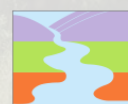




# BURNETT KOALA PROGRAM

2021-2022 Report

A community lead citizen science project, supporting the recovery of koalas within the Burnett catchment.



**BCCA**

BURNETT CATCHMENT CARE ASSOCIATION

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### **Acknowledgements:**

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- The generous donations from community



**Queensland  
Government**

All individual photos of koalas contained within this report were collected by 'Burnett Koala Program' citizen scientists and each photo is credited to the individual observer.

Title Page Photo Credit: Nadia Campbell (Goondicum Pastoral Co., Goondicum Crater of the Upper North Burnett).

Opposite Page Photo Credit: Misty Neilson (Wattlebewillbe, bordering Coominglyah State Forest, Three Moon, North Burnett)

**"If a tree falls in a forest and no one is around to hear it,  
does it make a sound?"**





"If koalas disappear from the Burnett  
and no one records it,  
were they really here at all?"

Photo credit: Charlie Spagalli (Nanango, South Burnett)

### **ACKNOWLEDGEMENT OF COUNTRY:**

Burnett Catchment Care Association (BCCA) acknowledges the Traditional Owners of the Barunggam, Butchella, Gubbi Gubbi, Gureng Gureng, Taribelang Bunda, Wakka Wakka and Wuli-Wuli peoples lands and waters that our work supports and we recognise their continued spiritual, cultural and physical connection to land, water and community. We pay our respects to Elders past, present and emerging, who hold the memories, traditions, cultures and hopes of their peoples. We celebrate the traditional knowledge of the world's oldest continuous culture and their ongoing contribution to Australian life, culture and identity.

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Photo credit: Meg Walacavage ('Raymond' of Goomboorian, South Burnett)



## Forests and whispers

The concept for this project was largely based on hearsay, myth and legend. Relying on the stories of our old people and elders, if you cared to sit long enough to listen. Stories of when the old were young, chain clearing vast areas of forest, as koalas tumbled from the trees screaming, crying and dying in agony. The sounds haunting their memories still. Stories of walking off the job. A young families only source of income. Refusing to return. Ashamed, sorrowful and full of regret. Stories of seeing koala colonies as they rode their horses to school in towns that no longer exist.

This project was largely a gut feeling, an intuition, that maybe just maybe, koalas were here still. Hiding. Surviving. Maybe even thriving. Away from the greatest predator of all. Us.

The Burnett catchment is big. Half the size of Tasmania and about the same size as the entire South-East corner of Queensland kind of big! Yet its human population is only 3.6% that of South-East Queensland at 139,000, compared to 3.8 million. Here there are still large expanses of forests and trees that no-one ever sets eyes on, or hasn't in many years.

We knew koalas existed here but no formal monitoring for the region had ever been completed. We had heard stories, asked experts, checked Atlas of Living Australia and seen a couple posts on social media over the years. We knew they were here but where and how many? No-one knew.

Koalas were nearly driven to extinction by Australia's attempt to supply the international fur trade during the late 1800's to early 1900's. They survived only in isolated pockets of forest across the country. Forests like those that found in the Burnett region.

Australia wide, an estimated 8 million koalas were slaughtered to supply the European and American fur markets, and although outlawed in the early 1900's, the practice continued in Queensland with the last 'Open Season' hunt ending in August of 1927. Over 800,000 koalas were killed in that month and even though the fur trade on koala pelts had ended it was still legal to hunt and cull koalas for another decade until they were legally protected in 1937.



Photo supplied by: Australian Koala Foundation (Koala pelts loaded onto trucks for export by ship to America)



Photo supplied by: Australian Koala Foundation (Rural jobseekers in Queensland were given licenses to kill as many koalas they could in the month of August 1927)



The Burnett catchment area includes all or part of the following local government areas:

- North Burnett Region
- South Burnett Region
- Cherbourg Aboriginal Shire
- Bundaberg Region
- Gympie Region
- Western Downs Region

With a total land area of approximately 33,200km<sup>2</sup>, the Burnett catchment is half the size of Tasmania (68,401 km<sup>2</sup>) and similar in area to the entire South-East corner of Queensland (35,248 km<sup>2</sup>).



## The importance of Burnett koala populations

In February 2022 the conservation status of koalas was downgraded from vulnerable to endangered. This was largely due to widespread habitat clearing required by growing human populations and encroaching urban sprawl such as that of South East Queensland. With over 80% of koala habitat having already been destroyed, other threats to koalas including disease, bushfires, cars and unrestrained dogs may lead to further localised extinction of koalas in many areas.

Despite these growing pressures, very little information exists to understand wild populations and their habitats in the Burnett region. Knowing how many koalas remain, where and in what condition, is imperative if state and national recovery efforts are to be successful.

The koala is least threatened by encroaching urbanisation, agriculture and development in rural and regional areas. Even so, the State Government's 'Nature Conservation (Koala) Conservation Plan 2017' and South East Queensland Koala Conservation Strategy 2020-2025 are limited to focusing on the highly urbanised and densely populated regions of South-East Queensland and does not cover rural and regional areas where the koala most likely has the greatest opportunity for sustainable long-term recovery.

*Ultimately, koalas in the Burnett may  
well be the last in the Southeast  
Queensland Bioregion*

AUSTRALIA KOALA FOUNDATION





Photo credit: Gail Connell (Gin Gin, Bundaberg Region)

In an attempt to improve recovery efforts, the reintroduction of koalas to areas of previous occupation has occurred in some localities, and its feasibility is currently being explored for the Central Queensland region, (Mackay, J., 2017; Stevens, T., 2017; CQUniversity, 2023).

Given the close geographical proximity, similar climates and feed tree species, Burnett koala populations may become increasingly important for reintroduction projects to neighbouring regions such as Central Queensland, further increasing the importance of understanding koala populations and improving targeted recovery efforts in this region.





Photo credit: Annie Longmore  
('Nikki' of Widgee, South Burnett)

## About the program

With large expanses of open eucalypt forests and no-one formally or purposefully looking for koalas in the Burnett region since the statewide man hunts ended in the 1920's, gathering information of where they were was going to be challenging. We needed citizen scientists, the Sherlock Holmes of community. And lots of them.

The commencement of the 'Burnett Koala Program' was made possible thanks to funding from the Queensland Government: Department of Environment and Science. The program was designed to engage entire communities, geographically isolated from each other across an area half the size of Tasmania, to tell us if they had seen a koala. And if so, when, where and if possible capture a photo for the permanent record.

To get people excited in a regionwide koala tracking operation we ran two (2) separate photo competitions during the breeding seasons of 2021 & 2022. Prizes were purchased with the generous donations from project supporters and community. The success of this activity was fundamental in driving community engagement and the collection of observation data that was recorded in the online database iNaturalist and supplied to the larger Australian public repository 'Atlas of Living Australia' (ALA) and the Queensland Government's WildNet database.

The enthusiasm and unexpected generosity of community led to the further creation of a Primary School STEM program. This activity was designed to engage children in conservation, ecology and living sustainably with our environment. A 'Fun Facts' koala resource and colouring competition was designed and distributed to all Primary Schools across the Burnett catchment.

Schools were invited to register for the program and enter the competition. For those who registered, Australian Curriculum-aligned teaching and educational materials were supplied via an online dropbox folder for teachers to explore further with their students. Prizes for the colouring competition were purchased with community donations to the program.

In addition to these two (2) primary activities (photo competition and STEM program) a 'Field & Observation Guide' and a 'Planting for koala habitat in the Burnett Catchment' factsheet was produced and distributed across the region. This accompanied a broader educational and data collection campaign that ran for the duration of the project.



Photo credit: Brad Bowden (Taabinga, South Burnett)

# Program activities

## Field & observation guide

A 14 page Field Guide was developed to support citizen scientists in building their knowledge and awareness regarding regional koala populations and the importance of habitat health, while assisting them in the identification and recording of koala presence and activity across the Burnett catchment.

The guide was disseminated online via BCCA website, Burnett Ag Hub, email and on social media. It was also printed and supplied to information centers throughout the North Burnett.

Links to the guide can be found [here](#) and [here](#).

## Planting for koala habitat

A double page tree planting fact sheet was produced specifically for the Burnett catchment.

Topics of diversity, planting hints & tips, feed & habitat tree species and wildlife carer contacts were covered.

The Fact Sheet was distributed online via BCCA website, Burnett Ag Hub, via email and social media.

Links to the Fact Sheet can be found [here](#) and [here](#).



## Photo competition #1

A photo competition was initiated during the 21-22 breeding season to increase citizen scientist engagement and encourage the submission of koala observations. These observations were then recorded in iNaturalist.

93 sightings in total were recorded up until the competition closed on the 28th February 2022, both for current and previous years.

- 90 sightings were recorded in the target project area
- 83 photos were submitted in target area and therefore eligible for competition entry

Over \$260 worth of prizes was purchased from the Australian Koala Foundation. This was made possible by the generous donations from project supporters and community via the Burnett Catchment Public Fund.



## Photo competition #2

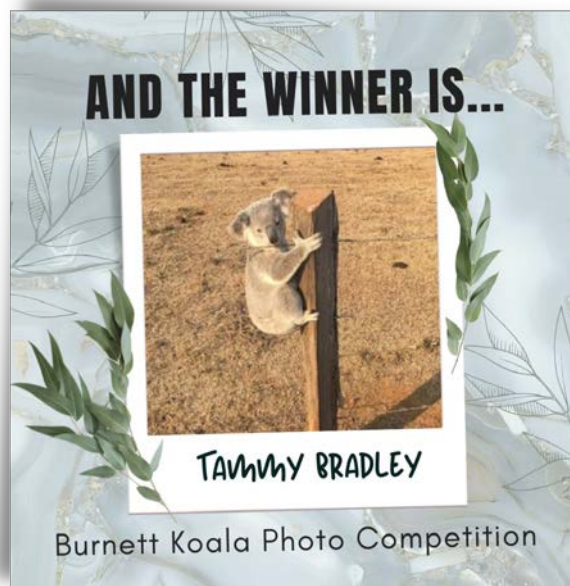
A second photo competition was initiated during the breeding season commencing 1st September 2022 and ran until the 30th November 2022.

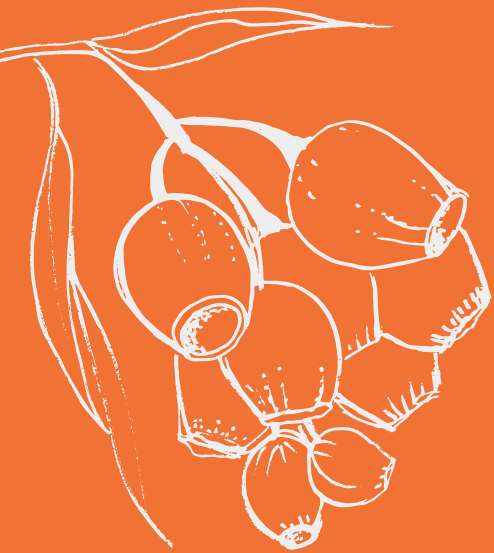
14 sightings were recorded during this period.

- 13 sightings were recorded in the target project area
- 12 photos were submitted in target project area and therefore eligible for competition entry

An Australia Zoo Family Pass (with Hospital sneak peak) valued at \$215 was awarded to the the competition winner. This was also made possible by the generous donations from project supporters and community.

Both photo competition activities proved highly effective in increasing citizen science engagement and observation records.





## STEM - For primary school students

An opportunity for primary schools to get involved in the project and increase student awareness and interest in STEM education, research and science as a meaningful and worthwhile career, was available during the Second Term of 2022.

This opportunity involved an age appropriate colouring competition, a 7 page 'Fun Facts' guide - a resource for Primary Teachers, a dropbox folder of koala ecology resources for teachers, Burnett Koala Program 'Field & Observation Guide' and 'Planting for Koala Habitat' information sheet for teachers to use when engaging students in classroom discussions about koalas, habitat and conservation.



Photo credit: Desley Tratt (Kingaroy, South Burnett)



Student winners of the colouring competition received age appropriate koala novelty gifts, while the schools of these winning students had the opportunity to receive a fun interactive student talk from the BCCA ecologist and project officer. Student talks included discussions about koala facts and conservation, and a 'Who's scat is that?' game that was used to engage children and initiate conversations about the ecology of each animal based on the what they ate and how they moved.

Students were also asked age appropriate questions about how they think biodiversity and conservation might benefit agriculture and the planet, and why it is important to look after our environment.

The link to the 'Fun Facts' guide (a resource for Primary Teachers) can be found [here](#).



Photo credit: Sue Ison (Kapaldo, North Burnett)

Eighty-three schools were invited across the Burnett catchment. Fourteen schools and more than 1200 children registered for the STEM program.

Student winners, prizes and presentations were delivered to the following 3 primary schools:

- Mundubbera State Primary (Mundubbera, North Burnett)
- St Therese's Catholic Primary (Monto, North Burnett)
- Bundaberg West State Primary (Bundaberg region)

Prizes included koala novelty items and were made possible by the generous donations from project supporters and community via the Burnett Catchment Public Fund.

The dropbox folder supplied to schools who registered for the STEM program included 61 koala and ecology learning resources and documents. This allowed teachers to explore these topics further with their students in their own time. Resources were sourced from Twinkl, an online educational publishing house, producing Australian Curriculum-aligned teaching and educational materials. Topics included:

- Energy for Life: Photosynthesis and foodwebs
- How animals are connected in a food web
- How animals get their energy
- How humans effect ecosystems
- How other things effect Human Food Security
- Interdependence: Humans, plants and animals
- First Nations koala Dreamtime stories

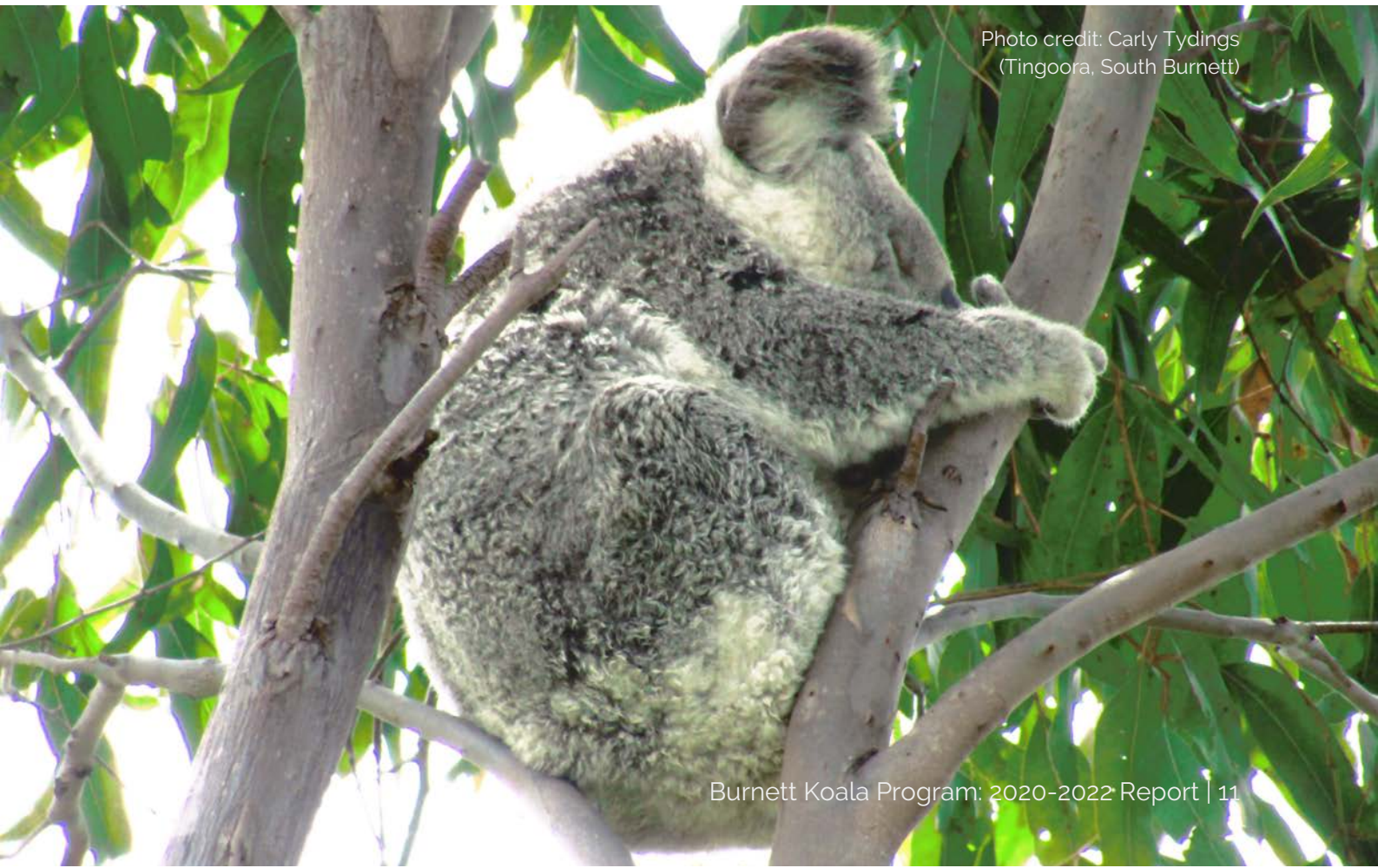


Photo credit: Carly Tydings (Tingoorra, South Burnett)



Below are photos from the STEM student winner presentations and some of the colouring competition entries from all schools.



# Community education campaign

In addition to the development and dissemination of the observation guide and fact sheet, an education campaign covering all things koalas and the project was executed across social and print media, radio and email. A summary of the community reach and engagement is presented the table below.



**Table 1:** Education campaign results

MEDIA	REACH	REACTIONS	CLICKS	COMMENTS	SHARES
Facebook & Instagram	140,440 (49 posts)	894	2,367	408	1,046
LinkedIn	300 (9 posts)	9	7	-	10
Email	2,559 (5 campaigns)	-	36	-	-
Radio	153,495 (3 interviews)	5 contacts	-	-	-
Print (eg. Newspaper)	43,900 (4 articles)	3 contacts	-	-	-
<b>Total</b>	<b>340,694</b>	<b>903</b>	<b>2,410</b>	<b>408</b>	<b>1,056</b>



Photo credit: Evelyn Verschaeren (Moffatdale, South Burnett)



# Key Findings & Results

Although the project targeted the Burnett catchment it more broadly covered the entire area serviced by the Burnett Catchment Care Association (BCCA), which includes the drainage basins of the Burnett, Baffle, Boyne, Burrum and Kolan river catchments (43,450km<sup>2</sup>), an area 25% larger than the South-East corner of Queensland (35,248km<sup>2</sup>).

For ease of comparison, observation data was analysed across the local government areas of North Burnett, South Burnett, Cherbourg and Bundaberg (34,483km<sup>2</sup>) (see Figure 1).



**Figure 1:** Local government areas (LGA's) of North Burnett, South Burnett, Cherbourg and Bundaberg.

**Table 2:** Human population density of Burnett local government areas (LGA's) and South East Queensland.

REGION	AREA (KM <sup>2</sup> )	POPULATION	PEOPLE (P/KM <sup>2</sup> )
North Burnett	19,670	10,702	0.5
South Burnett + Cherbourg	8,382	32,555	3.8
Bundaberg	6,431	96,914	15
<b>Total Burnett LGA's</b>	<b>34,483</b>	<b>140,171</b>	<b>4</b>
<b>South East Queensland</b>	<b>35,248</b>	<b>3,800,000</b>	<b>107.8</b>

Although the local government areas (LGA's) of the Burnett catchment cover an area similar to South East Queensland, the human population density is 96% less (see Table 2). Considering this in the absence of accurate koala population monitoring data for the Burnett region, incidental interactions between humans and koalas are far less likely to occur in the Burnett compared to the urbanised and densely populated areas of South East Queensland, irrespective of actual koala abundance.

In addition to this, the Burnett River catchment has 5,107km<sup>2</sup> set aside as State forests and reserves including National Parks, equating to approximately 15% of the total land area (Australian Bureau of Statistics, 2010). This is more than 7% above the state average (Department of Environment and Science, 2020) and does not include forestry on private property including that contained within grazing production properties, which is the predominant agricultural activity in the Burnett catchment (Australian Bureau of Statistics, 2010; Dept. Environment and Science, 2011-2019). This low human population density, in addition to the high forested and protected areas, are likely to further reduce the probability of incidental koala sightings, thereby not accurately indicating the relative abundance of koalas in the region compared to more urbanised areas.

At the time of printing the majority of koala observations recorded after 2000 (55%), by the online databases Atlas of Living Australia (ALA) and iNaturalist, were recorded by the 'Burnett Koala Program' in the last 2 years (see Table 3). Only the last 22 years data from sources outside this program were analysed, to maintain currency and relevance considering the changes in land use and clearing that has occurred over the last 20 years with an estimated 50% decrease in Queensland koala populations since 2001 due to deforestation, drought and bushfires (WWF-Australia, 2022).



Photo credit: Rosemary Pratt  
(Kingaroy, South Burnett)

**Table 3:** Program observations (2021-22) vs all other records after 2000 for the local government areas (LGA's) of the North Burnett, South Burnett, Cherbourg and Bundaberg.

OBSERVATIONS	LGA'S	OUTSIDE LGA'S
Total Observation records (after 2000)	225	N/A
Observations (Burnett Koala Program)	124 (55%)	20
Observations * (All other sources)	101 (45%)	N/A

\* All other sources include sources from: Qld Governments 'WildNet', Koala Tracker, iNaturalist, Atlas of Living Australia (ALA), Queensland Museum, Koala Action Group, government departments and individuals recorded via ALA. All possible care was made to remove duplicated records from the figures presented above.



**Table 4:** Koala observations and the rudimentary observation probability for each local government area (LGA) of the Burnett catchment.

LGA	BKP OBSERVATIONS	* OTHER ALA OBSERVATIONS	TOTAL OBSERVATIONS	** OBSERVATION PROBABILITY
North Burnett	35	17	52	1 in 206
South Burnett & Cherbourg	86	82	168	1 in 194
Bundaberg	3	2	5	1 in 19,383

\* koala observations after 2000 recorded via Atlas of Living Australia (ALA) not including program records.

\*\* Rudimentary incidental 'Observation Probability' for each local government area (LGA) = LGA population (see Table 2) divided by total koala observations listed above.



## Discussion

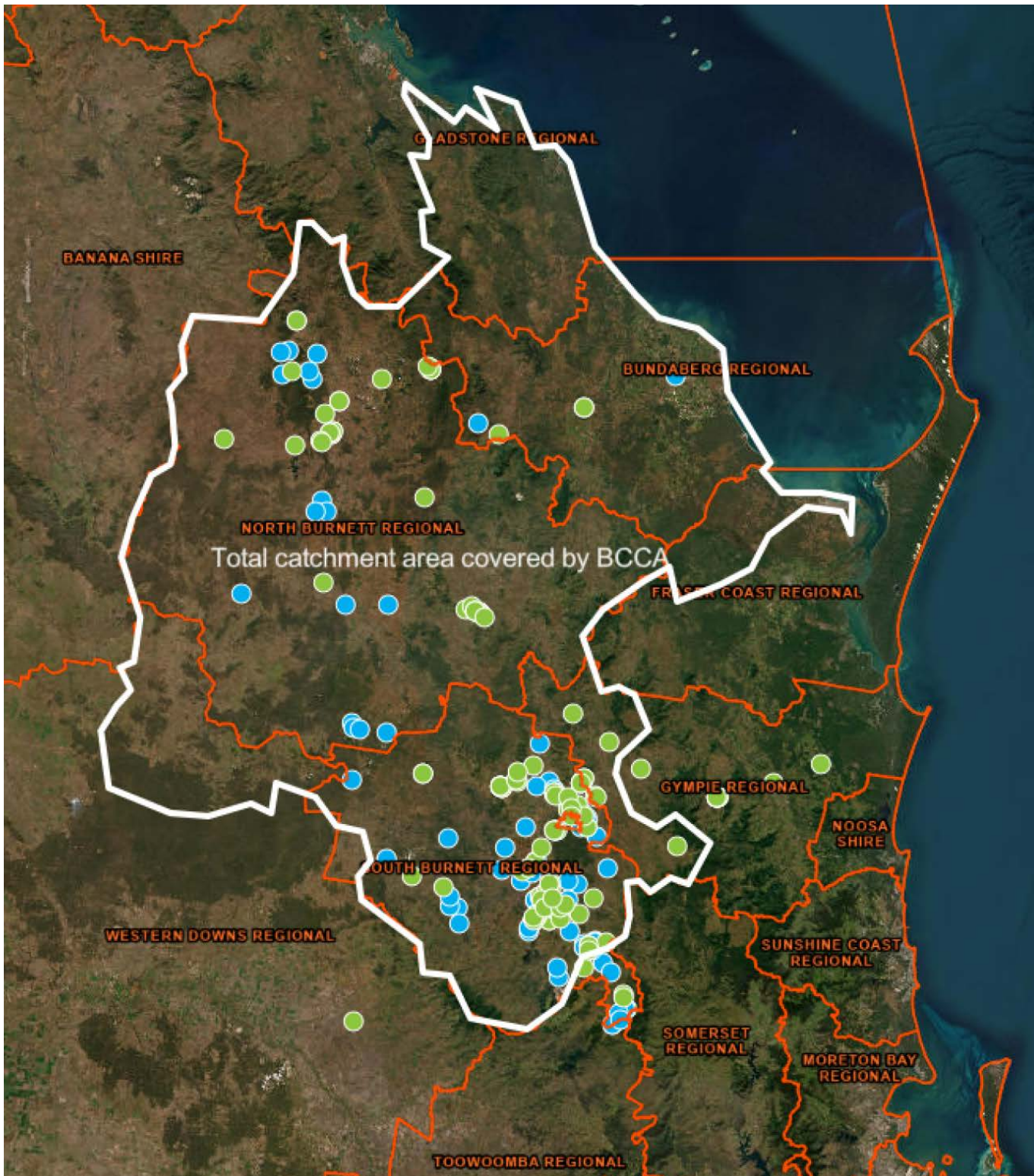
Although observations were analysed across local government areas for ease of comparison, it is worthwhile noting that there were observations that fell outside these areas that were still contained within the Burnett catchment itself and vice versa (see Figure 2).

The majority of the program and other ALA observations were recorded within the South Burnett at 86 and 82 respectively. The North Burnett recorded 35 program observations and 17 recorded from other sources within ALA. Only 3 observations were recorded in Bundaberg by the program and 2 from other sources within ALA.

To estimate the rudimentary probability of an incidental koala encounter, the total number of observations was divided by the human population of each local government area (see Table 4). Even though the South Burnett recorded the highest number of observations from all sources, the probability of an incidental encounter (1 in 194) was comparative to the North Burnett (1 in 206). The North Burnett is 2.3 times larger in total land area with only a third of the population with a density of 0.5 people p/km<sup>2</sup>, compared to the South Burnett that has a density of 3.8 people p/km<sup>2</sup> (see Table 2). This may assist to explain the lower observations in the North Burnett but a similar probability of an encounter when compared to the South Burnett.

Although very few observations were recorded in the Bundaberg region, it should be noted that community engagement in this region was also low.

**Figure 2:** All koala observations recorded in Atlas of Living Australia from 2000 for local government areas. ● = Burnett Koala Program observations (21-22). ● = Observations from all other sources (2000-22). Map generated using Queensland Globe (Queensland Government, 2022).



Burnett Catchment Care Association (BCCA) covers the drainage basins of the Burnett, Baffle, Burrum and Kolan catchments and associated river systems (43,450km<sup>2</sup>), an area 25% larger than the South-East corner of Queensland (35,248km<sup>2</sup>).



Observations recorded in this region were limited to the area between the towns of Gin Gin and Mount Perry where there was social media engagement. This lack of community engagement may reflect the number of observations recorded rather than being an indicator of koala presence or absence in the Bundaberg region itself. Future citizen science activities should focus on improving community engagement within this region to improve the accuracy of incidental observational data and include the use of other engagement avenues in addition to social media such as local news outlets and stronger collaborations with local community groups such as Landcare.

Even so, it is interesting to note that the Inland Burnett (North Burnett, South Burnett and Cherbourg) were approximately 70 times less likely to experience an incidental human-koala encounter as a result of a lower human population density and vast areas of uninhabited land than South East Queensland (See Table 2 and Note below). Chance encounters were also 200 times less likely to occur in the North Burnett alone for these same reasons. This is assuming no variation in koala population densities, particularly in the large less disturbed landscapes of crown, state and agricultural lands where chance encounters are least likely to occur but koalas are more likely to thrive.

Based on these assumptions and calculations, in addition to the lack of baseline surveys or scientific monitoring activities, it may be possible that the actual density of Inland Burnett koala populations is higher than currently estimated.

**Note:** Difference is human population density between South East Qld and Inland Burnett as noted in Table 2 = 107.8 divided by 1.5 = 71.86 (approx. 70 for ease of comparison). Difference in human population density between South East Qld and North Burnett = 107.8 divided by 0.5 = 215.6

Using open access incidental sighting records and multiplying it by 70 (the approximate difference in chance encounters based on human population density as discussed above) provides a rudimentary estimate of koala population density in the Inland Burnett of ~0.55 koalas p/km<sup>2</sup> (see Table 5).

In comparison, incidental sighting records in South-East Queensland calculate koalas at a mean density of 0.0019 koalas p/km<sup>2</sup> (Dissanayake, et. al., 2021). Whereas, systematic search surveys conducted nearly a decade ago estimated the South-East Queensland koala population at ~6246 (Dique, et. al., 2004), providing a rudimentary density calculation of 0.18 p/km<sup>2</sup> (see Table 5).



Photo credit: Nadia Campbell  
(Goodicum Pastoral Co.,  
Goondicum Crater of the  
Upper North Burnett)

**Table 5:** Koala density estimates adjusted for human population density of South East Queensland and the Inland Burnett.

South East Qld: Calculated on incidental sightings * (Dissanayake, et. al., 2021)	0.0019 p/km <sup>2</sup>
South East Qld: Calculated on incidental sightings ** Rudimentary calculation	0.40 p/km <sup>2</sup>
South East Qld: Calculated on systematic search surveys *** Rudimentary calculation	0.18 p/km <sup>2</sup>
Inland Burnett: Calculated on incidental sightings **** Rudimentary calculation	0.008 p/km <sup>2</sup>
Inland Burnett: Calculated on incidental sightings adjusted for human population density ***** Rudimentary calculation	0.55 p/km <sup>2</sup>

\* Mean density estimate calculated by Dissanayake, et. al., (2021) = 0.0019 p/km<sup>2</sup>.

\*\* Rudimentary density estimate calculation using incidental sighting reported by Dissanayake, et. al., (2021) = 14,256 divided by land area of South East Queensland of 35,248 = p/km<sup>2</sup>.

\*\*\* Rudimentary density estimate calculation = Koala population reported by Dique, et. al., (2004) of 6246 divided by the land area of South East Queensland of 35,248 = 0.18 p/km<sup>2</sup>.

\*\*\*\* Rudimentary density estimate calculation = Total koala observations for Inland Burnett (see Table 4) 220 divided by the land area of the Inland Burnett of 28,052 = 0.008 p/km<sup>2</sup>.

\*\*\*\*\* Rudimentary density estimate calculation adjusted for difference in human population density = Koala population (total observations of 220 x 70 = 15,400) divided by the land area of the Inland Burnett of 28,052 = 0.55 p/km<sup>2</sup>.

While it is difficult to draw conclusions from comparing the density estimate provided by Dissanayake, et. al., (2021) to the other rudimentary calculations, it is interesting to note the differences between the rudimentary estimates for each region.

Based on these simple calculations and assumptions regarding the adjustment for differences in human population density, the Inland Burnett estimates a higher koala density calculated on incidental sightings compared to South East Queensland. If nothing else, these rudimentary estimates highlight the importance of investment in formal monitoring to more accurately calculate the koala populations of the Burnett region.



# What Burnett Koalas Need Now

The global response to koala conservation during the devastating 2019–20 bushfires, is testimony to their social, cultural and economic value, with millions of being dollars donated to support their recovery (Department of Environment and Science, 2020),

The koala is also a significant international tourism attraction and the Australia Koala Foundation (2020) estimates it is worth \$3.2 billion and 30,000 jobs to the national economy and "places the Koala on par with other major Australian tourist drawcards, such as the Great Barrier Reef [\$5.7 billion per annum] and the Sydney Opera House [\$4.6 billion per annum]".

Despite the conservation status of koalas being downgraded from vulnerable to endangered and the federal governments increased commitment to their conservation and environmental protection, very little of the historical financial commitment has been reinvested into conserving Koalas and their habitat (Australian Koala Foundation, 2020; Conrad, 2014).

To assist effective and efficient future investment, the Burnett Koala Program has strategically aligned the Burnett Priority Actions with the targets identified in the Queensland Government's 'South East Queensland Koala Conservation Strategy 2020-2025' and the Queensland Koala Expert Panel's Report (Rhodes, et al., 2017).

The five 'Priority Action Areas' identified include:

1. Development of a baseline dataset
2. Population surveys and habitat monitoring over time
3. Community led habitat restoration
4. Threat reduction
5. Community engagement

Photo credit: Wendy Eastaugh (Barlil, South Burnett)



# The Burnett Koala Priority Action Areas

Status: Required  In progress  Completed 

**1** **Baseline Data** - Develop a baseline dataset of koala population dynamics and health for the Inland Burnett via DNA testing of scats, non-invasively collected by the community. Building on and extending previous citizen science engagement and activities.

*BCCA project commencing first quarter 2023*



Photo credit: Tracey Litfin (Tansey, Burnett catchment)

**2** **Monitoring Program** - Population surveys and habitat monitoring over time (mapping, monitoring, research and reporting) including the use of detection dogs, habitat mapping and spatial modelling.



Photo credit: Ben Crowther (Murgon, South Burnett)

**3** **Habitat Restoration** - Identify community led restoration opportunities and partner with community and stakeholders to support the delivery of these projects.

*\*Some privately initiated restoration maybe already be occurring*



Photo credit: Tammi Bradley (Woorooden, South Burnett)

**4** **Threat Reduction** - Identify priority areas for threat reduction and partner with local government and community to deliver threat abatement opportunities (incl. road signage, mitigate threats from dogs, support training and development of koala carers etc.).

*\*Some wild dog control programs occur periodically in some areas*



Photo credit: Sue Ison (Kapaldo, North Burnett)

**5** **Community Engagement** - Identify opportunities and partner with community and stakeholders to support the delivery of engagement projects (incl. citizen science, volunteering & education etc.)

*Opportunities have begun to be identified during this citizen science project and are ongoing*



Photo credit: Gail Connell (Gin Gin, Bundaberg)

### Priority Action Area 1: Baseline Data

Improved data can drive improvements in understanding the population dynamics and health, as well as better informing the sound management of koalas and their habitat to ensure their long-term survival, conservation and recovery.

Developing the region's first baseline dataset of koala population dynamics and health for the Inland Burnett via DNA testing of scats, non-invasively collected by community, will build upon and extend upon previous citizen science engagement activities including the recording, collating and sharing of incidental koala observations across the region.

This BCCA led project is due to commence in the first quarter of 2023. More information will be released in due course.

### Priority Action Area 2: Monitoring Program

Population surveys and habitat monitoring over time can provide a population trend analysis that assesses whether koala population numbers are stable or in decline.

No current or historical region wide population surveys (including the use of detection dogs and spatial modelling) has occurred in the Inland Burnett therefore data does not exist to accurately calculate population estimates or trends. Even so, the Queensland Government estimates that koala densities for Koala Districts B & C, which covers the Inland Burnett area, is generally low to 0.2 koalas p/ha or 20 koalas p/km<sup>2</sup>, which is significantly higher than the rudimentary estimates of 0.55 p/km<sup>2</sup> based on incidental sightings discussed previously in this report.

In addition to ongoing population surveys, habitat monitoring is vital for ground truthing current estimates and better understanding what is required to secure the long-term survival, conservation and recovery of koalas in the the Burnett region.





Photo credit: Charlie Spagalli (Nanango, South Burnett)

### **Priority Action Area 3: Habitat Restoration**

The Queensland Koala Expert Panel identified habitat restoration as a critical activity for recovery, with evidence that koalas can use habitat trees as young as six years old (Rhodes, et. al., 2017). To be effective however, restoration has to occur across broad landscapes to "increase the connectivity between areas of habitat, which is important to the survival of koala populations across the region, enabling movement away from threats and supporting climate change adaptation" (Dept. Environment & Science, 2020).

Habitat restoration also has the capacity to provide co-benefits to the environment, improve natural capital, increase income diversification to landholders, provide habitat for other species and ecosystems, reduce erosion, improve water quality and soil fertility, support pest management and increase carbon sequestration. Identifying community led restoration opportunities and partnering with community/stakeholders to support the delivery of restoration projects across landscapes can be an effective and efficient means of creating sustained restoration.

Opportunities currently identified by community that have a tangible capacity to create connectivity between habitats across vast landscapes of privately and publicly owned land include, but are not limited to:

- Burnett Inland Rail Trail habitat restoration via weed control and the managed recruitment of feed and habitat trees,
- Riparian restoration along the Burnett river and other tributaries effected by flooding, bushfires and legacy clearing,
- Creation of strategically located wildlife corridors across grazing lands connecting forestry, protected areas (national & state parks etc.) and riparian zones etc.
- Other programs such as carbon farming and co-benefits, biodiversity credits, Land for Wildlife, the Nature Refuge program and the Land Restoration Fund etc.

#### Priority Action Area 4: Threat Reduction

The Queensland Koala Expert Panel estimated that the greatest impact from various threat reduction measures is to be gained in rural landscapes, compared to urban and peri-urban environments. They also reported that without the implementation of threat reduction activities, other costly measures such as habitat restoration and protection are at risk of having little benefit to koalas (pg. 10, Rhodes, et. a., 2017).

The identification of priority areas for threat reduction and partnering with local government and community to deliver threat abatement opportunities is essential for the effective long-term recovery of koalas in the Burnett region.

Some opportunities already identified by community and stakeholders during the Burnett Koala Program include (but are not limited to):

- Road signage to reduce vehicle collisions
- Mitigate threats from dog attacks
- Support training and development of koala carers to assist koalas experiencing injury, displacement or disease
- Reduce habitat loss



#### Priority Action Area 5: Community Engagement

The Queensland Government's 'South East Queensland Conservation Strategy 2020-2025' identified "Improving community engagement and communications can support communities to get involved and guide collaborative efforts in koala conservation by providing opportunities for input and information sharing with government and other stakeholders" (pg. 16).

Community engagement opportunities identified by the Burnett Koala Program include (but not limited to):

- Citizen Science (eg. the Burnett Koala Program)
- Education (eg. biodiversity & conservation, tradition cool burns delivered by local first nations peoples, commercial opportunities such as carbon farming, co-benefits & biodiversity credits, supporting wildlife career training, habitat restoration and retention while showcasing benefits to productivity and soil fertility)



Photo credit: Desley Tratt (Kingaroy, South Burnett)



Photo credit: Angie Hoskinson (Mount Debatable and the Burnett River in flood, North Burnett)

Climate change has the potential to dramatically impact koala populations through the increased occurrence and intensity of natural disasters such as bushfires and floods, as demonstrated during the devastating 2019–20 bushfires (Department of Environment and Science, 2020; Philips, et al. 2021).

A lesser discussed impact of climate change may also include the relationship between koalas and their environment. In an ever warming climate koala distribution and tree use may be influenced (Ellis, et al., 2010), potentially increasing the importance of habitat abundance, connectivity and tree diversity for remaining wild koala populations and the pursuit of the species long-term recovery.

Although not directly addressed in the Priority Actions Areas, actions should also be designed and implemented with consideration to the impacts of climate change. Increased stress, including heat stress, depresses the immune systems of koalas making them more susceptible to disease. Mitigating the effects of climate change through the design and implementation of actions within each Priority Area may assist koala's in their fight for sustainable long-term recovery.

Examples of such climate considerations may include (but not limited to):

- Diversity in tree specie plantings during habitat restoration activities to include both feed specie diversity and shade trees for resting during the heat of the day,
- Habitat connectivity to also include cooler riparian areas for reprieve from day time summer heat and movement to higher ground during times of flood,
- Use of traditional fire management to decrease risk and intensity of bushfires,
- Slowing water movement across landscapes to increase soil infiltration and moisture retention,
- Improved soil fertility to improve nutrient content in feed trees with additional benefits to pasture production.





## Case Study: Goondicum Pastoral Co.

Located at the head waters to the Burnett river, Goondicum Pastoral Co. demonstrate the principal that co-existence grazing (where the natural environment and wildlife are managed for conservation and production) makes both environmental and economic sense. Their brand BC4 'Beef & Conservation For The Future' reflects this ethos.



The fifth generation grazing property produces grassfed EU Brangus beef cattle of the highest quality while also having implemented a Land Restoration Fund carbon farming project, with koala co-benefits, via Greencollar utilising the Accounting for Nature (AfN) accredited methodologies. Goondicum have also produced an environmental condition report for the entire property utilising the AfN framework and the property is often utilised to release rehabilitated koalas.

In addition, they work closely with CRATER, a not-for-profit research foundation set up to advance scientific knowledge and promote the benefits of regenerative agriculture. Through their activities CRATER and Goondicum demonstrate the on-ground principals of regenerative agriculture, conservation and biodiversity via workshops and practical in-field experience to other agricultural producers, university students, conservationists and community.

Goondicum offers an opportunity to further engage the local Burnett community and educate land managers in the principals of conservation and production by showcasing environmental regeneration and restoration in action. This has the potential to have significant & cost-effective flow-on benefits for the recovery of endangered species such as koalas whilst maintaining healthy agricultural production systems for the future.

Visit [www.goondicumpastoralco.com.au](http://www.goondicumpastoralco.com.au) & [www.crater.org.au](http://www.crater.org.au) for more information.



## Conclusion

The value of citizen scientists should not be underestimated, with Flower et al. (2016) highlighting that citizen science projects have the potential to expand upon scientific data by contributing previously unattainable information. This is definitely true of the Burnett Koala Program. Without the contributions of citizen scientists and the enthusiasm and engagement of the boarder community, this project would not have been possible and we would not have the opportunity to save this iconic species.

“

*Reporting of wildlife sightings by members of the public provides an opportunity to collect wildlife data continuously over wider geographical areas, at lower cost.*

”

DISSANAYAKE, et al. 2019

If effective recovery activities are to be implemented it will require the continued support of community, land managers and citizen scientists alike. However, it will equally require the committed investment of government to ensure that koala populations in regional areas, like the Burnett, do not disappear forever.

By ensuring the sustainable long-term recovery of endangered species like the koala, in regional areas least effected by the encroaching pressures of urban development, we help ensure the future of other species such as the greater glider. These species and many others have the potential to thrive in healthy grazing agricultural production systems, ensuring not only the future of the wild planet but also the one we are most interested in. Our own.



Photo credit: Rachel Kiesling  
(Boat Mountain, South Burnett)

# References

- Atlas of Living Australia (ALA), 2022. Australian Government, CSIRO, <https://www.ala.org.au/>
- Australian Bureau of Statistics, 2010. Burnett Mary NRM region, Last viewed 15th November 2022, <https://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4619.0.55.001Main+Featur es92008-09>
- Australian Koala Foundation, 2020. 'The Koala Is Worth \$3.2 Billion & 30,000 Jobs', Last viewed 23rd December 2022 [www.savethekoala.com/our-work/the-koala-is-worth-3-2-billion-30000-jobs/](http://www.savethekoala.com/our-work/the-koala-is-worth-3-2-billion-30000-jobs/)
- CQUniversity, 2023, Koala Research Projects: Central Queensland's Koala Re-Introduction. Last viewed 1st November 2022 [www.cqu.edu.au/research/organisations/koala-research-cq/koala-research-projects](http://www.cqu.edu.au/research/organisations/koala-research-cq/koala-research-projects)
- Department of Environment and Science, 2011-2019, Burnett Catchment, Queensland Government, Last viewed 24th January 2023 <https://reportcard.reefplan.qld.gov.au/home?report=target&year=611f443aba3074128316eb07&measure=PN&area=BM-Burn>
- Department of Environment and Science, 2020. 'South East Queensland Koala Conservation Strategy', Queensland Government
- Dique, D., Preece, H., Thompson, J. & de Villiers, D., 2004. Determining the distribution and abundance of a regional koala population in south-east Queensland for conservation management, 'Wildlife Research', Volume: 31, Issue: 2, pp. 109 - 117
- Dissanayake, R., Giorgi, E., Stevenson, M., Allavena, R. & Henning, J., 2019. The value of long-term citizen science data for monitoring koala populations, 'Scientific Reports', Vol: 9, pg. 1-12
- Dissanayake, R., Giorgi, E., Stevenson, M., Allavena, R. & Henning, J., 2021. Estimating koala density from incidental koala sightings in South-East Queensland, Australia (1997–2013), using a self-exciting spatio-temporal point process model, 'Ecology & Evolution', Volume: 11, pp: 13805–13814
- Ellis, W., Melzer, A., Clifton, I. and Carrick, F., 2010. Climate change and the koala *Phascolarctos cinereus*: water and energy, 'Australian Zoologist', Vol. 35, Issue: 10, pp. 369-377
- Flower, E., Jones, D. and Bernede, L., 2016. Can Citizen Science Assist in Determining Koala (*Phascolarctos cinereus*) Presence in a Declining Population?, 'Animals', Vol: 42. pp. 1-13
- Mackay, J., 2017. 'Community strives to re-introduce koalas to central Queensland', ABC Capricornia, Last viewed 30th January 2023 [www.abc.net.au/news/2017-01-19/researchers-landholders-reintroduce-koalas-to-central-qlld/8195390](http://www.abc.net.au/news/2017-01-19/researchers-landholders-reintroduce-koalas-to-central-qlld/8195390)

- Phillip, S., Wallis, K. and Lane, A., 2021. Quantifying the impacts of bushfire on populations of wild koalas (*Phascolarctos cinereus*): Insights from the 2019/20 fire season, 'Ecological management & restoration', Vol: 22, Issue: 1. p.80-88
- Queensland Government, 2021. 'Nature Conservation (Koala) Conservation Plan 2017', State of Queensland
- Queensland Government, 2022. Queensland Globe  
<https://qldglobe.information.qld.gov.au/>
- Rhodes, J., Hood, A., Melzer, A. & Mucci, A., 2017, 'Queensland Koala Expert Panel: A new direction for the conservation of koalas in Queensland. A report to the Minister for Environment and Heritage Protection', Queensland Government
- Stevens, T., 2017. 'DROP BEAR: Wild koalas to be reintroduced to CQ', Courier Mail. Last viewed 30th January 2023  
[www.couriermail.com.au/news/queensland/rockhampton/drop-bear-wild-koalas-to-be-reintroduced-to-cq/news-story/c8f0b5e0e5547db1dec758442c83e0e7](http://www.couriermail.com.au/news/queensland/rockhampton/drop-bear-wild-koalas-to-be-reintroduced-to-cq/news-story/c8f0b5e0e5547db1dec758442c83e0e7)
- WWF-Australia, 2022. How could listing the koala as 'Endangered' be a good thing?, Last viewed 15th November 2022 [www.wwf.org.au/news/blogs/how-could-listing-the-koala-as-endangered-be-a-good-thing#gs.nhoxpp](http://www.wwf.org.au/news/blogs/how-could-listing-the-koala-as-endangered-be-a-good-thing#gs.nhoxpp)

#### Other interesting reading:

- Adam, D., Johnston, S., Beard, L., Nicolson, V., Lisle, A., Grigg, G., Brice, P., FitzGibbon, S., Barth, B.J., Melzer, A., Gaughan, J.B., Larkin, R., McKinnon, A., Theilemann, P. and Ellis, W. 2016. 'Body temperature of the koala (*Phascolarctos cinereus*) in south-east Queensland', International Society on Biotelemetry 21st Symposium
- Department of Climate Change, 'Energy, the Environment and Water, 2013. Koala populations in Queensland, New South Wales and the Australian Capital Territory and national environment law', Australian Government, [www.dcceew.gov.au/environment/biodiversity/threatened/publications/factsheet-koala-populations-queensland-nsw-act-national](http://www.dcceew.gov.au/environment/biodiversity/threatened/publications/factsheet-koala-populations-queensland-nsw-act-national)
- Queensland Government, 2021. 'Koala mapping', [https://environment.des.qld.gov.au/\\_data/assets/pdf\\_file/0024/255462/is-koala-mapping.pdf](https://environment.des.qld.gov.au/_data/assets/pdf_file/0024/255462/is-koala-mapping.pdf)
- PricewaterhouseCoopers Australia, 2022. 'A nature-positive Australia: The value of an Australian biodiversity market', [www.pwc.com.au/government/A-nature-positive-Australia-The-value-of-an-Australian-biodiversity-market.pdf](http://www.pwc.com.au/government/A-nature-positive-Australia-The-value-of-an-Australian-biodiversity-market.pdf)
- SBS News, 2022. 'Koalas have lost the equivalent of 10,000 cricket grounds of habitat in the last decade', <https://www.sbs.com.au/news/article/koalas-have-lost-the-equivalent-of-10-000-cricket-grounds-of-habitat-in-the-last-decade/bpqraq3a9>





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