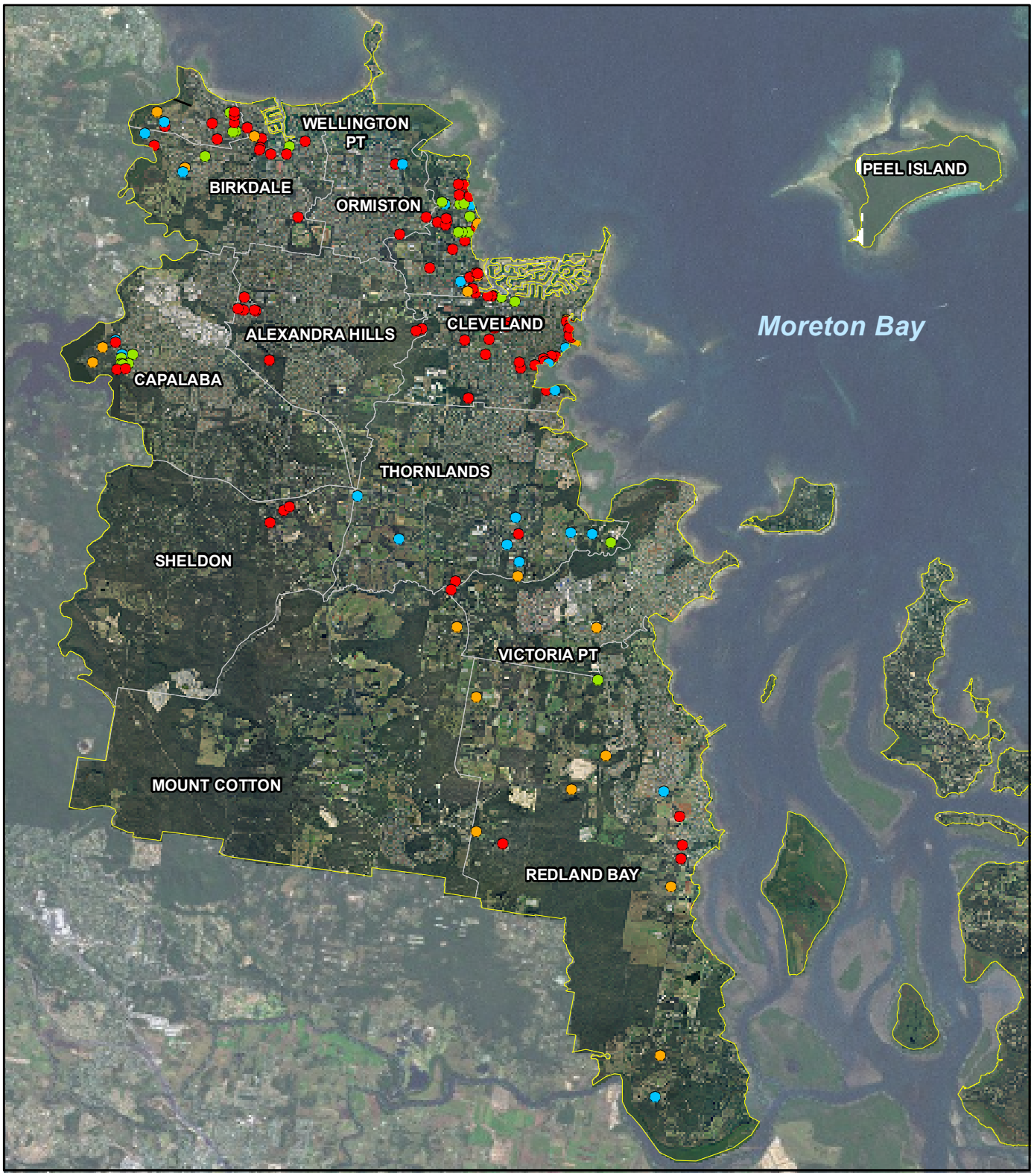
- Koala sighting
- Scats found
- Suburbs
- Shire Outline

Figure:	**3-4**
Title:	Locations of BAAM Koala sightings
Project:	**Koala Habitat Review and Mapping - Redland City Mainland**
Client:	**Redland City Council**

BAAM ECOLOGICAL CONSULTANTS

Drawn By: MG Reviewed by: JC Date: 29/05/2013

Document Location: \\BAAM-SERVER\baamdata\BAAM\Operations\BAAM Jobs\Active BAAM Jobs\0015-061 Review and map Koala habitat data RCC\GIS\MXDs\ReportFigures\Figure 3-4 Locations of Koala Sightings BAAM.mxdDate: 29/05/2013 3:26:49 P



Coordinate System: GCS GDA 1994
Datum: GDA 1994
Units: Degree

1:135,000 at A4
0 0.5 1 2 3 4 Kilometers

Notes:
Koala habitat derived from surveys undertaken by BAAM during December 2012. Boundary data and RCC image supplied by Redland City Council.
Background image source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

LEGEND

Survey Data (BAAM 2012-2013)

Koala Habitat Quality

- Highly suitable
- Suitable
- Marginal
- Unsuitable

- Suburbs
- Shire Outline

Figure:	**3-5**
Title:	Koala Habitat Assessment Results
Project:	**Koala Habitat Review and Mapping - Redland City Mainland**
Client:	**Redland City Council**

BAAM ECOLOGICAL CONSULTANTS

Drawn By: MG Reviewed by: JC Date: 29/05/2013

Document Location: \\BAAM-SERVER\baamdata\BAAM\Operations\BAAM Jobs\Active BAAM Jobs\0015-061 Review and map Koala habitat data RCC\GIS\MXDs\ReportFigures\Figure 3-6 Ranking of Koala Habitat.mxdDate: 29/05/2013 3:28:20 PM

Coordinate System: GCS GDA 1994
Datum: GDA 1994
Units: Degree

1:135,152 at A4

0 0.5 1 2 3 4 Kilometers

Notes:
Boundary data and RCC image supplied by Redland City Council.
Background image source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

LEGEND

(BAAM Mapped Remnant and Regrowth Vegetation)

- Primary
- Secondary

KoalaTreesPresent

- Primary
- Secondary

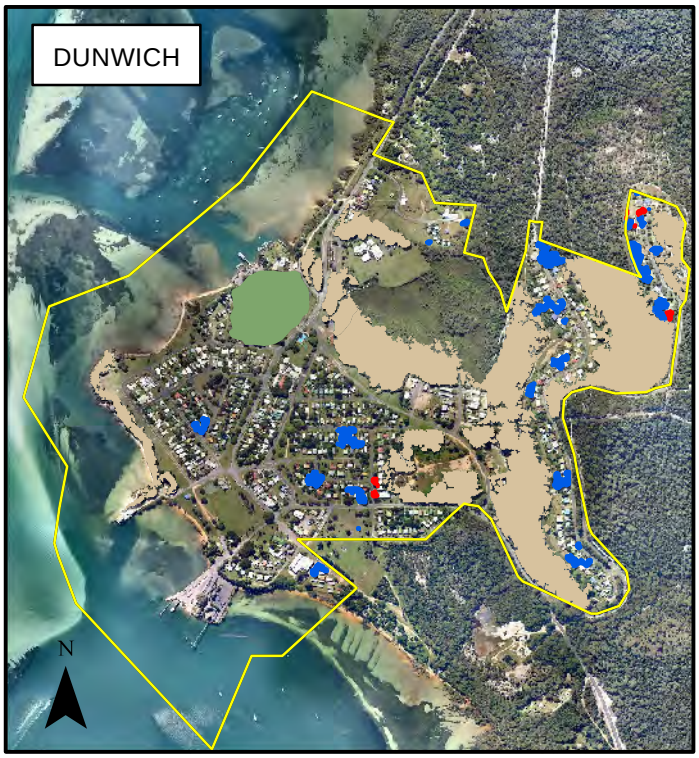
Shire Outline

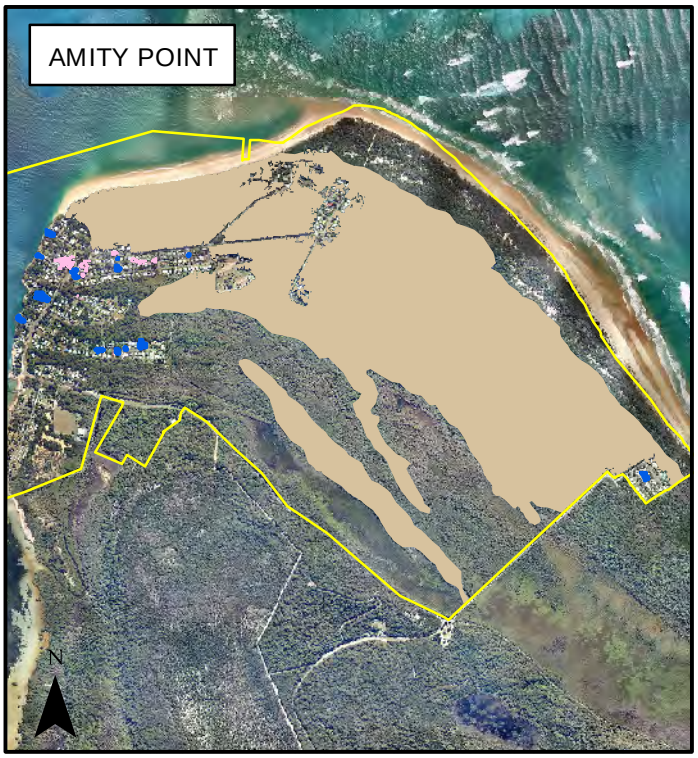
Figure:	**3-6**
Title:	Koala Habitat Map for Redland City
Project:	**Koala Habitat Review and Mapping - Redland City Mainland**
Client:	**Redland City Council**

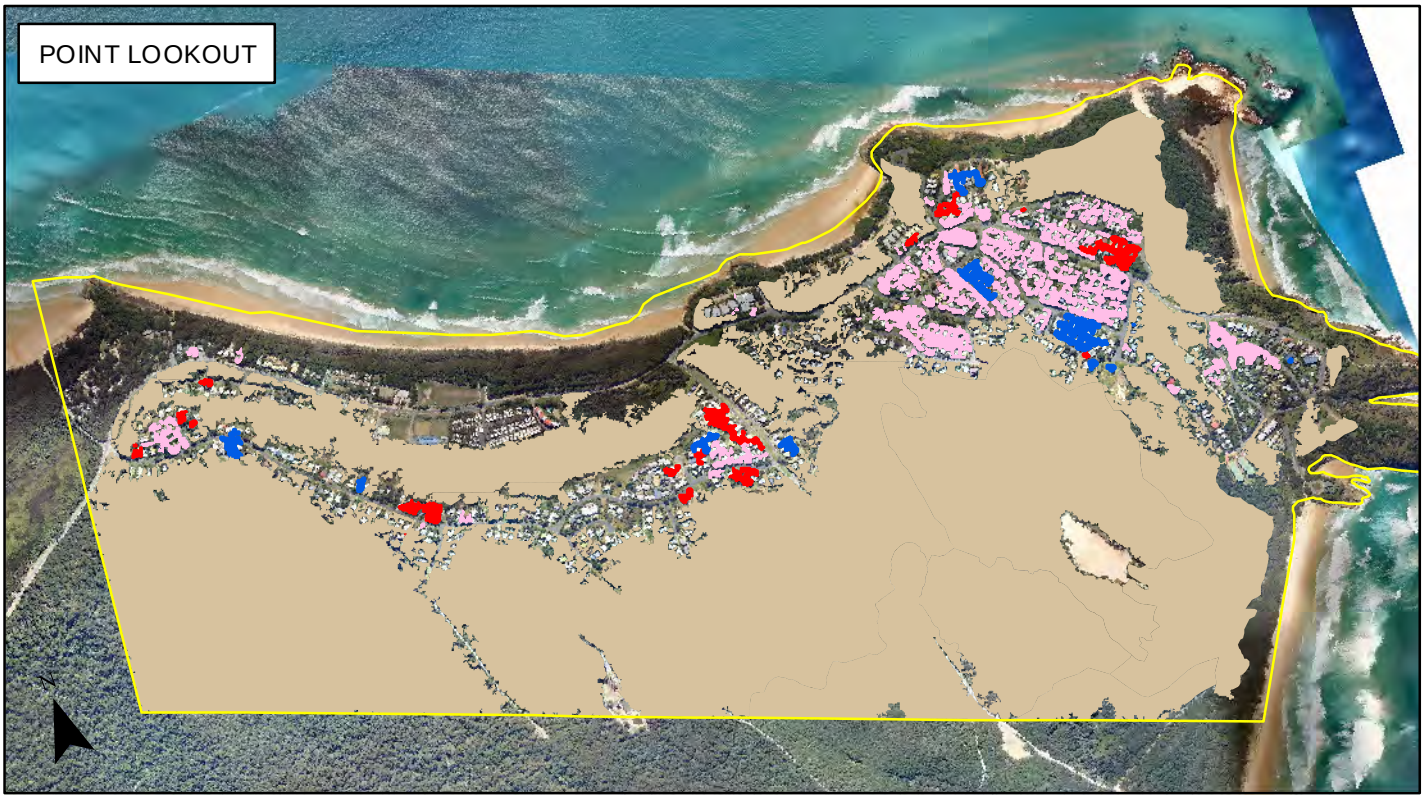
BAAM ECOLOGICAL CONSULTANTS

Drawn By: MG Reviewed by: JC Date: 30/05/2013

Document Location: \\BAAM-SERVER\baamdata\BAAM\Operations\BAAM Jobs\Active BAAM Jobs\0015-061 Review and map Koala habitat data RCC\GIS\MXDs\ReportFigures\Figure3-6 Koala Habitat Mapping BAAM.mxdDate: 30/05/2013 11:22:31 AM







Notes: Imagery supplied by Nearmaps 2013

Coordinate System: GCS GDA 1994
Datum: GDA 1994
Units: Degree

1:25,202 at A4

0 0.125 0.25 0.5 0.75 1 Kilometers

LEGEND

(BAAM Mapped Remnant and Regrowth Vegetation)

- Primary
- Secondary

Koala Trees Present

- Primary
- Secondary
- Important supplementary food tree on NSI

- Suburb

Figure:	**3-7**
Title:	Koala Habitat Map for Redland City
Project:	**Koala Habitat Review and Mapping - North Stradbroke Island**
Client:	**Redland City Council**

BAAM ECOLOGICAL CONSULTANTS

Drawn By: MG Reviewed by: JC Date: 1/12/2014

Document Location: D:\GIS\Jobs\0015-069 NSI_Koala_Habitat_Mapping\GIS\MXDs\ReportMaps\Figure 3-7 Koala Habitat Mapping.mxdDate: 1/12/2014 2:20:06 PM

The Koala habitat mapping recognises a total of 3,966 ha of primary Koala habitat (3,819 ha of which is remnant or regrowth vegetation) and 6,827 ha of secondary Koala habitat (6,794 ha of which is remnant or regrowth vegetation) (**Table 3.1**).

Table 3.1. Total areas of the different Koala habitat value categories in the Koala habitat mapping.

Habitat layer	Remnant (ha)	Regrowth (ha)	Total (ha)
RE			
Primary	2,316	1,503	3,819
Secondary	5,920	874	6,794
Non-mapped	3,789	15	3,804
Non-RE			
Primary			147
Secondary			33

3.3.1. Validation of Koala habitat mapping

The results of the field survey were used to validate the Koala habitat mapping decision rules regarding the recognition of different habitat value categories. Among 75 habitat assessment survey sites in remnant and regrowth vegetation, most (79%) of the sites located in mapped primary Koala habitat were assessed in the field as highly suitable or suitable, whereas 83% of sites in mapped secondary Koala habitat were assessed in the field as highly suitable or suitable (**Table 3.2**). Limited habitat assessment therefore confirms that vegetation communities mapped as primary and secondary habitats at a broad scale (at the vegetation community level) generally support highly suitable to suitable Koala habitat as ground-truthed at a finer spatial scale.

Table 3.2. Habitat assessment results for survey sites located in each of mapped primary and secondary Koala habitat in remnant and regrowth vegetation.

Habitat layer	Highly suitable	Suitable	Marginal	Unsuitable	Total
Primary	45 (71%)	5 (8%)	9 (14%)	4 (6%)	63
Secondary	5 (42%)	5 (42%)	2 (16%)	0	12
Total	50	10	11	4	75

Spatial intersection of the field survey site point locations and mapped Koala primary and secondary habitats, including Non-RE primary and secondary habitats, showed that of the 146 survey sites, 101 survey points fell within the primary or secondary habitat layers. The remaining 46 field survey points were located in road reserves or on the edges of sporting fields or parks with scattered trees whose canopy coverage was too small (i.e. less than the 500 m^2 threshold patch size for NEDS Phase 2 mapping) to be mapped in the Koala habitat layers, and are not included in the following analysis.

Koalas were sighted or Koala visitation was observed substantially more frequently within mapped primary habitat (43% of survey sites) than mapped secondary habitat (3% of survey sites) or non-mapped habitat (5% of survey sites) (**Table 3.3**). This result provides strong support for the koala habitat associations that underpin the habitat mapping rules.

Table 3.3. Koala survey results (sighting and/or scat evidence) at sites in different habitat categories

Habitat layer /classification	Koala evidence	No evidence	Total
Primary (remnant, regrowth and non-RE)			
Highly suitable	43 (70%)	18 (13%)	61
Suitable	3 (33%)	6 (67%)	9
Marginal	4 (27%)	11 (73%)	15
Unsuitable		4 (100%)	4
Total	**50 (43%)**	**39 (33%)**	**89**
Secondary (remnant, regrowth and non-RE)			
Highly suitable	3 (60%)	2 (40%)	5
Suitable		5 (100%)	5
Marginal		2 (100%)	2
Unsuitable			0
Total	**3 (3%)**	**9 (8%)**	**12**
Non-Mapped			
Highly suitable	6		6
Suitable		2	2
Marginal		3	3
Unsuitable		5	5
Total	**6(5%)**	**10(8%)**	**16**
Grand Total	**59**	**58**	**117**

Six sites that showed evidence of Koala utilisation and accessed as highly suitable in the field, occurred in landzone 1 (RE 12.1.1 or 12.1.3) which are in marine clay plains and estuaries. Inspection of these data points reveals that all six sites occur along the foreshores of Redland City in areas that have either been planted with *Eucalyptus tereticornis,* or recruitment of this species has occurred overtime.

3.3.2. Characterisation of Koala habitat and comparison with KSPRP

As noted in **Section *1.1.1***, REs that fall within landzone 3, including 12.3.6 (*Melaleuca quinquenervia, Eucalyptus tereticornis*, *Lophostemon suaveolen*s woodland on coastal alluvial plains) and 12.3.11 (*Eucalyptus siderophloia, E. tereticornis, Corymbia intermedia* open forest on alluvial plains usually near the coast) were not assigned a high value ranking under the KSPRP mapping. Yet, these REs are identified as primary Koala habitat in the Koala Habitat Map produced as part of the current project (see **Table 2.3**). The Koala Habitat Map identifies a total of 2,225 ha of remnant and regrowth vegetation communities on landzone 3. Of this, 2,018 ha are mapped as primary Koala habitat, 36 ha as secondary Koala habitat and 171 ha as non-preferred Koala habitat. Primary habitat on landzone 3 comprises 53% of the total area of mapped primary remnant and regrowth habitat.

These results highlight the importance of landzone 3 vegetation communities as supporting the majority of primary Koala habitat in Redland City, and demonstrate how reliance on KSPRP mapping alone, which does not recognise vegetation communities on landzone 3 as being of high value to Koalas (GHD 2009), may give an incomplete understanding of Koala habitat values in Redland City.

The remnant and high value regrowth Regional Ecosystem habitat layers developed as part of NEDS Phase 2 (BAAM 2013) provide an accurate, though necessarily broad, map of Koala habitat values. Nonetheless, this mapping has been created at a much finer scale (1:5,000) in comparison to the KSPRP mapping tool, which is based on a 1:25,000 scale. Combined with the detailed, ground-truthed mapping of Koala habitat values within urban tree vegetation patches, the Koala Habitat Map provides a highly informative map of Koala habitat values for planning and conservation purposes across Redland City.

Over time, as more ground-truthing of urban tree vegetation patches (in the Non-RE habitat dataset outlined in **Section 2.4** and BAAM (2013)) is undertaken within Redland City, the coverage of the Koala Habitat Map can be expanded in accordance with the mapping rules for this habitat mapping layer.

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APPENDIX 1
KOALA HABITAT ASSESSMENT DATA PROFORMA (FIELD AND METADATA FORMATS)

Field Name	Data Type	Description	Values
ID	**Double**	Generated by ArcPAD. Guarantees a unique ID for each row in the table being edited on the field device.	1–∞
DATE	**Date**	Generated by ArcPAD. Specifies the date and time as day, month, year, hours, minutes, seconds, AM/PM.	
LOCATION	**Text**	Description of the survey location, e.g. Suburb name	
COMMENTS	**Text**	Comments describing the site	
SITE	**Text**	Description of the spatial position of the survey site, e.g. Street name, School grounds, creek line, etc.	
PHOTOREF	**Text**	Photo reference number, e.g. Device name/ code and number automated by device	
REMNANT	**Text**	Yes/ No and RE Label	Yes, No
CONDITION	**Text**	Subjective assessment of the health and integrity of the habitat, based on factors such as degree of weed invasion and disturbance	Good, Medium, Poor
CONNECTIVITY	**Text**	Appraisal of patch size degree of linkage to other similar habitat	Connected, Needs enhancement, Isolated
KOALA	**Text**	Presence or absence of Koala during survey	Yes, No
SCRATCHES	**Text**	Presence or absence of characteristic Koala scratches on Koala habitat trees	Yes, No
SCATS	**Text**	Presence or absence of characteristic Koala scats around the bases of Koala habitat trees	Yes, No
E.MICR	**Text**	Percent of canopy cover comprising *Eucalyptus microcorys,* expressed in increments of five.	10, 15, 20,…, 95, 100
E.TERE	**Text**	Percent of canopy cover comprising *Eucalyptus tereticornis,* expressed in increments of five.	10, 15, 20,…, 95, 100
E.PLANC	**Text**	Percent of canopy cover comprising *Eucalyptus planchoniana* expressed in increments of five.	10, 15, 20,…, 95, 100
E.PROP	**Text**	Percent of canopy cover comprising *Eucalyptus propinqua,* expressed in increments of five.	10, 15, 20,…, 95, 100
E.MOLU	**Text**	Percent of canopy cover comprising *Eucalyptus moluccana,* expressed in increments of five.	10, 15, 20,…, 95, 100
E.RACE	**Text**	Percent of canopy cover comprising *Eucalyptus racemosa,* expressed in increments of five.	10, 15, 20,…, 95, 100
E.RESI	**Text**	Percent of canopy cover comprising *Eucalyptus resinifera,* expressed in increments of five.	10, 15, 20,…, 95, 100
E.MAJO	**Text**	Percent of canopy cover comprising *Eucalyptus major,* expressed in increments of five.	10, 15, 20,…, 95, 100
E.SEEA	**Text**	Percent of canopy cover comprising *Eucalyptus seeana,* expressed in increments of five.	10, 15, 20,…, 95, 100
E.SIDE	**Text**	Percent of canopy cover comprising *Eucalyptus siderophloia,* expressed in increments of five.	10, 15, 20,…, 95, 100
E.GRAN	**Text**	Percent of canopy cover comprising *Eucalyptus grandis,* expressed in increments of five.	10, 15, 20,…, 95, 100

Field Name	Data Type	Description	Values
E.TIND	**Text**	Percent of canopy cover comprising *Eucalyptus tindaliae,* expressed in increments of five.	10, 15, 20,…, 95, 100
E.BANC	**Text**	Percent of canopy cover comprising *Eucalyptus bancroftii,* expressed in increments of five.	10, 15, 20,…, 95, 100
OTHER_CANOPY	**Text**	Species name/s of other canopy species, particularly those relevant to Koala (e.g. non-*Eucalyptus* Eucalypt species), and percent of canopy cover that they contribute.	
KOALAHAB_RANK	**Text**		Highly Suitable, Marginal, Suitable, Unsuitable
LATITUDE	**Double**	East-West position	
LONGITUDE	**Double**	North-South position	

APPENDIX 2
TABLE OF FIELD DATA AND COMMENTS
(REFER TO ZIP FOLDER FOR EXCEL SPREADSHEET)

Metadata of NEDS Koala Field Survey Points

Custodian

Principal Ecologist (Botany)
Biodiversity Assessment and Management
233 Middle Street, Cleveland Q 4163
PO Box 1376 Cleveland Q 4163

Abstract

NEDS Field Survey Points maps the location of flora and fauna assessment sites and species records within the Redlands City Council project areas for the NEDS project as at 31/05/2013.

Version History

Version 1.1 – Incorporates all post-fieldwork edits as at 31/05/2013.

ANZLIC Search Words

ECOLOGY Models
ECOLOGY Planning
ECOLOGY Landscape
ECOLOGY Ecosystem
ECOLOGY Habitat
ECOLOGY Community
ECOLOGY Biodiversity
ECOLOGY Classification
ECOLOGY Conservation
ECOLOGY Mapping
ECOLOGY Inventory
VEGETATION Mapping
VEGETATION Planning
VEGETATION Inventory
FLORA Native
FLORA Exotic
FAUNA Native
FAUNA Exotic
VEGETATION Floristic
VEGETATION Structural

Dataset Status

Progress: Finalised.
Release Date: 23/05/2012
Maintenance and Update Frequency: As required

Access

Datum: MGA94 Zone 56 -
Stored Data Format: Digital ArcInfo
Available Format Type: Digital ArcInfo

Positional Accuracy

<10m

Attribute Descriptions:

Field Name	Data Type	Description	Values
FEATURE	Text	Geometry data type.	Point
FID	Double	Generated by ArcPAD. Guarantees a unique ID for each row in the table being edited on the field device.	1–∞
SHAPE	Text	Geometry data type.	Point
DATE_	Date	Generated by ArcPAD. Specifies the date and time as day, month, year, hours, minutes, seconds, AM/PM.	
SCATS	Double	Presence/ Absence of Koala scats at location	'1'= Present '0'= Absent
SCRATCHES	Double	Presence/ Absence of potential Koala scratches on tree/s	'1'= Present '0'= Absent
PC_E_MICRO	Double	Percent of the total canopy composed of *Eucalyptus microcorys*.	10, 15, 20,…, 95, 100
PC_E_ROBUS	Double	Percent of the total canopy composed of *Eucalyptus robusta.*	10, 15, 20,…, 95, 100
PC_E_TERET	Double	Percent of the total canopy composed of *Eucalyptus tereticornis.*	10, 15, 20,…, 95, 100
PC_E_MOLUC	Double	Percent of the total canopy composed of *Eucalyptus moluccana.*	10, 15, 20,…, 95, 100
PC_E_PLANC	Double	Percent of the total canopy composed of *Eucalyptus planchoniana.*	10, 15, 20,…, 95, 100

Field Name	Data Type	Description	Values
PC_E_PROPI	Double	Percent of the total canopy composed of *Eucalyptus propinqua.*	10, 15, 20,…, 95, 100
PC_E_RESIN	Double	Percent of the total canopy composed of *Eucalyptus resinifera.*	10, 15, 20,…, 95, 100
PC_E_RACEM	Double	Percent of the total canopy composed of *Eucalyptus racemosa.*	10, 15, 20,…, 95, 100
PC_E_MAJOR	Double	Percent of the total canopy composed of *Eucalyptus major.*	10, 15, 20,…, 95, 100
PC_E_SEEAN	Double	Percent of the total canopy composed of *Eucalyptus seeana.*	10, 15, 20,…, 95, 100
PC_E_SIDER	Double	Percent of the total canopy composed of *Eucalyptus siderophloia.*	10, 15, 20,…, 95, 100
PC_E_GRAND	Double	Percent of the total canopy composed of *Eucalyptus grandis.*	10, 15, 20,…, 95, 100
PC_E_TINDA	Double	Percent of the total canopy composed of *Eucalyptus tindaliae.*	10, 15, 20,…, 95, 100
PC_E_BANCR	Double	Percent of the total canopy composed of *Eucalyptus bancroftii.*	10, 15, 20,…, 95, 100
HAB_QUAL	Text	Approximation of the quality of the location as Koala habitat based on the dominance of primary or secondary food trees. Classified in accordance with McAlpine *et al.* (2006).	Highly Suitable, Suitable, Marginal, Unsuitable.
LATITUDE	Double	North-south position in decimal degrees.	
LONGITUDE	Double	East-west position in decimal degrees.	
COMMENTS		Thorough description of the site and any additional information related to its value for Koala, including condition of shrub layer, proximity to dogs, etc.	
EDITS			
FOOD_TREE			Primary, Secondary, Nil

Contact Information

Contact Organisation: Biodiversity Assessment and Management
Contact Position: Principal Ecologist (Fauna)
Postal Address: PO Box 1376
City: Cleveland
State: QLD
Country: Australia
Postcode: 4163
Electronic Mail Address: jo@baamecology.com

Metadata of NEDS Remnant and Regrowth Regional Ecosystem Koala Habitat Mapping

Custodian

Principal Ecologist (Botany)
Biodiversity Assessment and Management
233 Middle Street, Cleveland Q 4163
PO Box 1376 Cleveland Q 4163

Abstract

NEDS vegetation maps designating Koala Habitat within Remnant and Regrowth Regional Ecosystems in the Redlands City Council project areas for the NEDS project as at 31/05/2013.

Version History

Version 1.1 – Incorporates all post-fieldwork edits as at 31/05/2013.

ANZLIC Search Words

ECOLOGY Planning
ECOLOGY Landscape
ECOLOGY Ecosystem
ECOLOGY Habitat
ECOLOGY Community
ECOLOGY Biodiversity
ECOLOGY Classification
ECOLOGY Conservation
ECOLOGY Mapping
ECOLOGY Inventory
VEGETATION Mapping
VEGETATION Planning
VEGETATION Inventory
FAUNA Native
FLORA Native
FLORA Exotic
VEGETATION Floristic
VEGETATION Structural

Dataset Status

Progress: Finalised.
Release Date: 29/05/2013
Maintenance and Update Frequency: As required

Access

Datum: MGA94 Zone 56 -
Stored Data Format: Digital ArcInfo
Available Format Type: Digital ArcInfo

Positional Accuracy

1:5000

Attribute Descriptions:

Field name	Description	Example
RE	Regional ecosystem mosaic, ordered by precent contribution	12.11.5k/12.11.5a/12.11.23 /12.11.3/12.11.10
RE1	Dominant RE	12.11.5k
RE2	First Subdominant RE	12.11.5a
RE3	Second Subdominant RE	12.11.23
RE4	Third Subdominant RE	12.11.3
RE5	Fourth Subdominant RE	12.11.10
PERCENT	Precent contribution of each RE in the mosaic, descending	40/25/15/15/5
PC1	Percentage of dominant RE	40
PC2	Percentage of Subdominant RE	25
PC3	Percentage of second Subdominant RE	15
PC4	Percentage of third Subdominant RE	15
PC5	Percentage of fourth Subdominant RE	5
LANDZONE	Categories that describe the major geologies and associated landforms and geomorphic processes	11
BD_STATUS	Biodiversity status: N = No concern at present, OC = Of concern, E = Endangered	

BD_SYMBOL	254 = "Endangered (dominant)", 50 = "Endangered (sub-dominant)", 143 = "Of Concern (dominant)", 142 = "Of Concern (sub-dominant)", 170 = "Not of Concern", 1 = "non-remnant", 253 = "water", 249 = “hoop” or “plant” or “sand”	0
LineAcc	Linework accuracy rating 1-3: 1 = created using preclear shapes, 2 = visually assessed or manually edited, 3 = contains a field assessment point within	1
AttribAcc	Attribute accuracy rating 1-3: = created using preclear attributes, 2 = visually assessed and manually entered, 3 = contains a field assessment point within	2
RLGA_CL	Redlands local government area critically limited REs	1 = 100%; 2 = Present in Mixed Polys
KoalaHabit	Designates if the regional ecosystem is known to contain primary or secondary Koala food trees based on the Regional Ecosystem Description Database.	primary secondary

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Contact Organisation: Biodiversity Assessment and Management
Contact Position: Principal Ecologist (Botany)
Postal Address: PO Box 1376
City: Cleveland
State: QLD
Country: Australia
Postcode: 4163
Electronic Mail Address: chris@baamecology.com

Metadata of NEDS Urban Trees Koala Habitat Mapping

Custodian

Principal Ecologist (Botany)
Biodiversity Assessment and Management
233 Middle Street, Cleveland Q 4163
PO Box 1376 Cleveland Q 4163

Abstract

NEDS vegetation maps designating Koala habitats that are Remnant and Regrowth Regional Ecosystem or not Regional Ecosystems within the Redlands City Council project areas for the NEDS project as at 31/05/2013.

Version History

Version 1.1 – Incorporates all post-fieldwork edits as at 31/05/2013.

ANZLIC Search Words

ECOLOGY Planning
ECOLOGY Landscape
ECOLOGY Ecosystem
ECOLOGY Habitat
ECOLOGY Community
ECOLOGY Biodiversity
ECOLOGY Classification
ECOLOGY Conservation
ECOLOGY Mapping
ECOLOGY Inventory
VEGETATION Mapping
VEGETATION Planning
VEGETATION Inventory
FAUNA Native
FLORA Native
FLORA Exotic
VEGETATION Floristic
VEGETATION Structural

Dataset Status

Progress: Finalised.
Release Date: 29/05/2013.
Maintenance and Update Frequency: As required

Access

Datum: MGA94 Zone 56 –
Stored Data Format: Digital ArcInfo
Available Format Type: Digital ArcInfo

Positional Accuracy

1:5000

Attribute Descriptions:

Field name	Description	Example
SHAPE	Geometry type	polygon
NRE	Description of conservation significant flora or fauna habitat that is not a regrowth or remnant Regional Ecosystem:	urban_trees
KoalaHabitat	Designates if the patch of habitat is known to contain primary or secondary Koala food trees based on Redland City Tree Mapping Points.	primary secondary <Null>=no data
Area_Ha	Area of the polygon	0.2376 (hectares)
Shape_Length	Length of the boundary of the polygon	1257 (meters)
Shape_Area	Area of the polygon	2376 (meters squared)

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Contact Organisation: Biodiversity Assessment and Management
Contact Position: Principal Ecologist (Botany)
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