

## Birkdale Community Precinct Koalas: background, impacts, management and outcomes.



Technical note addressing the potential impacts of the proposal for development against the Commonwealth Significant Impact Assessment for Koalas provided to 28 South.

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Contents:

<b>SUMMARY .....</b>	<b>3</b>
<b>THE SITE AND BACKGROUND INFORMATION .....</b>	<b>4</b>
<b>REPORTS OF KOALAS AT THE SITE.....</b>	<b>5</b>
<b>SITE VALUES.....</b>	<b>15</b>
LANDSCAPE FUNCTION FOR KOALAS .....	17
IMPACTS AND OUTCOMES OF THE MASTERPLAN .....	19
<b>REFERENCES .....</b>	<b>22</b>
<b>OTHER SOURCES OF INFORMATION.....</b>	<b>24</b>
<b>DISCLAIMER.....</b>	<b>24</b>
<b>APPENDIX 1. SIGNIFICANT IMPACT ASSESSMENT FOR KOALA .....</b>	<b>26</b>
SUMMARY.....	26
PROJECT OUTLINE .....	26
KOALA ECOLOGY AND THE PROJECT AREA.....	27
THE HABITAT .....	28
POTENTIAL IMPACTS .....	28
MITIGATION STRATEGY.....	29
MONITORING AND ADAPTIVE MANAGEMENT.....	29
REPORTING AND COMPLIANCE.....	30
ASSESSMENT AGAINST EPBC SIGNIFICANT IMPACT GUIDELINES .....	30
CONCLUSION AND RECOMMENDATION .....	36

## Summary

Koalas have been monitored across the Birkdale Community Precinct (BCP) Project Area (and beyond) continuously for several years resulting in identification of the areas of the site and surrounds that they are using. Koalas currently use the proposed conservation area, which contains food and shelter resources, with limited forays by a few individuals across the proposed development footprint - which is largely open land. By avoiding impacts into the conservation area and providing improved connectivity and food resources through the development footprint, the Birkdale Community Precinct can provide community infrastructure that does not negatively impact koalas in the local area.

There is sufficient information provided in The Birkdale Community Precinct Koala Management Plan and the Birkdale Community Precinct Conceptual Management Plan developed by 28 South to envisage the project and its spatial and operational impacts. Further, a considerable body of data exists in other site-based reports such as Raptor Environmental's Birkdale Community Precinct Ecology Assessment Report, Koala Management Plan and Spotlighting Survey Notes, The University of the Sunshine Coast Birkdale Community Precinct Project Koala survey report and Koala Monitoring reports and the older Biolink Koala Report (all referenced below) to identify the impact of the development on koalas. My site visits confirmed the overview provided by these reports of where koalas were active and where disturbance may impact them.

As conceptual BCP masterplan avoids impacts to koala habitat in the conservation area (food and shelter resources which could be critical to the survival of koalas) and includes measures that, if implemented, will increase permeability for koalas through the development area and provide additional koala food resources. Because development impacts are proposed across largely cleared land (avoiding the conservation area), there is little prospect of a decline in food resources that would impact the local koala population.

However, some trees will be lost in the work proposed, so the development must 1. Retain as many trees as possible and 2. Include revegetation that a)

increases the quantum of koala fodder at the site and b) provides safe refuge and permeability through the site for koalas, to complete an improved outcome for koalas.

The longer – term, indirect impacts associated with development of the site (e.g. traffic, noise and light) may affect koala movement and use across the site and it is important that effective identification of these impacts and mitigation measures are developed. As proposed, the direct impacts (clearing, construction and operation of infrastructure at the site) avoid the conservation area that is used by koalas and hence these direct impacts would not be considered to meet thresholds of the Significant Impact Criteria for endangered species (koala) under the EPBC Act (1999).

The concept plan proposes to enhance koala habitat by retaining and connecting the *in situ* vegetation (through revegetation) within the open space that currently exists, and these measures are recommended. Connecting current vegetated (treed) areas, increasing the quantum and quality of the food resources and controlling pest species across the site could result in a net gain in carrying capacity for koalas and improved connectivity at the site.

## The site and background information

The Project Area is an approximately 62 Ha area comprising a mix of remnant and regrowth vegetation and open space in Birkdale, Queensland. It is bounded by Old Cleveland Road to the east, Tingalpa Creek to the south and mixed uses including a golf course to the west and north (Figure 1). Three of the lots, comprising some 39 Ha of the site, are subject to a Conservation Agreement between Redlands City Council and The Australian Commonwealth (Conservation Area), with the remaining 19.7 Ha being unconstrained in this manner (Development Footprint). The site also contains some heritage assets such as the World War 2 radio facility which is outside of the conservation area.



4. Biolink Ecological Consultants. (2021). Birkdale Community Precinct: Koala habitat assessment and recommendations. Report to Redlands City Council by Biolink Ecological Consultants, Pottsville, NSW.
5. Birkdale Community Precinct Koala Management Plan 2024-054, 28 South, 12 March 2026
6. Birkdale Community Conceptual Management Plan March 2026 (28 South)
7. Matters of National Environmental Significance Ecological Assessment Report, Birkdale Community Precinct. Redland City Council. Raptor Environmental March 2026

Significantly, ongoing monitoring of koalas by The University of the Sunshine Coast provides up-to-date data on koala activity across the project area and the reports produced as part of that program are used to inform this document.

In general, the Hohweiler report (USC Koala Study) and the Birkdale Community Precinct Local Government Infrastructure Designation Environmental Assessment Report provide the highest quality information because they utilise contemporary techniques in combination to assess the use of the site by koalas, most notably empirical evidence including observation of koalas and DNA analysis. The Birkdale Community Precinct Project (Cristescu and Cornell 2024) details koala use of the site from a dedicated koala monitoring program and was hence relied on heavily, providing data of high quality over time. Secondly, the thesis of Dr Jim Thompson, peer reviewed reports from that work and information contained in the KoalaBase and Atlas of Living Australia data sets provide ecological and historical perspective (e.g. tree preferences and occurrence data over time). The Biolink Koala Report was accessed but was in general not relied upon in assessing the proposal in terms of impact or design other than with regard to vegetation associations because the methods used do not meet the standard for koala habitat assessment beyond occupancy (Youngentob *et al.* 2021).

*Birkdale Community Precinct Local Government Infrastructure Designation  
Environmental Assessment Report (Appendix F) Ecology Assessment Report.*

This report covers a field survey using multiple techniques to detect a variety of species, conducted between September 8 and 12 2022 and including a detailed report of spotlighting, in addition to a detailed desktop review of available data for the site. The report draws on data from other surveys (some their own work, but also other available information) to inform assessment of various attributes (e.g. NJKHT across the disturbance area). The report itself leans on the review of Youngentob (Youngentob *et al.* 2021) to determine habitat categories, and previous vegetation community assessments to refine the RE mapping across the site. Interestingly, call playback for koala was included as a method (this approach is not commonly used in Queensland). The study was designed to detect occurrence of multiple species (flora and fauna) and hence very few extrapolations regarding use of the site are made. The probable area of occupancy and extent of habitat categories is detailed, the likely extent of habitat reduction proposed for the masterplan at the site is presented.

According to this report, a loss of some 1.8 hectares of Category A habitat (defined in the report of Youngentob et al 2021 as being dominated by locally important koala trees - LIKT), 2.9 Ha of Category B (Scattered LIKTs) and 18.5 Ha of Category C habitat (open ground) would occur. Recommendations regarding assessment for each species is provided in the report. The findings and recommendations of this report may change as the project is refined: each report is relevant to the time it was made.

The associated Spotlight Survey Notes for this study do not record observation of any koalas, although there was significant overlap with koala ranging locations as provided in the USC reports (e.g. Figure 4 below).

*Birkdale Community Precinct Project Koala reports (Surveys: Hohwieler report and Monitoring: Cristescu report).*

In two reports (and further progress reports) the University of The Sunshine Coast a) report on surveys to detect koalas at the site and b) report on the

monitoring of the koalas at the site. The survey combines drones, detection dogs and DNA analysis of collected samples. Acknowledgement that koala locations are not consistently accompanied by scats (hence the need for detection dogs) is made, noting that relying solely on scat collection to identify patterns of tree use by koalas is unreliable (Youngentob *et al.* 2021).

The survey report indicates that some ten koalas (of up to 21 that have used the site over recent time according to DNA analysis) were likely to be present during the survey period. Approximately 70% of the scat samples indicated chlamydial infection to be present. Drone surveys were conducted in winter (June 2021) detecting six individual koalas of which five were subsequently observed. Observably diseased koalas were captured and treated.

The monitoring reports detail the capture and monitoring of 13 koalas from the site between 2021 and 2024 and 3 translocated koalas introduced from another site. With some mortality due to disease and some technological problems (koalas' self - releasing from collars), quality tracking data for eight koalas utilising the site and surrounds is provided. These are the most valuable data for evaluating the function of the site for koalas. The GPS tracking logs for the koalas indicate a broad use of the conservation area of the site, including the west and south of the site (Figure 7).

*The Biolink report.* This report provides particularly useful information on tree species in combination with the abundant evidence of koalas using the site - confirming that the site is used by koalas. However, a unique habitat value criteria (four tiers p5 and 6) is provided which hampers direct comparison with other studies and assessment of impact against assessment criteria.

Extrapolated home range determinations and koala activity rely entirely on the "SAT" method of scat collection (Phillips and Callaghan 2011), which is not an appropriate method of habitat assessment, other than for occurrence data (Youngentob *et al.* 2021). Consideration of ranges and activity contours are hence not informative, particularly in light of the empirical evidence delivered by the other reports, and recent advice that the SAT is an inferior method for koala detection (Jiang *et al.* 2020; Witt *et al.* 2020). The extrapolated "activity

contours” contained in this report (Figure 8) are not supported by the actual locations and activity of koalas detected using direct methods (Figure 7) and are hence unreliable indicators of areas of value to koalas. The report does confirm that much of the site contains koala food trees and is therefore of value. Scats indicate the presence of koalas (but not absence (Youngentob *et al.* 2021)). As a result, I would not recommend reliance on the Biolink report to evaluate koala activity or to detect impacts on koalas at this site. There is consensus amongst research publications advising caution with the use of the SAT, either for detection and abundance estimates (Cristescu *et al.* 2012; Jiang *et al.* 2020; Sullivan *et al.* 2002; Witt *et al.* 2020; Woosnam-Merchez 2008; Woosnam-Merchez *et al.* 2012), or for tree selection and diet preferences (Ellis *et al.* 2002; Ellis *et al.* 1998; Matthews *et al.* 2007), and the contrasting outcomes of the USC monitoring and Biolink report are not therefore surprising.

*The Birkdale Community Precinct Koala Management Plan*, prepared by 28 South for Redland City Council, provides a single management document addressing impacts and their mitigation for koalas at the site.

This document synthesises information from a range of reports including those reviewed here, arriving at a specific set of actions to control conditions at the site for koalas throughout the development of the project.

*The Birkdale Community Precinct Conceptual Management Plan*, prepared by 28 South, intends to provide management insight on how the BCP will be designed, constructed, and operated to mitigate ecological impacts and enhance native biodiversity values.

This plan identifies that about 19.75 Ha of the site will be disturbed with a conservation area of approximately 38.95 Ha retained. Significantly, retention of specific patches of trees across the east of the site will retain scattered vegetation that has occasionally been used by koalas (according to the most recent USC koala tracking reports). Further, this document identifies four management units, each with its own revegetation strategy:

- MU1 – Revegetation Space

- MU2 – Open Space
- MU3 – Mitigation Area
- MU4 – Potential Coastal Swamp Oak (*Casuarina glauca*) Forest

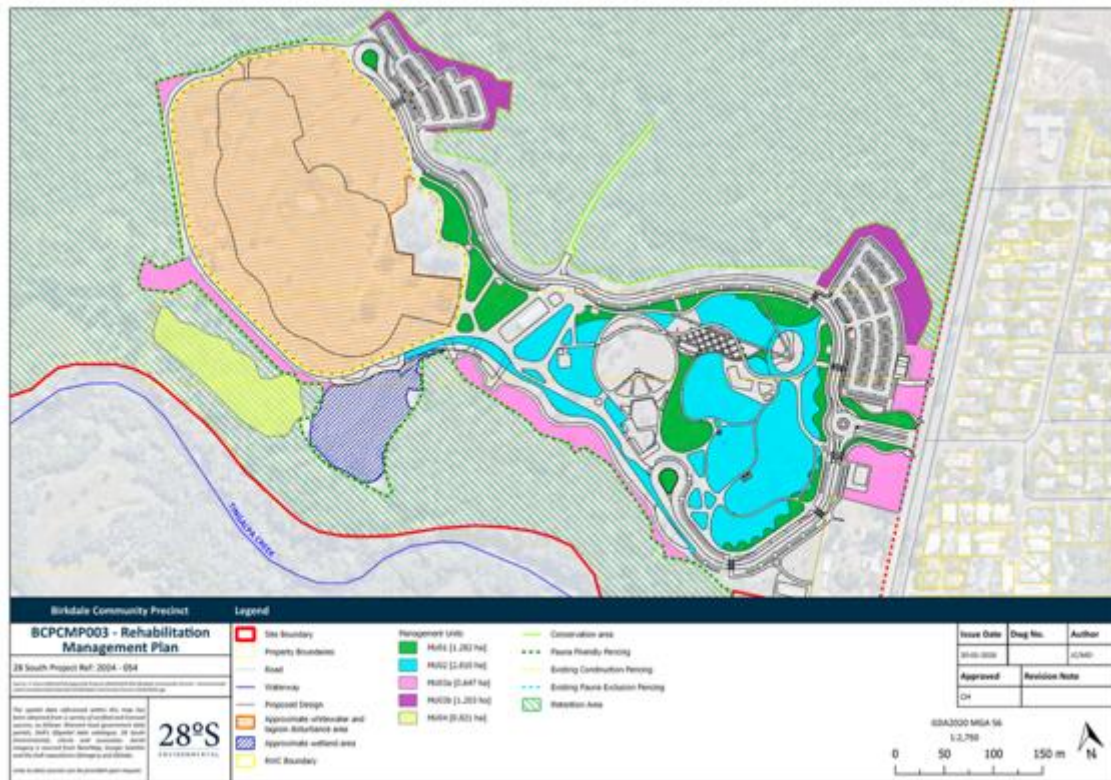


Figure 2. Revegetation and Rehabilitation Management Plan (conceptual – from BCPCMP\_Rev2.0).

These units appear above as green (MU1 – revegetation space 1.28 Ha), Blue (open space 2.8 Ha), yellow (potential coastal swamp forest 0.8 Ha) and pink / purple (mitigation area ~1.9 Ha). Note that in response to advice, the proponent has modified these plans and the areas and vegetation within.

Each area has a detailed planting palette and planting specifications are attached to the document. Similarly, weed management is addressed in this section of the document.

Importantly, this document details the tree removal and retention schedule across the site, identifying which trees will be removed and where retention is

mandated. This is presented schematically and in tabular form which will allow accurate auditing in progress and presents a good guide to the impacts to individual trees. Detailed mapping of retained and impacted vegetation are presented.



Figure 3. Overview plan of vegetation retention and impacts.

The Birkdale Community Precinct Conceptual Management Plan contains a detailed fauna management strategy which points to the more detailed Koala Management Plan and generally relies on the information provided therein. In the longer term, it is envisaged that several movement routes for wildlife will be retained and enhanced through the revegetation of the site, and these are presented schematically in Figure 4 (reproduced from the document).



*The Raptor Environmental Matters of National Environmental Significance Ecological Assessment Report* was prepared by Raptor Environmental to support the referral of the Project under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). It was designed to:

- ensure relevant matters of national environmental significance (MNES) associated with the Project located within the Disturbance Footprint are considered as part of the EPBC Act referral.
- assess direct and indirect impacts on MNES including the results of the Significant Impact Assessments.
- detail avoidance, mitigation and management measures relevant to MNES.
- incorporate the findings of specialist species assessment and Significant Impact Assessments for Koala (*Phascolarctos cinereus*) and Greater glider (*Petauroides volans*).

Specific to koalas, the report presents the following assessment of Potential Impacts, Avoidance, Management and Mitigation Measures.

Potential Impact	significant impact assessment considerations	
	Avoidance measures	Key management and mitigation measure
The Disturbance Footprint includes Koala habitat which is predominately open ground with some treed habitat. The Project directly impacts approximately 126 Koala habitat trees during disturbance.	The design retains the Conservation Area including 38.949ha of Koala habitat. The design is consolidated in the historically cleared areas of the Disturbance Footprint and avoids and minimises impacts to Koala habitat tree within the Disturbance Footprint.	The design includes measures to increase permeability for Koala by incorporating revegetation within planting pods in north to south stepping stone corridors through the Disturbance Footprint. The revegetation includes Koala habitat trees and will maintain corridor linkages and foraging resources for Koala. A Koala Management Plan has been prepared which details management and mitigation measures. On-going Koala population and health monitoring in a partnership between RCC and the University of the Sunshine Coast (USC) will continue to monitor the Koala population of Birkdale.
Potential impact on movement opportunities.	The design considered bare ground as potential Koala habitat. Individual Koala habitat trees have been avoided where possible as part of the design to maintain	Wildlife vehicle strike mitigation infrastructure and measures have been incorporated into the design. Exclusion fencing and/steep batters will be incorporated at the permitter of the aquatic facilities to minimise the risk of Koalas drowning.

	movement opportunities within the Disturbance Footprint	The design includes measures to maintain permeability for Koala by incorporating revegetation within planting pods in north to south stepping stone corridors through the Disturbance Footprint.
Increase in noise and light during the construction and operational phases.	Noise and lighting will be limited to the construction and operational hours detailed in the Construction and Operational Environmental Management Plans	The Construction and Operational Environmental Management Plans will include management and mitigation measures to address potential indirect impacts as a result of increased noise and light.

The report summarises available information, drawing on reports from Cardno, 2020; USC, 2021, Biolink, 2021, Raptor Environmental, 2023 and Ecoteam Environmental Scientific Services, 2025 (this report) as follows:

- A total of ten individual Koalas were identified as part of drone and dog detection surveys.
- Scat analysis resulted in a total of 21 individual Koalas that may be within the Project Area over the three years of surveys.
- Approximately 70% of individual Koalas sampled returned positive for *Chlamydia*.
- The core Koala habitat is largely located within the designated Conservation Area
- Little evidence of use by Koala within the Disturbance Footprint was found.

This Raptor report (the MNES report) notes that under a Redland City Council initiative, a Koala Safe Neighbourhood has been established some 700 m north east of the project area. The criteria for establishing a Koala Safe Neighbourhood includes a known koala population, evidence of koala strike on roads and habitat that can support koalas.

The direct impacts to koala identified in this report occur in the disturbance footprint, which will be subject to selective vegetation clearing resulting in a reduction in food and shelter trees and light, noise and dust. The report quotes the tree survey data indicating that approximately 126 Koala habitat trees (i.e. 16% of Koala habitat trees within the Disturbance Footprint) will be impacted by the Project. Individual Koala habitat trees are retained in the Disturbance

Footprint and connectivity across the open space is preserved by maintaining linkages with Tingalpa Creek waterway corridor and the Conservation Area to the north.

Regarding indirect impacts, the Raptor report lists the following for koala:

- Increased risk of wildlife vehicle strike (within the Disturbance Footprint and from additional traffic during construction).
- Habitat fragmentation and edge effects are likely consequences of the Project that impacts and intersects Koala habitat.
- Light and noise pollution may continue during the operational phase of the Project.
- There is the potential risk of exacerbation of disease through stress (however this is not well understood).

In conclusion, the Raptor Report states that a significant impact on koala is “unlikely”, if the mitigation measures detailed in the specialist report are fully implemented.

## Site Values

Empirical evidence, in the form of the USC koala survey and monitoring reports, confirms the use of the Project Area – specifically the Conservation Area and surrounds, by koalas. Most koalas that were monitored did not use the site exclusively, with ranges extending beyond the boundaries indicating that the site forms part of the range of many koalas. Over time it is probable that all areas of the Project Area are used by koalas, for travel (across open areas as well as treed sections) or for food and shelter resources; the monitoring reports highlight individual range areas and point to key food and shelter resource areas.

The Birkdale Community Precinct Local Government Infrastructure Designation Environmental Assessment Report (Appendix F) Ecology Assessment Report identified that 165 specimens of *Eucalyptus tereticornis*, *Eucalyptus siderophloia*, *Eucalyptus moluccana*, as well as *Corymbia intermedia*, *Lophostemon suaveolens* and *Melaleuca quinquenervia*, all of which are

species used by koalas and the first three of which are significant food species, within the development footprint. That report indicates that NJKHT specimens of *E. microcorys* (which is a koala food tree) occur in the area containing the development footprint.

The revised tree retention package (28 South Koala Management Plan) indicates that only 126 NJKHT will be removed as part of the disturbance for this project, but this plan seeks advice (such as this document) and is indicative of the final figure.

Overall, the Project Area contains some 39 Ha of koala habitat (treed and sparsely treed), and although koalas are known to use open or very sparsely treed areas of ground between the various patches of habitat, they do so when moving, so GPS tracking will not detect such use without a very high fix - record rate. (This is demonstrated in the USC tracking data that are reproduced here at Figure 7).

The regional ecosystems and regrowth extents are depicted in Figure 5 below.

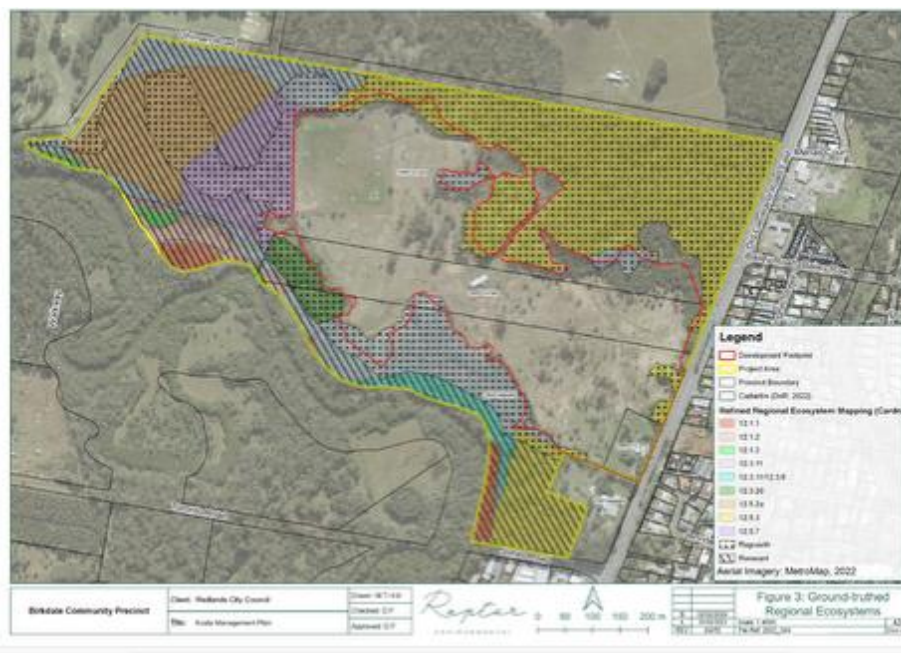


Figure 5. Extent of the mapped Regional Ecosystems and regrowth on site, (Raptor Environmental).



Figure 6. Koala food and habitat trees in the development footprint.

Landscape function for koalas

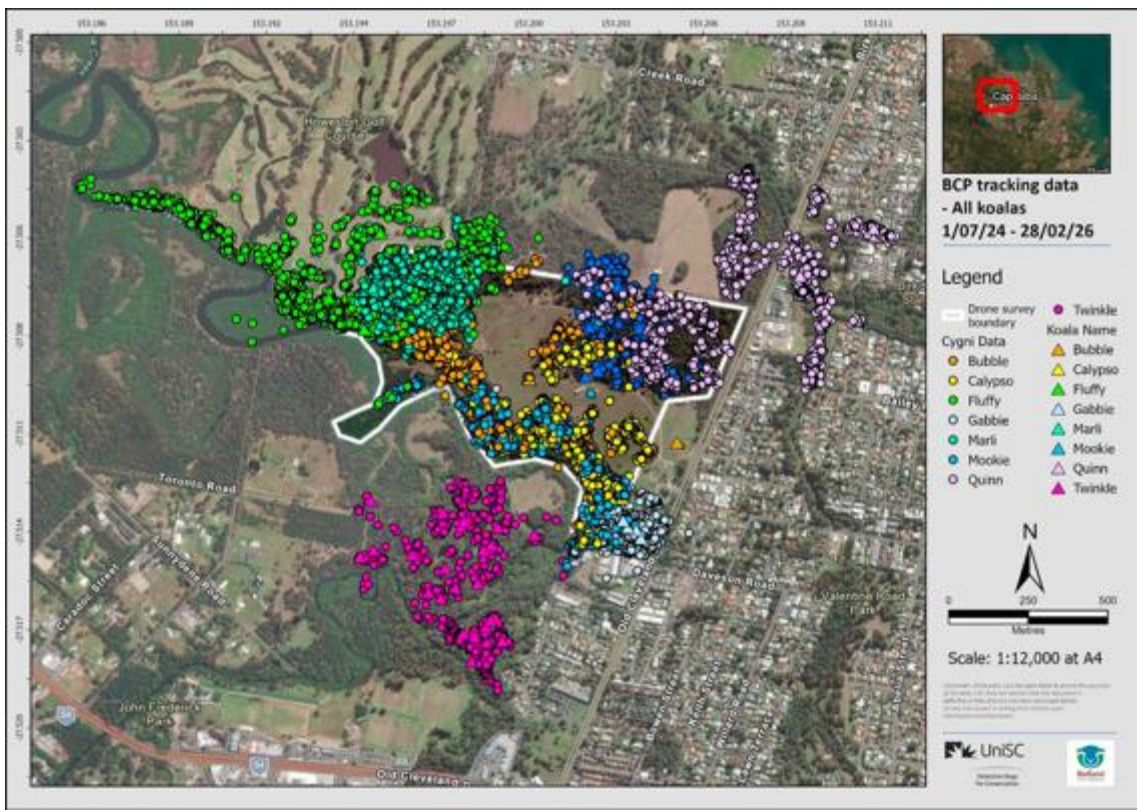


Figure 7. Updated (to 2026) GPS tracking data for koalas at the site reproduced from The University of the Sunshine Coast koala monitoring study. Note the limited use of open ground, koalas are not currently moving across this area regularly.

As shown in Figure 7, koalas use the Conservation Area of the site with few encroachments by individuals to the development footprint - which is largely cleared land. Where unimpeded, koalas cross the site boundaries as evidenced by the locations to the northwest. Tingalpa Creek appears to restrict movement to and from the site (note one koala now residing south of the creek). There is an absence of locations for koalas in the sparsely treed and open areas of the site and very few locations that indicate travel across the open areas of the development footprint. The role of these areas as connecting habitat is important to consider when future uses are contemplated, despite koalas not currently utilising them. Monitoring the koalas at the site has also added to information that koalas utilise the golf course to the northwest of the site, particularly the creek boundary area.

This site appears to form part of a larger network of koala habitat extending with connections north, west and south. Although patchy habitat extends to the east, Old Cleveland Road and more intense residential development in this direction would present significant constraints to koala movement, that may also affect the subject site (restricting immigration and dispersal).

Estimates of some ten to twenty koalas using the site indicated in the USC survey report are supported by the koala monitoring report and show that the site is part of a large, connected koala habitat in the region.

It is relevant to contrast the evidence of koala use detailed in the significant body of koala tracking and remote monitoring by the University of the Sunshine Coast team (and detailed in Figure 7) with the predictions of the Biolink report (detailed in Figure 8).



Figure 8. SAT - based predictions of koala activity at the site, conflicting with koala monitoring data.

The Biolink predictions of high activity across the development footprint (e.g. “Birk 07”), with lesser activity levels through much of the conservation area (Figure 5 – e.g. “Birk 1”) contrast the actual location data detected by the USC koala monitoring and highlight the shortcomings of relying on and extrapolating from indirect data, such as scats. It is important that, to provide for the requirements of koalas at this site, those areas used by koalas (such as the conservation area) are prioritised for retention and that the development is situated in areas that do not contain critical resources. The current proposal sites development away from the main areas used by koalas.

### Impacts and outcomes of the masterplan

The masterplan / developing concept of the proposed development is subject to refinement at present. It is important that the modifications to further reduce impacts in the development footprint, such as proposed strategic planting for connectivity and for food resources, are enacted wherever feasible so that the impact on koalas is positive over time.

Koala monitoring reports indicate that there is some use by koalas of trees within the impact area – in one case an observation of a koala (Pippi) was made across the impact area, and two koalas (Bubble and Calypso) have been recorded using trees within that impact area. Although the latter two koalas may use this area as a food resource, it is likely that Pippi explored across the impact zone (perhaps during breeding season).

These observations, however, highlight that a positive (e.g. Nature Positive) outcome still can be generated across the impact area, to improve food resources and safe travel opportunities for koalas. Hence the revegetation program that increases north-south connectivity in the centre of the impact area, and the planting of koala food trees in the eastern precinct are integral to achieving nature positive outcomes for koalas. It is not envisaged that all NJKHT in the development footprint will be impacted by clearing or construction (according to the current proposal) but replacing any lost trees in a strategic way to enhance connectivity will be required and will increase the connectivity between the north and south of the site. There remain significant opportunities for planting in the eastern section of the development footprint, where substantial gains for koala food and shelter resources can be made. Examining the area of habitat that will be affected reveals that impacts should only occur across less than 1 Ha of vegetation with over 40 Ha of vegetation retained (Figure 3).

Very few observations of koalas in the trees located in the impact area were made during the monitoring studies, but one koala (Twinkle) moved off the site and is now inhabiting the area south of Tingalpa Creek. If movement resources (food and roost trees) through the site are improved, access to the west, north and south for koalas could be facilitated, creating a permeable and safe feature for koalas that travel through or are resident in the local area.

The lack of use by koalas of the development footprint area means that action and impacts in that area of the site are likely to have fewer consequences for koalas in the local area. However, design features that enhance koala

movement through this area would be a positive outcome at a landscape scale, providing a safe connection where currently only a tenuous one exists. At present, koalas need to cover open ground between habitat patches – whether this has resulted in the low level of movement between the north and south of the site is not known, but connecting the trees currently in the Conservation Zone through the site from north to south would ensure that transient koalas could also move more freely through the site. So, there is the potential to add value to the development footprint area not just for the koalas resident in the Conservation Zone, but also for dispersing and transient individuals. This can be achieved with a connected network of fodder species (such as *E. tereticornis*) bridging gaps across the currently open spaces.

Other impacts including light, noise and vehicular traffic will need consideration and adaptive responses should development proceed. The Raptor Environmental Koala Management Plan suggests the use of koala fencing to reduce the likelihood of vehicle strike on Old Cleveland Rd. Fencing, including the use of escape hatches on busy roads, are known to be a feature of koala sensitive design and where vegetation connects across roads, such measures can reduce risks for koalas. Vehicle strike remains a significant threat to koalas, so the final design of this precinct must include the use of low speed for all vehicles and controls for vehicles during clearing and construction to ensure the safety of koalas. Increased traffic introduced to the access roads such as Old Cleveland Road East can have a wider impact (koalas and other fauna may be impacted on roads leading to the precinct), but this is assumed to be sporadic around events held at the precinct. Several options to mitigate these impacts are available, such as speed control, fauna awareness campaigns, mitigation structures and traffic calming, and the detail of these needs to be considered and included in the final plans. The Raptor Environment Koala Management Plan recommends scheduling vegetation removal outside of koala breeding season (September to March) and implementing traffic management measures to reduce risks to koalas during construction.

Light, smells, noise and dust that are emitted from development activities (clearing, building and inhabitation) also bring probable impacts for koalas. It is not known to what extent light that penetrates vegetation affects koala behaviour, but because they are generally nocturnal, it is probable that their vision can be affected by direct light. Koalas use auditory and olfactory communication particularly in breeding season, so noise, particularly low frequency noise like vehicle motors, and smells, for example from chemicals, could affect their activity, particularly breeding behaviours. Because koalas eat leaves of Eucalypts, dust that collects on the leaves can affect the nutritional value of the fodder available to them, so this also needs management. Although the Raptor Environment Koala Management Plan identifies these threats, the detail of mitigation measures is yet to be finalised.

A key threat over time may result from the design of the water feature that is central to the precinct – the white-water facility. Koalas (and other fauna) can become trapped in structures designed to hold water, so thought needs to be put into the final design of this facility. It is probable that exclusion fencing will be an element of design from a human safety perspective, however the final design of the features should also include moderate bank slopes where possible, so that fauna that enter can easily escape the final structure, whether filled with water or empty. Fauna including koalas may be attracted to outdoor water features and may prevail over the engineering of human-exclusion structures, hence a further step to make safe for fauna the water features is recommended.

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## Other Sources of Information

- Birkdale Community Precinct Local Government Infrastructure Designation Environmental Assessment Report (Appendix F) Ecology Assessment Report Prepared by Raptor Consulting, including Spotlight Survey Notes.
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- Birkdale Community Precinct Koala Management Plan 2024-054, 28 South, 16 October 2025
- Birkdale Community Conceptual Management Plan 2026 (28 South)
- Matters of National Environmental Significance Ecological Assessment Report, Birkdale Community Precinct. Redland City Council. Raptor Environmental January 27 2026

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## Appendix 1. Significant Impact Assessment for Koala

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### Significant Impact Assessment

*Koala* (*Phascolarctos cinereus*) –

Birkdale Community Precinct

Prepared in accordance with the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

**Date:** March 2026

**Prepared by:** William Ellis

**Location:** Redland City, Queensland

### Summary

This assessment evaluates the potential for significant impact on the *Phascolarctos cinereus* (koala), listed as *Endangered* under the EPBC Act, resulting from proposed development at the Birkdale Community Precinct. Based on ecological data, habitat mapping, and proposed mitigation strategies, the project is unlikely to result in a significant impact if all measures are implemented and monitored. A referral under the EPBC Act is, nonetheless, recommended.

### Project outline

- **Location:** The site is the Birkdale Community Precinct, Redland City, Queensland.
- **Size:** The area investigated is approximately 62 ha in total, with an approximately 23 ha development footprint.
- **Proposal:** It is proposed to develop the site as a mixed-use community precinct including a white-water facility, cultural spaces, and recreational infrastructure.
- **Conservation Area:** Within the site, some 39 ha are retained under a Conservation Agreement.

## Koala ecology and the project area

- **Species:** The species considered here is the koala: *Phascolarctos cinereus*.
- **Status:** This species is currently listed as Endangered (QLD, NSW, ACT) under commonwealth legislation (The EPBC Act 1999)
- **Evidence from the site:**
- **Survey Methods**
  - Detection dogs and drone based thermal imaging was used across multiple seasons to detect koalas between 2018 and 2021.
  - Genetic sampling of scats collected on-site was also undertaken.
- **Key Findings**
  - Ten individuals were identified during the drone and dog detection surveys.
  - Analysis of collected scat resulted in a total of twenty-one individuals that may have been on site over the 3 years of surveys.
  - There was a high chlamydial prevalence with some 70% of samples returning positive results.
  - The core koala habitat occurs largely in the area designated as Conservation Area
  - Very little evidence of use by koalas of the development footprint area (which is largely cleared) was found.

## Habitat Use Patterns

- Koalas primarily use eucalypt woodland and riparian corridors in Redlands.
- Movement was observed between north and south boundaries of the project site.
- No breeding females were detected in the development footprint area.

## The habitat

- **Vegetation Communities:**
  - Vegetation on site is dominated by *Eucalyptus tereticornis*, *E. moluccana* and *E. siderophloia*
  - The site includes riparian zones, open woodland and open areas devoid of trees.
- **Habitat Categories and impact areas:**
  - Category A: High-quality treed habitat occurs on the site, and approximately 1.8 ha will be impacted.
  - Category B: Moderately treed habitat also occurs – some 2.9 ha will be impacted.
  - Category C: Some 18.5 ha of open ground will be impacted.
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## Potential impacts

### Direct

Vegetation clearing in development footprint.

As a result, there will be some loss of food trees and shelter trees.

Construction disturbance (noise, light, dust) may also have a direct impact on koalas at the site.

### Indirect

There will be an increased risk of vehicle strikes (both on site and from additional traffic because of the proposed development.

Habitat fragmentation and edge effects are likely consequences of development that impacts and bisects koala habitat.

Light and noise pollution may continue after construction.

There is the potential exacerbation of disease through stress, but this is not well understood.

## Mitigation Strategy

### **Avoidance Measures**

There will be no development within the 39 ha Conservation Area.

There is a commitment to the retention of key habitat trees where feasible.

### **Revegetation**

Direct planting – specifically in east of site creating permeable habitat pathway for koalas. Note this also replaces lost trees.

### **Design Features**

The creation of a north–south habitat corridor to maintain permeability and increase the safety of koalas moving across the site.

Koala-sensitive fencing with escape hatches.

The site will be a low-speed zone, and careful attention to design features so that there are no interactions between koalas and fast moving vehicles is important – this includes signage and lighting design.

### **Timing and Operations**

Vegetation clearing will be restricted to outside of the breeding season (generally October – March)

Noise and light controls will be in place during and beyond the construction phase.

## Monitoring and Adaptive Management

There is a plan to continue post-construction koala monitoring to ensure koalas that are on site are safe and to allow adaptive management at the site to respond to any issues that may arise.

This monitoring will include disease and health checks.

The program will also include community engagement and reporting mechanisms to enable community awareness of the measures in place and their effectiveness.

### **Objectives**

The monitoring program is designed to track koala movement and monitor ongoing health of the koalas that utilise the site.

The program will also evaluate the effectiveness of mitigation measures. By monitoring koala movement and health, the program will detect changes in habitat use that may reflect impacts requiring additional attention and controls.

### Proposed Actions

The plan proposes quarterly surveys using detection dogs and drones to detect all koalas on site.

There will be an annual health check for all koalas that are monitored, in collaboration with wildlife vets.

The proposal includes a community reporting portal for sightings and incidents.

There will be annual review and update (where required) of mitigation strategies.

### Reporting and Compliance

The program will report annually to The Department of Climate Change, Energy, the Environment and Water.

Data will also be shared with Redland City Council and local conservation groups

### Assessment Against EPBC Significant Impact Guidelines

EPBC Criteria	Assessment Summary
Lead to a long-term decrease in the size of a population	Unlikely. This is very unlikely given the mitigation measures as proposed. Koalas have been monitored across the BCP Project Area (and beyond) continuously for several years resulting in identification of the areas predominantly used by this species. Koalas currently use the proposed conservation area, which contains food and shelter resources, with only limited forays by a few individuals across the proposed development footprint. The BCP avoids impacts into the conservation area and

	<p>provides improved connectivity and food resources through the development footprint. As development impacts are proposed largely across cleared land, there is little prospect of a decline in food resources that would impact the local koala population. The longer – term, indirect impacts associated with development of the site (e.g. traffic, noise and light) may affect koala movement and use across the site, hence the development of various mitigation measures (awareness signage, traffic calming devices, venue management strategies). Vehicle strike remains a significant threat to koalas, so the final design of this precinct must include the use of low speed for all vehicles and controls for vehicles during clearing and construction to ensure the safety of koalas. The majority of the BCP usage will occur at a time in which koalas are less active (i.e. during the day while koalas are predominantly nocturnal). Additionally, the white-water facility may pose a threat by way of trapping koalas and other fauna internally. However, this is likely to be mitigated by exclusionary fencing which is also required from a human safety perspective. On going GPS monitoring of koalas will permit real time identification of koala positions and inform construction activities for avoidance of impacts. Koala movement patterns across the site are well studied. Koalas are known to use the Conservation Area of the site, with some encroachments by individuals to the proposed development footprint. Where unimpeded, koalas cross the site boundaries as evidenced by the locations to the northwest. Tingalpa Creek appears to restrict movement to and from the site (note one koala now residing south of the creek). There is an absence of locations for koalas in the sparsely treed and open areas of the site and very</p>
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	<p>few locations that indicate travel across the open areas of the development footprint. The role of these areas as connecting habitat is important to consider when future uses are contemplated, despite koalas not currently utilising them.</p> <p>It is unlikely that the proposed action would lead to a long-term decrease in the size of a population of koala. The BCP is designed to avoid impacting the demonstrated koala utilisation of the site – which is concentrated in the Conservation Area. The site remains connected at a broader landscape level, and internally, the rehabilitation and design efforts associated with the BCP provide improved connectivity through the site.</p>
<p>Reduce the area of occupancy of the species</p>	<p><b>No.</b> Koalas currently use the proposed conservation area, which contains food and shelter resources, with limited forays by a few individuals across the proposed development footprint. The BCP avoids impacts into the conservation area and capitalises entirely on the limited environmental value in the development area of the site. In addition, while the BCP spans most of the development area, the BCP is not impermeable to koalas and represents an improvement in connectivity, particularly north-south through the BCP. Vegetation within the eastern extent of the development area which has been shown to provide habitat for the occasional koala is being maintained and integrated into the design of the BCP, such that this habitat value is retained. Portions of the eastern extent of the development area will also be benefited by rehabilitation, further improving these values. The BCP itself, particularly in the east, does not represent hard barriers, and the proposed roads and footpaths remain traversable by koalas. Lastly, most of the operational functions of the BCP do not</p>

	<p>occur at the same time as koala activity - which are predominantly nocturnal. The main impermeable feature of the BCP is the white-water facility, located in the west of the development area, however, this extent is considered more devoid of ecological value than the east and resultant koala tracking data would support this view as koalas have not been recorded to be present crossing the cleared field, presumably due to high lack of vegetation. Resultantly, while the western extent is earmarked for more significant infrastructure, the location does not lend itself to supporting the koala and hence does not reduce the area of occupancy of the species.</p>
<p>Fragment an existing important population into two or more populations</p>	<p><b>No.</b> This risk is very low, particularly as the design includes the enhancement of connectivity north-south across the site. The BCP avoids impacts into the conservation area and capitalises entirely on the limited environmental value in the development area of the site. In addition, while the BCP spans most of the development area, the BCP is not impermeable to koalas and represents an improvement in connectivity, particularly north-south through the BCP. Vegetation within the eastern extent of the development area (which has been shown to provide habitat for the occasional koala) is being maintained and integrated into the design of the BCP, such that this habitat value is retained. Portions of the eastern extent of the development area will also benefit from rehabilitation, further improving these values. The BCP itself, particularly in the east, does not represent hard barriers, and the proposed roads and footpaths remain traversable to koala. Lastly, many of the operational functions of the BCP do not occur at the same time as koala activity, which are predominantly nocturnal. The main impermeable feature of the BCP</p>

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Adversely affect habitat critical to the survival of the species	<p><b>No.</b> The limited area of disturbance, located across largely cleared habitat means that direct impacts on <i>in situ</i> habitat will be negligible. Further, revegetation creating habitat linkages through the site should result in a positive outcome for habitat connectivity on site with benefits beyond, as koalas are more easily able to traverse this area.</p>
Disrupt the breeding cycle of a population	<p><b>Unlikely.</b> This is challenging to assess but because habitat is not lost and connectivity is enhanced, the probability that there will be interference is very low. The longer – term, indirect impacts associated with development of the site (e.g. traffic, noise and light) may affect koala behaviour across the site, hence the development of various mitigation measures (venue management strategies, noise limits, sensitive lighting design). However, the majority of the BCP usage will occur at a time in which koalas are less active (i.e. during the day while koalas are predominantly nocturnal).</p>
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that	<p><b>No.</b> A temporary and minor impact on habitat during construction is proposed to be offset by enhanced revegetation throughout the BCP. The Conservation Area is retained, with no loss of key preferred and actively utilised habitat. The extent of impact to habitat</p>

<p>the species is likely to decline</p>	<p>within the development area is also limited and unlikely to reduce the BCP's permeability. The inclusion of nature positive design elements is proposed to provide more habitat (via rehabilitation) and improved site and landscape connectivity (by strategic planting of koala habitat). Koalas have been monitored across the BCP Project Area (and beyond) continuously for several years so there is a good understanding of the areas of importance to them, consideration of which has informed the proposal aiming to improve habitat (quality and connectivity) across the site. As a result there is a very low likelihood that the proposed approach modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.</p>
<p>Result in invasive species that are harmful to an endangered or critically endangered species becoming established in the endangered or critically endangered species' habitat</p>	<p><b>Unlikely.</b> The BCP will not involve the translocation or encouragement of any invasive species that will present harm to the koala. Pet management protocols (e.g. signage, regulations enforced by the site managers) will be an important element of the final use of the site to also reduce the likelihood of non-native incursions and associated impacts on koalas. It is highly unlikely the resultant land use would see increased exotic species beyond that which is already present.</p>
<p>Introduce disease that may cause the species to decline</p>	<p><b>Unlikely.</b> The common diseases that are known to affect the koala are the koala retrovirus (KoRV) and Chlamydia (<i>Chlamydia pecorum</i>). The BCP will not involve the translocation of any medium that can transmit either of these diseases. However, the disease is naturally already present. The increase of habitat and improved connectivity may increase transmission rates of such diseases, though the BCP</p>

	project itself will not introduce the disease or any new disease.
Interfere with the recovery of the species	<b>No.</b> The rehabilitation associated with the BCP project will lead to a net increase of habitat and improved connectivity which may improve upon the local population dynamics across and beyond the site.

### Conclusion and Recommendation

The proposed development is unlikely to result in a significant impact on the koala population if all mitigation measures are implemented. However, due to the species' endangered status and disease prevalence, a referral under the EPBC Act is recommended to ensure regulatory oversight and compliance.

- Referral recommended due to endangered status