

PROPOSAL

Whites Hill Reserve Wildlife Protection



Updated August 2023

Acknowledgement of country

We acknowledge the Jagera people and the Turrbul people as the Traditional Custodians of Meanjin (Brisbane) and their deep connection to Country and Waters. We pay our respect to Elders past, present and emerging.

“We acknowledge our Country’s first people who walked since the beginning alongside the rivers, beaches, deserts, valleys and ranges, amongst the birds, reptiles and marsupials, and with the ideologies that shaped complex systems that ensured environmental sustainability and ecological abundance.

Tens of thousands of years of knowledge, responsibility, wisdom and connection that have and continue to be transferred from Elders past and present.

Stories and lore that held and continue to hold fundamental ingredients to the protection, celebration and preservation of our Country”.

Extracted from: Acknowledgement of country by Benny Egmolesse Maiawali Karuwali / Mbarbaram man and Scott Wilson Gooniyandi / Miriuwung Gajerrong man.

All photographs contained in this submission are taken in and around Whites Hill Reserve.

AUSTRALIA IS JUST ONE OF FIVE COUNTRIES THAT HOLDS 70% OF THE PLANET'S REMAINING WILDERNESS.

MORE THAN 80% OF AUSTRALIA'S MAMMAL SPECIES ARE UNIQUE TO AUSTRALIA.

AUSTRALIA'S KOALA POPULATION IS ESTIMATED TO HAVE SHRUNK SINCE EUROPEAN SETTLEMENT FROM MILLIONS DOWN TO LESS THAN 100,000.

WITH WILD PLACES DISAPPEARING, THE IMPORTANCE OF OUR COUNTRY BECOMES EVEN MORE PROFOUND.

**WITHOUT IT,
WE ARE NOTHING.**

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1. Introduction

The Save the Koalas and Wallabies of Whites Hill community group is seeking to **establish a collaborative working group and obtain relevant funding to develop and implement an immediate and long-term action plan** to protect the vulnerable wildlife of Whites Hill Reserve.

Whites Hill Reserve, a 171-hectare nature and sports recreation reserve in Camp Hill Brisbane, **is home to what researchers understand to be the highest density koala population in Brisbane** and refuge to a diversity of wildlife including the swamp / whiptail wallaby, short-beaked echidnas and powerful owl.

The preservation of this important bushland remnant is vital and acknowledged, **however koalas and wallabies are dying before our eyes** – on the roads that provide access to, and surround, Whites Hill Reserve.

As a community, we are compelled to act to reduce the number of injuries and deaths of our endangered and vulnerable wildlife, with a focus on the continuous improvement of wildlife protection and movement solutions, and strengthened community education.

Urgent activities need to be completed now, prior to the start of the 2023 breeding season in July, to prevent deaths and injuries, with long-term initiatives also required to ensure the population's ongoing protection.

Twenty (20) key recommendations have been put forward ranging from simple, practical, low-cost initiatives that can be implemented immediately through to long-term planning and infrastructure projects.

What's more, is the availability of a dedicated group of community volunteers with diverse professional backgrounds who can support and work with government and industry assigned resources.



2. The threat to Whites Hill Reserve wildlife & its ecological significance

The high ecological value of Whites Hill Reserve is **recognised as being of State and Regional significance due to the critical role performed in the bioregion** (*Local Pilot of the Recovery Planning Process for White's Hill Reserve for Managing Threatened Flora and Fauna Species 2000*).

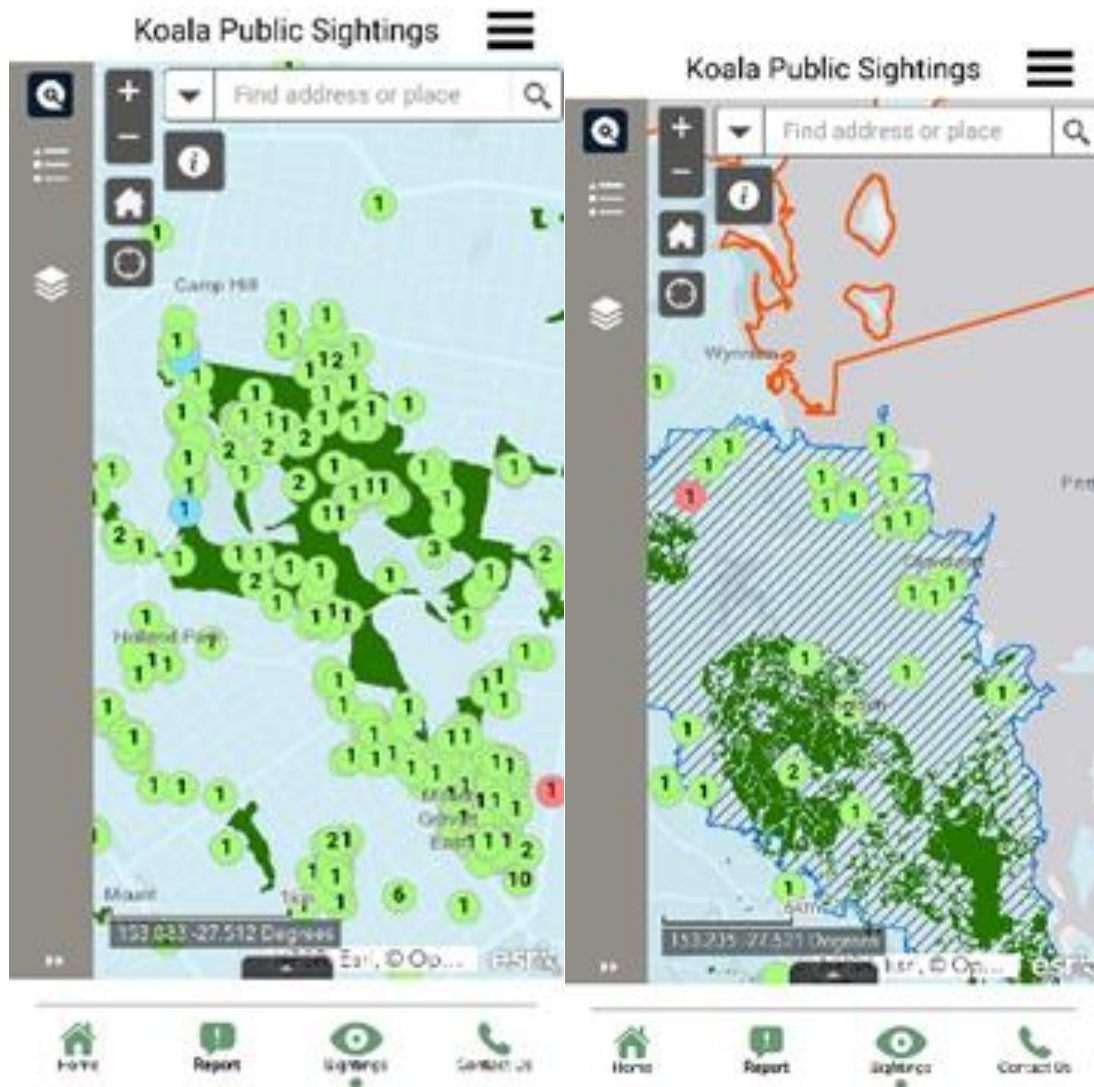
It is a habitat known to contain **significant species of the area** under the *Nature Conservation Act 1992* and the *Environment Protection and Biodiversity Conservation Act 1999*. It is recognised by the Queensland Government and Brisbane City Council and documented in a number of studies and reports.

Furthermore, **Whites Hill Reserve retains ecological importance as not only a habitat in its own right but due to its role in providing a regional fauna movement corridor** linking Whites Hill to Bulimba Creek (A Caneris, *Preliminary Ecological Review Whites Hill-Belmont Hills Strategic Greenscape Direction 2006*, p2). However, the surrounding area is highly urbanised and safe fauna movement to and from the Reserve is limited by housing and roads.



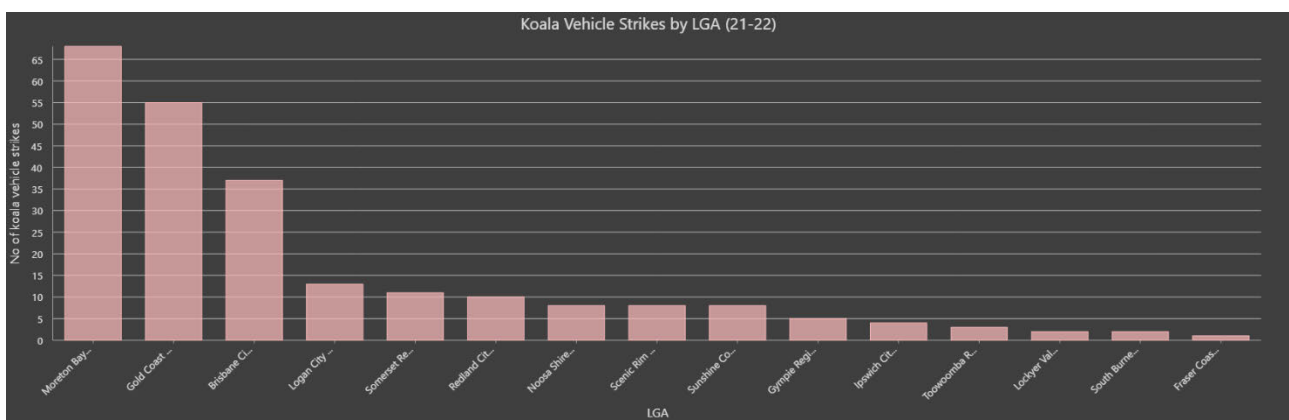
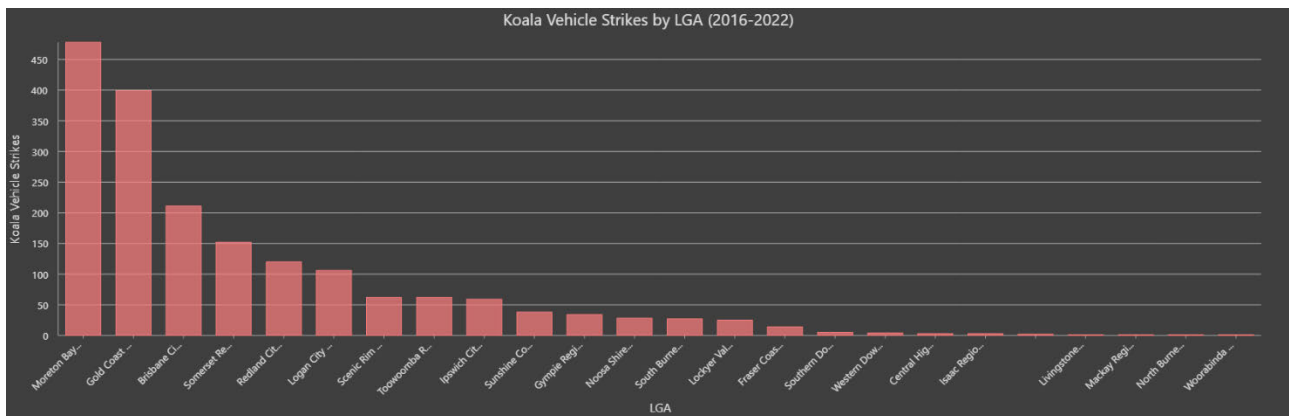
Whites Hill is not currently recognised as a 'Priority Koala Area' however QWildlife observations since June 2023 show significantly more koalas reported in the Whites Hill area as compared to the much larger koala priority area of Cleveland and Brisbane's bayside.

With the Whites Hill population understood to be largely healthy compared to other South-East Queensland populations with high incidence of disease, they represent a critical population for the future of the species.



Road trauma and vehicle strike is recognised as one of the major threats to koala and wildlife in urban Brisbane alongside habitat loss, disease and dog attacks.

Koala Hospital records show that between 2016 and 2022, **34 of the more than 100 koalas admitted from the Camp Hill and Holland Park area** had been hit by a vehicle in the vicinity of Whites Hill Reserve.



The above data is only based on animals admitted to hospital from vehicle strikes and volunteer rescue organisations, and doesn't account for animals later dying from malnutrition or other conditions caused by vehicle strike injury.

The data shown in the graphs above seems low or the incident rate is increasing rapidly with one of our Group members alone witnessing two koalas hit by car on Boundary Road last breeding season and the following figures provided by Queensland Koala Society (which is only one of a group of local rescuers):

Data obtained from Queensland Koala Society covering July 2022 – January 2023 on Boundary Road only:

- **13 koalas hit by car (rescues attended). Only 4 survived.**
 - **23 calls for welfare checks / calls about koalas being in trees on Boundary Road or at the driveway entrance to Whites Hill Reserve.**
-



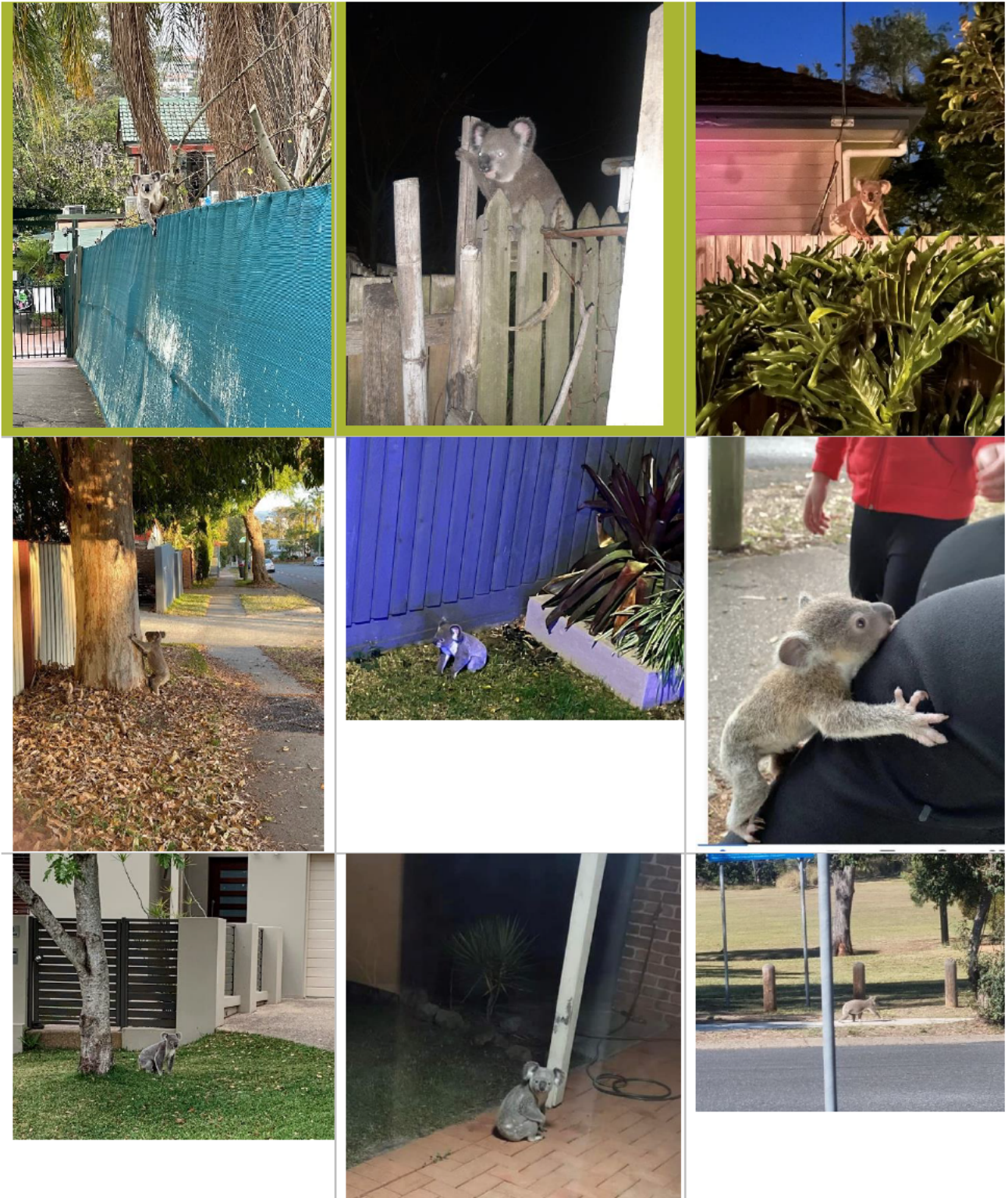
*Recent deaths at Whites Hill
due to car strikes.
Two mother koalas, a joey, a
male koala and two
wallabies.*

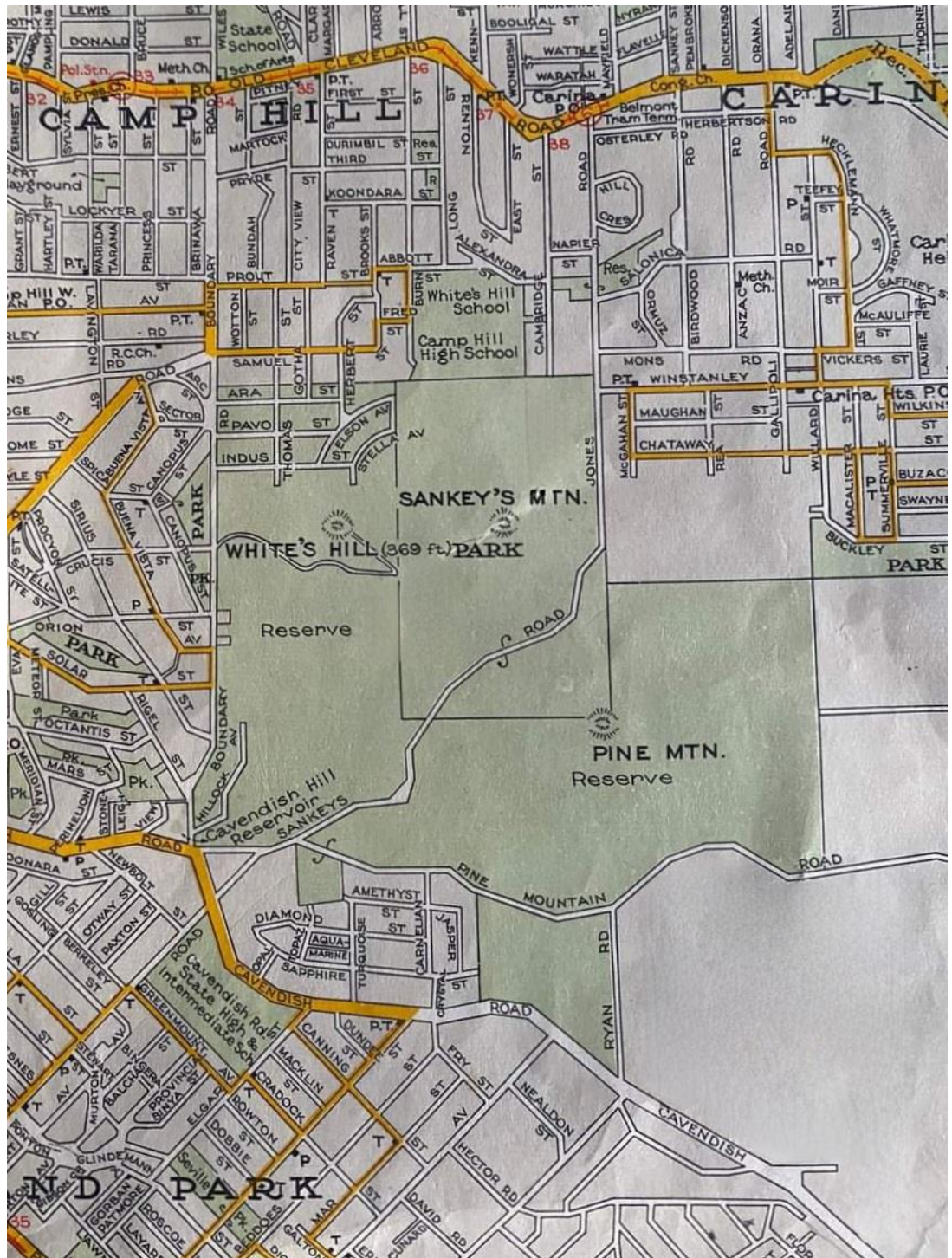
*Doreen and her joey Noreen
were hit by a car, survived
and released. Despite being
released away from the
danger zone, Doreen was
killed nine days later by
another vehicle strike at the
same spot demonstrating
that koalas will always return
to their home range and
follow the same route.*



ONE LOCAL BRISBANE RESCUER ALONE RECORDED 14 KOALAS RESCUED AND 5 DEAD IN THE CAMP HILL, COORPAROO, HOLLAND PARK AND MT GRAVATT AREA DURING JULY 2023.

WHILE LOCAL RESIDENTS ARE REPORTING KOALA SIGHTINGS NEARLY DAILY ON LOCAL COMMUNITY PAGES WITH THE ANIMALS DISPLACED AND HAVING NOWHERE ELSE TO GO.

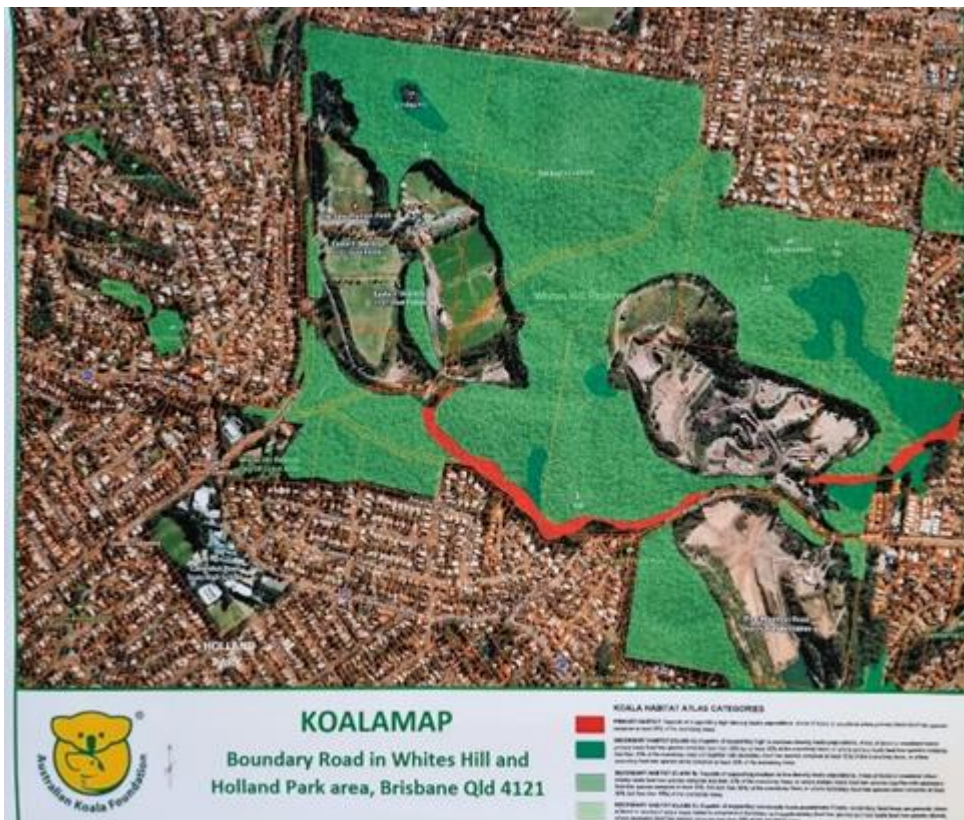




Whites Hill 1959: Showing undeveloped space which has since been developed and forced local koalas into close proximity and a fragmented area by road and housing.

Australian Koala Foundation believes that currently Whites Hill and surrounding areas can house a medium to high density population of koalas if appropriate protections and threat mitigations are put in place.

Research shows that habitat can carry from ~0.05 koalas/ha in areas of poor-quality habitat with few koala feed trees (Phillips & Forsman 2005) to ~0.63 koalas/ha in areas of good quality habitat (Biolink 2016, 2020; DPIE 2019).



3. Background research

3.1 Importance of koala and current government commitment

- The koala species in Queensland was upgraded from **Threatened to Endangered status** in February 2022. **Species or ecological communities are listed as endangered if they face a very high risk of extinction in Australia in the near future as determined by the criteria prescribed in the regulation.**
- In 2012, it was reported that **Queensland had lost 53 percent of koalas** (Adams-Hosking et al. 2016).
- The Worldwide Fund for Nature-Australia (WWF-Australia), the International Fund for Animal Welfare (IFAW), and Humane Society International (HSI), have provided strong evidence to the Australian Government including a report estimating Queensland's koala population has crashed by at least 50% since 2001 because of deforestation, drought and the recent bushfires.

From Brisbane City Council's perspective

"The koala (Phascolarctos cinereus) is one of Australia's most loved and iconic animals. In Brisbane, and many other parts of Australia, their numbers have dropped rapidly due to habitat loss, dog attacks, vehicle strike and disease. Koalas are listed as vulnerable under national and state legislation and as significant in the Brisbane City Plan 2014. Brisbane City Council is committed to seeking ways to conserve and protect Brisbane's koala population."

Mayor Cr Adrian Schrinner was quoted in December 2020 as saying that he wanted Brisbane to become the "koala capital of Australia".

From the Queensland Government's perspective

As per the *South East Queensland Koala Conservation Strategy 2020-2025*, the Queensland Government's vision is to *halt the decline of koala populations in the wild in SEQ, and secure their long-term survival.*

Targets

1. Populations: stabilise koala population numbers in SEQ.
2. Koala habitat: a net gain in the total core koala habitat area.
3. Koala habitat restoration: commence rehabilitation to restore 10,000 hectares of koala habitat.
4. Threat reduction: commence 10 programs in threat priority areas to support at least a 25 per cent reduction in disease, injury and mortality rates in those locations.

The koala forms an integral part of the Australian identity.

The presence and conservation of koalas in Whites Hill has multiple tangible benefits. The koala is an Australian icon and one that contributes to community pride and wellbeing and provides a positive impression of Brisbane. Koalas are also a significant tourist attraction for international tourists. Research shows that koalas in 1996, tourism related to koalas contributed \$1.1 billion and 9,000 direct jobs. Koalas were found to be a primary attraction for 72% of tourists.

(Hundloe, T & Hamilton, C. 1997. 'Koala and tourism: an economic valuation', Discussion Paper No. 13, The Australia Institute, Lyneham, ACT)

In addition, the koala is significant for Indigenous Australians, featuring in many stories and songlines (State of New South Wales 2020; Phillips 1990). The loss of local koala populations can have a direct impact on the loss of traditional stories and culture

3.2 Whites Hill Reserve fauna studies, mapping and threat assessments

No data or papers exist to suggest that any fauna studies, koala mapping or threat assessments have been recently completed covering wildlife populations at Whites Hill Reserve although researchers indicate **that it's their understanding that the area holds the highest density koala population in Brisbane.**

The last activity of this kind may have been part of the development of Brisbane City Council's *Whites Hill Reserve Management Plan* (1998) and *Local Pilot of the Recovery Planning Process for White's Hill Reserve for Managing Threatened Flora and Fauna Species* (2000) close to 25 years ago.

More than two decades ago, it was identified “there is extreme pressure on native fauna populations and bio-diversity through their ability to range, seek refuge, breed and disperse. Future recovery plans in Whites Hill need to focus upon wallaby, echidna, possum and koala (when forced to travel on the ground), gliders and insectivorous bats”.

Local Pilot of the Recovery Planning Process for White's Hill Reserve for Managing Threatened Flora and Fauna Species (2000)



Photos above taken by Rehan Silva has identified more than 50 individual koalas in Whites Hill Reserve.

The Rhodes et al *SEQ Koala Population Modelling Study* (2015) is the most comprehensive paper completed, but it is now close to a decade old and it gives total population figures for Brisbane based on 66 sites with no reference to where the sites are. Data is based on analysis of surveys completed between 1996 and 2015, with some report-specific surveys completed in 2015.

HABITAT VALUES

WHR supports a diversity of habitat types that provide critical resources for many fauna species. The total area of the site is sufficient to provide food, shelter and breeding resources for many species. The retention of these resources is vital for their continued existence. The surrounding area is highly urbanised and safe fauna movement to and from the reserve is limited by roads and housing.

The natural vegetation is in relatively good condition and retains high value as habitat. WHR is also ecologically important as part of a regionally significant fauna movement corridor, linking Whites Hill to Bulimba Creek. Much of the vegetation is regrowth, due to past land use.

Within WHR occasional hollow-bearing and old growth trees are scattered amongst the vegetation. These trees provide a valuable resource for hollow-dependent fauna including mammals, birds and reptiles. The value of trees with hollows increases as the trees age.

Mapping from the Environmental Protection Agency indicates the dominant vegetation type is Regional Ecosystem 12.11.5, with tall open-forest where spotted gums are relatively common. However, botanists Glenn Leiper and Graham McDonald (2000) identified 10 distinctive eucalypt forest types in WHR.

The main canopy trees include *Corymbia citriodora* and *Eucalyptus sideropholia*. Other abundant trees include *Corymbia henryi*, *C. intermedia*, *C. trachyphloia*, *E. tereticornis*, *E. propinqua*, *E. bituminata*, *E. moluccana*, *Angophora leiocarpa* and *Lophostemon confertus*.

REFERENCES

Brisbane City Council (1998)
Whites Hill Reserve Management Plan
 Caneris, Adrian (2006)
Preliminary Ecological Review — Whites Hill—Belmont Hills
Strategic Greenspace Direction Plan
 Caneris, Adrian (2006)
Whites Hill Ecological Overview
 Leiper, Glen and McDonald, Graham (2000)
Plants of Whites Hill Reserve
 Whites Hill—Pine Mountain Community Group (2000)
Threatened Species Recovery Plan
(Reports available from Bulimba Creek Catchment
Office - email bdc@bulimbacreek.org.au)

SPECIES OF SIGNIFICANCE—FLORA

Botanists have identified several significant plants within WHR, including some that are vulnerable (v), regionally significant (RS), uncommon (U), increasingly uncommon (IU), new record for area (N).

<i>Macadamia integrifolia</i>	(Macadamia nut)	V
<i>Cupanopsis shirleyana</i>	(Shirley's tuckeroo)	V
<i>A. acacia perangusta</i>	(Epaphro wattie)	V
<i>Corymbia hecari</i>	(Large-fruited spotted gum)	V
<i>Flemingia porphylla</i>	(Pea Plant)	U
<i>Anisomelos malabarica</i>		U
<i>Rapanea howittiana</i>	(Muttonwood)	U
<i>Passiflora herberviana</i>	(Passion vine)	U
<i>Polygala llinifolia</i>		U
<i>Gmelina leichardii</i>	(White Beech)	U
<i>Hibbertia diffusa</i>	(Hairy guinea flower)	U
<i>Prophyros cunninghamii</i>		U
<i>Eucalyptus racemosa</i>	(Scribbly gum)	IU
<i>Westringia eremicola</i>	(Forest rosemary)	IU
<i>Personalia brisbanensis</i>	(Brisbane monkey-ape)	N

IMPORTANT LINKAGES

Important corridor linkages for wildlife from Whites Hill to Bulimba Creek have been identified through Phillips Creek and Salvin Creek. Although parts of **Phillips Creek** have been piped, there is sufficient Greenspace for habitat and movement through Council parklands, schools and resident's properties. Oates Hill (behind the Belmont Private Hospital) is a known site for powerful owls and squirrel gliders. Habitat could be significantly improved by supplementing with more eucalypts and acacias.

The vegetation in the waterway corridor through **Salvin Creek** has been identified as being of state significance. Council has been negotiating with landowners for ten years to acquire the corridor to ensure development will not encroach on the waterway.

Even though there are major roads between the reserve and Bulimba Creek, to date wildlife have been able to use the corridors for both food and habitat. Residents, Council and schools in the area should plant native species in order to provide continued habitat and food, especially now that the drought conditions have impeded growth in the bush.

CONTACT DETAILS

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SPECIES OF SIGNIFICANCE—FAUNA

Ecologists have identified 32 species of special conservation significance listed under Local, State and/or Commonwealth legislation within WHR, including some that are rare (R), vulnerable (v), regionally significant (S), noteworthy (N), migratory (M)

Amphibians					
<i>Adelotus brevis</i>			(Tusked Frog)	V	
Birds					
<i>Accipiter fasciatus</i>			(Brown Goshawk)	S	
<i>Accipiter novaehollandiae</i>			(Grey Goshawk)	R	
<i>Apus pacificus</i>			(Fork-tailed swift)	S	R
<i>Aquila audax</i>			(Wedge-tailed Eagle)	S	
<i>Falco peregrinus</i>			(Peregrine Falcon)		M
<i>Hirundoopus caudatus</i>			(White-throated Nodetail)		
<i>Merops ornatus</i>			(Rainbow Bee-eater)	M	
<i>Monarcha melanopsis</i>			(Black-faced Monarch)	M	
<i>Monarcha trivirgatus</i>			(Speckled Monarch)	S	M
<i>Myiagrus cyaneoleuca</i>			(Satin Fly-catcher)	S	M
<i>Ninox strenua</i>			(Powerful Owl)	S	V
<i>Pitta versicolor</i>			(Noisy Pitta)	S	
<i>Phylloscopus regina</i>			(Red-crowned Fruit-dove)	S	
<i>Rhipidura fuscica</i>			(Rufous Fantail)	N	M



Brown Goshawk



Grey-headed Flying fox

Mammals		S
Antechinus flavipes	(Yellow-footed Antechinus)	S
Macropus ephrussi	(Red-necked Wallaby)	N
Petaurus breviceps	(Sugar Glider)	N
Petaurus norfolcensis	(Squirrel Glider)	S
Phascogalea cinerea	(Koala)	S
Peropus poliocephalus	(Grey-headed Flying-fox)	V
Smithopsis murina	(Common Dunnart)	S
Tachyglottis oculatus	(Short-beaked Echidna)	N
Vespadelus pumilus	(Eastern Forest Bat)	S
Wallabia bicolor	(Swamp Wallaby)	N
Reptiles		V
Oedura sp cf rhombifer	(Undescribed Velvet Gecko)	S
Pseudochis porphyriacus	(Red-bellied Black Snake)	N
Varanus varius	(Lace Monitor)	N

3.3 Koala movement

Koalas in South East Queensland occupy areas of approximately five hectares up to 30 hectares depending on the quality and extent of their habitat. (Source: Brisbane City Council).

They are most active from dusk to dawn but often move during the day if disturbed, to seek shelter, or during the breeding season (July to January).

*During breeding and dispersal season,
koala movement increases, with males searching for a mate
and juveniles dispersing from their mothers,
placing koalas at increased risk of vehicle strike.*

Males will try to establish dominance over the home ranges of a number of females during the mating season. The home ranges vary in size from 1km to 135km depending on the density of the population. (Source: *Queensland Department of Environment and Science*).

After spending their first year with their mother, juvenile koalas disperse in search of a suitable home range. In Brisbane, they can move as much as 10 kilometres. (Source: Brisbane City Council).

The **koala breeding season in South East Queensland runs from July to January, with a peak from August through to October**. However, there is evidence that the season is starting earlier and finishing later due to changes in climate and weather patterns.

Whites Hill Reserve is 170 hectares (or 1.7 square kilometres), necessitating the need for male koalas to move out of the Reserve and cross roads to find mates.

Koalas move slowly across the ground if not threatened and often with little regard to their surroundings. (*Queensland Government Koala-Sensitive Design Guideline* 2022).

Following a koala speed zone trial in South East Queensland, Dique et al. (2003) reported that **83% of the koalas hit by cars did not survive, and most were young, healthy males**.

Furthermore, it was reported that there was a **higher survival rate of koalas on roads with lower speed limits**. Dexter et al. (2018) found that **male koalas were more likely to cross roads than female koalas, as were koalas aged less than 5 years**.

Correlation between increased movement during breeding season and hospital arrivals / population numbers

Cyclic dynamics in car- and dog-associated arrivals are readily apparent in hospital statistics, with an **observed peak corresponding to the koala breeding season in August to October (Lee and Martin 1988). The result matches prior observations of increases in hospital arrivals during the breeding season, both in the same population (Gonzalez-Astudillo et al. 2017) and in New South Wales koala hospital arrivals (Griffith et al. 2013).** During this time, koalas (males in particular) are increasingly mobile because they search for mating opportunities. **Increased mobility is likely to expose koalas to more frequent encounters with vehicular traffic** and dogs (Griffith et al. 2013), resulting in increased hospital arrivals.

Source: Kerlin DH et al 2023, *Insights and inferences on koala conservation from records of koalas arriving to care in South East Queensland*, *Wildlife Research*, 50(1), 57-67.

Seasonal variation in koala numbers has been reported by Dique et al. (2001) in the Koala Coast associated with changes in habitat utilisation. In addition, **there may be higher rates of koala mortality in winter months possibly linked to dispersal patterns** (Dique et al. 2003c). Seasonal variation also linked to changes in fodder quality in some areas (Gordon et al. 1990, White and Kunst 1990, Melzer 1995).



3.4 Factors contributing to koala vehicle strikes

Wildlife vehicle strikes are not random. They tend to be clustered at specific locations or sections of road called ‘hotspots’.

Hotspots are likely to occur where a road cuts through habitat that serves as a corridor for movement of wildlife.

Other factors such as **vehicle speed, traffic volume and width of road verges** also play a part.

3.4.1 Vehicle speed

How fast a vehicle is going plays a major role in koala vehicle strike. The **likelihood of collision increases with vehicle speeds over 60 kilometres/hour** because drivers have less time to react and avoid a collision.

Even small reductions in vehicle speeds can reduce the incidence of wildlife vehicle strike (Husjer et al. 2015; Winnet & Wheeler 2002; Glista et al. 2009; Jones 2000; Hobday & Minstrell 2008).

It is difficult to influence drivers to reduce vehicle speed and keep to speed limits.

3.4.2 Time of year

For some animals, including **koalas, vehicle strikes increase at certain times of the year.**

This time of year for koalas is mating season when males are actively moving around the landscape in search of new territory and mates.

3.4.3 Time of day

Koalas spend a lot of time in trees, but they also move across open ground and roads. They are **most active in the early morning and evening and are therefore more likely to attempt to cross the road and be struck by vehicles at these times. Low-light conditions at dawn and dusk mean drivers may find it harder to see animals crossing the road.**

3.4.4 Traffic volume

Wildlife vehicle strike increases with increasing traffic volume. This can vary depending on the species (Fahrig et al. 1995; Litvaitis & Tash 2008; Visintin et al. 2016).

Traffic volume also relates directly to the density of the road network and for koalas, increasing traffic volume on existing roads may be preferable to building new roads (Rhodes et al. 2014).

3.4.5 Visibility when driving

Road contours and crests, fog and roadside vegetation can obscure wildlife and increase the risk of vehicle strike because drivers do not see them. Slashing, pruning and maintaining roadside vegetation can improve driver visibility.

Streetlights at vehicle strike hotspots can help visibility by illuminating the road and verge (Milton et al. 2015; Magnus et al. 2004).

3.4.6 Biology

The density of animals in habitat intersected by a road, behaviour towards vehicles and open spaces, and attractiveness of roadside vegetation can all impact an animal's risk of being hit by a vehicle. **Koalas readily move across roads and open ground, which makes them vulnerable, especially during the koala mating season between July and January.**

When koalas are on the ground, they walk slowly as they are poorly adapted to walking on the ground (<https://environment.des.qld.gov.au › animals › koalas>).

Koalas do not perceive fast moving cars as dangers hence they may not move quickly from or across the road and at night may freeze in the face of oncoming car headlights. (koalacrusaders.org.au)

3.4.7 Other factors

Other factors that influence koala vehicle strike include:

- location and availability of water
- road cuttings that funnel wildlife to cross at a particular part of a road
- intersections of habitat corridors and road corridors
- weather conditions including drought and flood or high rainfall.

Source: *Koala vehicle strike fact sheet 1: Wildlife vehicle strike and contributing factors* (nsw.gov.au)

3.5 Traffic in the Whites Hill Reserve area

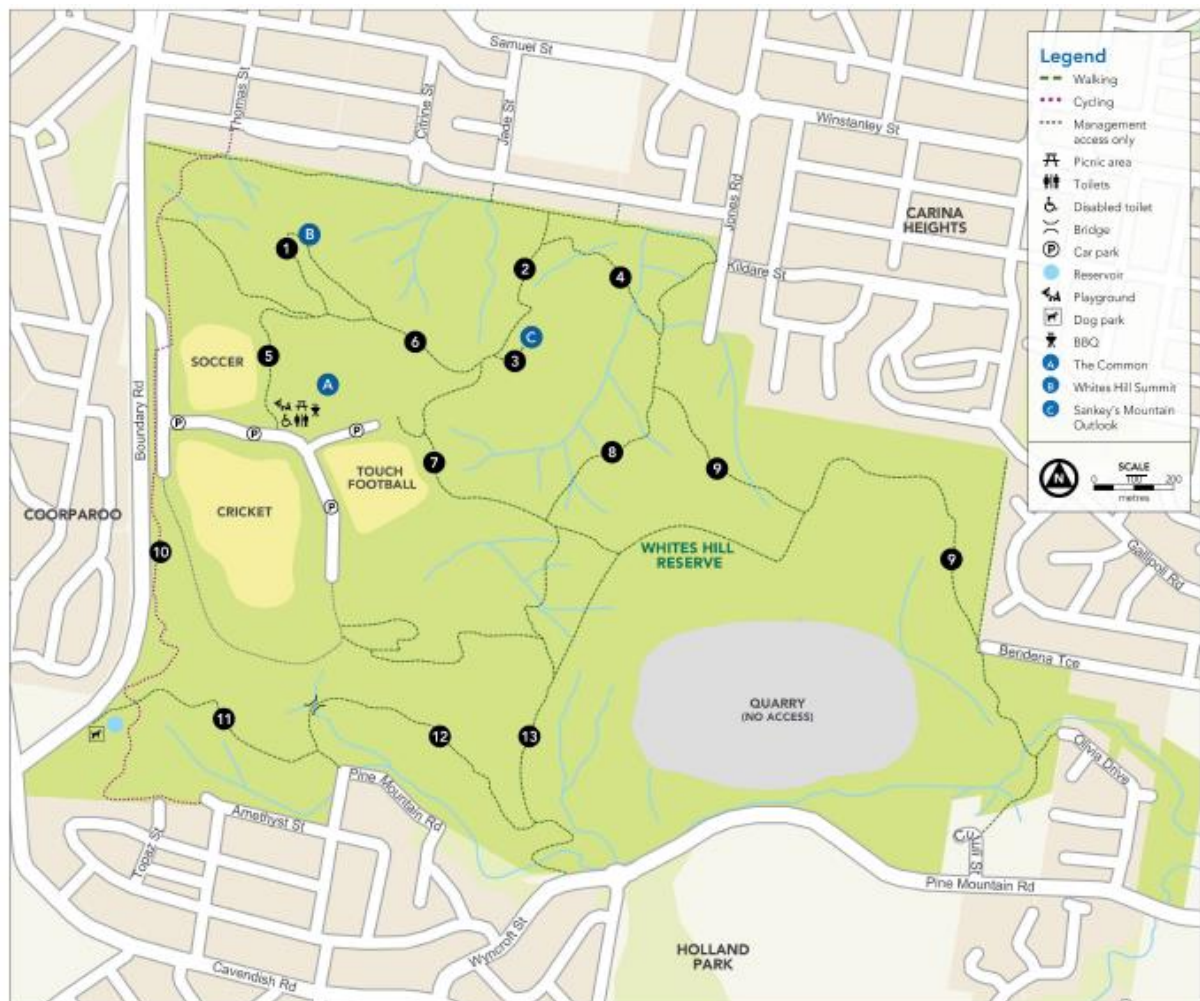
The map below illustrates the number of roads and streets, including main arterial roads such as Boundary Road and Pine Mountain Road, that abut the reserve.

Traffic flow in the area continues to increase, particularly along Boundary Road (the main entry point to the Reserve). While a high volume of vehicles travel in and out of the Reserve every week for evening and weekend sporting fixtures held at the Reserve's cricket, soccer and touch football fields, in addition to the thousands of people who use the playgrounds, recreational facilities and walking tracks in the Reserve.

When requested from **Brisbane City Council and the Queensland Government** during the writing of this submission, no traffic flow data was forthcoming or known to be available.

Road density is associated with increased road mortality.

- Rhodes et al, 2015 *South East Queensland Koala Population Modelling Study*



Source: Whites Hill Reserve Track Map (Brisbane City Council)

Traffic throughput in and out of the Reserve grounds continues to exponentially increase with three major sporting clubs based at Whites Hill: Holland Park Hawks Football Club, Holland Park Cricket Club and Brisbane Metropolitan Touch Association. The grounds are not only used for club training and fixtures but state, national and international events. The Opens Trans-Tasman Test Series and 2023 Asia Pacific Youth Touch Cup were recently held at the grounds.

As Australia's largest affiliated touch football competition, more than 10,000 players play at the venue per year (Source: bmta.com.au/about-us).



Above: Between 5.40pm and 6.40pm Thursday 18 May 2023



Above: At 7.15am on Friday, 19 May 2023

3.5.1 Traffic volume

In the absence of on-hand traffic data, samples of traffic volumes were obtained in peak periods in an attempt to provide evidence of the volume and number of vehicles using the Boundary Road thoroughfare.

Between 5.00am and 6.30am on Thursday, 18 May 2023		
Boundary Road Traffic		
	Northbound	Southbound
5.00am – 5.30am	50	52
5.30am – 6.00am	101	145
6.00am – 6.30am	216	142
TOTAL	367	339
TOTAL in 90 minutes = 706		

While traffic counting was taking place, a koala was observed crossing the Whites Hill Reserve internal road and across the Holland Park Hawks car park at 5.30am before settling into a nearby tree.



Between 5.40pm and 6.40pm on Thursday, 18 May 2023- Boundary Road Traffic

	Northbound	Southbound
	690	673

TOTAL in 60 minutes = 1,363

Between 5.40pm and 6.47pm on Thursday, 18 May 2023 - Internal Road Whites Hill Reserve

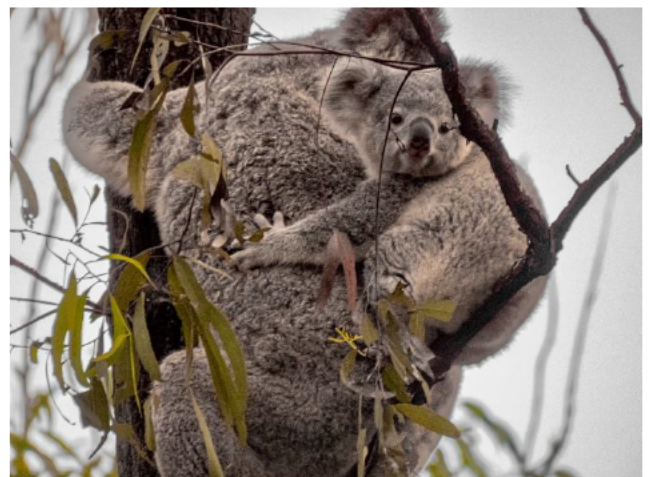
702 vehicle movements (entering and existing) Whites Hill Reserve

Between 6.30am and 7.30am on Friday, 19 May 2023- Boundary Road Traffic

	Northbound	Southbound
6.30am – 7.00am	283	206
7.00am – 7.30am	259	255
TOTAL	542	461

TOTAL in 60 minutes = 1,003

During our observations, there were only infrequent periods of time where it would be safe for a koala to cross.



The traffic count data highlights the issue for koalas and other wildlife crossing this road.

Gaps between vehicles during peak times were observed to be between less than 1 second to 10 seconds during peak car/wildlife times, leaving very small windows where they could cross without being hit.

In fact, during the peak period of counting, **an average of 23 cars per minute were observed** (a car every 2.6 seconds).

The koala observed to cross the internal road on Thursday, 18 May took in excess of 10 seconds to cross the road.



The koala shown left crossed Chatsworth Rd near Boundary Rd on 9 August 2022 and was observed to take more than 10 seconds to cross only half of the road. Koalas are known to not cross roads in a direct fashion rather often travelling diagonally or even parallel to the road exposing them to traffic for even longer.



Volunteers have been manning the Boundary Road roadside to monitor at-risk koalas, raise driver awareness and facilitate their safe crossing until traffic volumes decrease.

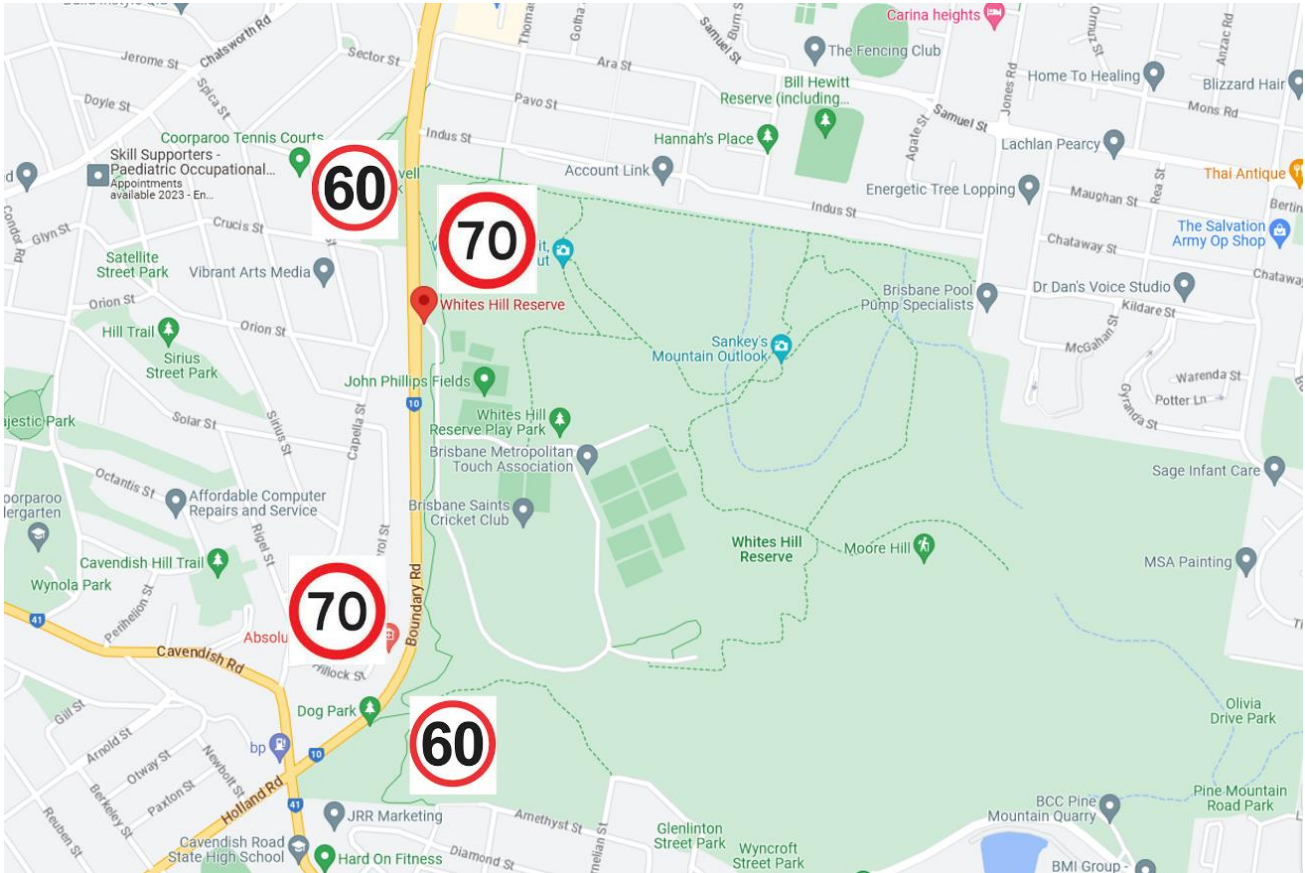
On 8 August 2023, 6 volunteers monitored 5 koalas from 4.00pm until 8.30pm.

Inconsistent speed limits in wildlife zones

Inconsistencies have been observed in the application of speed limits across wildlife zones.

Location	Speed Limit	Details
Creek Road, Carina	60km	Adjacent to Minnippi Park corridor
Toohey Forest	60km/hr Police enforced Toohey Rd also has a refuge in the middle of the road near the picnic area and a safety strip between the northbound and southbound lanes further south which likely provides some safety to wildlife.	Wildlife conservation area.
Bulimba Creek, Winstanley St Carindale	60km/hr	Known koala crossing.
Mt Gravatt Capalaba Road	60km/hr between 7pm and 6am. 80km/hr all other times	Adjacent to bushland
Boundary Rd Whites Hill	70km/hr	Known koala crossing / wildlife corridor.
Pine Mountain Rd Mount Gravatt East	60km/hr near the reserve (west) and also near the Bulimba Creek corridor (east)	Immediately adjacent to Whites Hill Reserve

3.5.2 Current speed limits along Boundary Road



The speed limit is 60km/hr either side of the Whites Hill wildlife corridor with it reducing to 40km/hr during school peak hours at Cavendish Road High School.

4. Reducing the threat – a collaborative, multi-faceted approach

The combination of factors outlined above heightens the urgency and importance of **improved traffic control, wildlife movement solutions** in and around Whites Hill Reserve and **enhanced driver / community education and engagement**.

Our proposal is to establish a working group to guide and support the implementation of a proactive and practical action plan which incorporates both proven and innovative wildlife protection strategies and methods.

Our twenty (20) key recommendations outlined in the following section are aligned with those put forward by the Queensland Koala Expert Panel, engaged by the Queensland Government in 2017, *South East Queensland Koala Conservation Strategy 2020-2025*, *Queensland's Koala-Sensitive Design Guideline* (2022), and Brisbane City Council's *Brisbane. Clean. Green. Sustainable 2017-2031 Plan*.

From the *Queensland Koala Expert Panel Report* (2017)

Coordinated Threat Reduction and Koala Population Management

- 1) Recommended Actions
 - a) Undertake a threat assessment across SEQ to quantify and map threats to koalas from habitat loss, vehicle collisions, dog attacks (domestic and wild dogs), disease, fire, and climate change.
 - b) Identify priority locations for investment in reducing existing and future threats from vehicle collisions, dog attacks (domestic and wild dogs), disease, and fire that consider:
 - i. whether reductions in each threat are necessary and feasible to recover declining koala populations in each location
 - ii. that threat reduction measures must complement other measures to protect and restore koala habitat and to minimise opportunities for threats to increase in the future.
 - c) Resource a targeted and transparent threat reduction program across SEQ, in partnership with local governments, particularly in identified priority areas for koalas, NGOs, industry, and the community using a range of initiatives, including the following:
 - i) retrofitting of existing roads and railroads and education programs to reduce koala mortalities.

From the Brisbane City Council's *Brisbane. Clean. Green. Sustainable 2017-2031 plan*

Chapter 10. Biodiversity

- Strategical identify a biodiversity network of habitat areas and ecological corridors of conservation, including large-scale altitudinal and regional ecological corridors, to improve the resilience of ecosystems to threats such as changing climate and protection of iconic species such as koalas.
- Investigate activities **to educate and support the community** to protect native wildlife within urban areas.
- Install a range of innovative wildlife movement solutions to address threats posed by roads and other infrastructure.
- Investigate activities that **encourage stewardship** of the city's natural environment by the community, industry and visitors.
- **Undertake a citywide koala survey** to assess the population, movement, behaviour and health of koalas using a variety of methods and technologies, including the assistance of a detection dog.

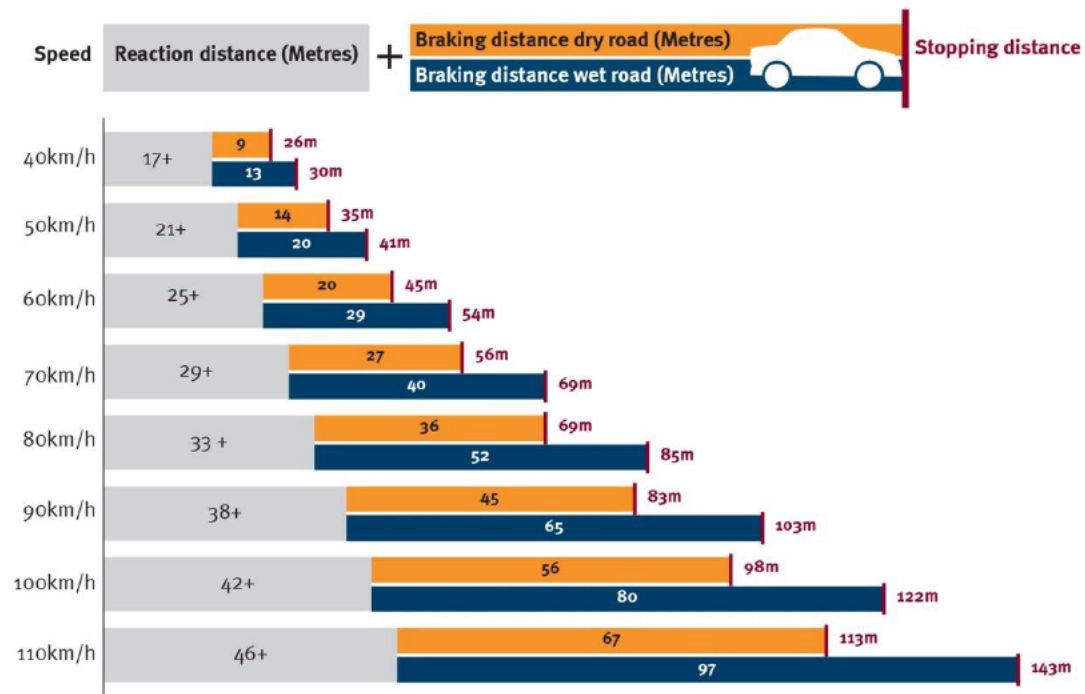
4.1 Speed limit reduction

The permanent **speed limit on Boundary Road is currently 70km/hr and 60 km/hr on Pine Mountain Road** with a temporary speed limit reduction to 60km/hr currently in place on Boundary Road.

According to Queensland Government information, the **reaction distance at 70km/hr is 29m with a total stopping distance of 56m – leaving a koala crossing the road in front of a vehicle with little chance of survival.**

Speed	Reaction Distance	Braking Distance	Total Stopping Distance
40km/h	17m	9m	26m
50km/h	21m	14m	35m
60km/h	25m	20m	45m
70km/h	29m	27m	56m

How long it takes to stop (driving an average family car)



Source: [Queensland Government Transport and Motoring](#)

Increased traffic flow and congestion (Section 3.5) on Boundary and Pine Mountain Roads, increases driver distraction and decreases visibility of a crossing koala or other native animal, reaction times and braking distance – elevating the risk to koala and driver safety on these roads.

Traffic density also limits the travelling distance between cars which limits a clear view to identify a traversing animal.

This traffic volume and **resulting small gaps between cars makes it extremely unlikely that a koala crossing would be allowed a clear pathway.** Further, if a koala is hit by one car other preceding drivers are unlikely to be able to see and avoid a second strike. Chevrons painted on the road may assist with this.

The number of heavy vehicles (B-doubles, semi-trailers and prime movers) using Boundary Road was also observed with these vehicles having extended braking distance and creating an unsafe situation if attempted.

It has been also noted that Brisbane City Council buses and waste contractors may not be adhering to the temporary speed limit reduction with a driver awareness and education campaign requested amongst all Council and government vehicles and contractors.

A large majority of koala vehicle strikes and deaths as reported by the Queensland Koala Society have occurred within the gully area of Boundary Road. This is immediately downhill from the wildlife movement infrastructure (on Boundary Road towards Cavendish Road).

The same is the case on Pine Mountain Road where hot spots seem to be in the low-lying areas. Both spots see an increase in vehicle speed on the downhill slope. While the recent announcement about the Pine Mountain Rd quarry being transformed into a future recreational space is positive, it will see an increase in traffic to and through an area that is already a koala black spot. Planning needs to include koala threat mitigation measures. It is also an opportunity to expand koala habitat trees which may be able to support the population.

Driving at a reduced speed through koala habitat gives the driver a greater chance to avoid koalas on the road.

(Queensland Government Koala-Sensitive Design Guideline 2022)

Fixed and average speed cameras may help reduce vehicle speeds at koala vehicle strike hotspots. Revenue generated from fines could be used for koala conservation.

(Biolink 2018)

4.1.1 Recommendations for speed limit reduction

No	Recommendation	Timeframe
1	Review the Manual of Uniform Control Traffic Devices (MUCTD), the rule book governing road speeds in Queensland, which <u>does not recognise wildlife strikes as a valid reason for speed limit reduction</u> on suburban roads in Queensland. The re-evaluation of existing rules and regulations is required to better account for the safety of wildlife in highly populated areas. Wildlife fatalities must be included as a crucial factor in the assessment process when considering changes to speed limits.	Completed
2	Increase speed camera and police presence on Boundary and Pine Mountain Roads.	Immediate
3	<p>Trial the reduction of the speed limit on Boundary Road – from 70km to 60km (day time) 70km/hr to 50km/hr between 6pm and 6am.</p> <p>Place chevrons on the road to encourage larger car spacing.</p> <hr/> <p><i>Boundary Rd is only 1.1 km in length so a reduction in speed limit from 70km/hr to 50km/hr during 'critical hours' would only increase the time of travel from 57 seconds to 79 seconds.</i></p> <hr/>	<p>Immediate</p> <p>Medium term</p>
4	Run a community information program via social media and local newspapers (online and paper) regarding the speed limit reduction trial.	Medium term
5	Indicate the speed limit change through new informative and dynamic signage (similar to School Zone signage with flashing lights) and complementary signage such as 'Speed limits enforced'.	Medium term



6

Request Council, transport companies and corporates undertake driver awareness training.

Audit with the intention of potentially rerouting and restricting heavy vehicles (B-doubles, semi-trailers and prime movers) from using Boundary Road.

Immediate

Longer
term

Immediate: Between June and August 2023

Medium: Between June and December 2023

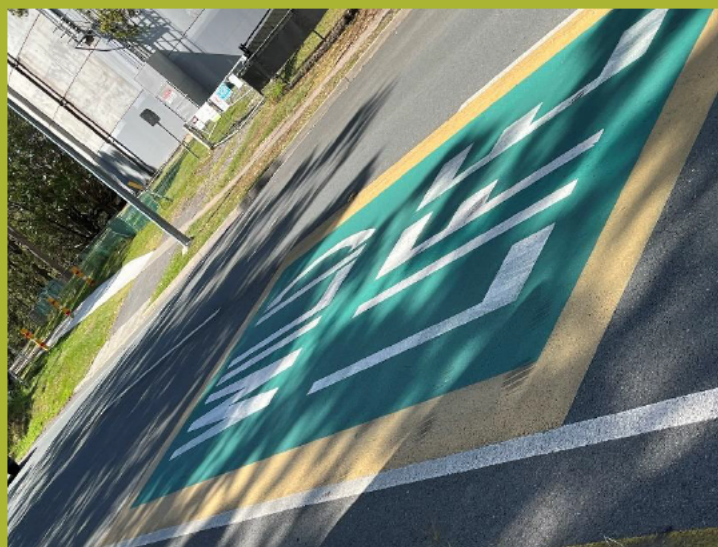
Long-Term: Between June 2023 and June 2025

(Please note that this is applicable to all recommendations).

4.2 Koala and wildlife awareness road signage

There is existing koala and wildlife awareness signage in place as well as speed awareness monitors (SAM) which are positive first steps.

However, due to the tenure of these signs and not being dynamic, research is required around their continued effectiveness and penetration.



Standard signs can become increasingly ignored over time because drivers habituate to their presence (Huijser et al. 2015).

Driver recall of dynamic signs is higher if a sign relates to a relatively short section of road and is targeted at a specific time of day or season.

(Huijser et al. 2015; Bond & Jones 2013; Collinson et al. 2019; Found & Boyce 2011; Sullivan et al. 2004).

Static signs are less effective at changing driver behaviour the longer they are in place.

(Queensland Government Koala-Sensitive Design Guideline 2022)

Variable message signs (VMS) for koala awareness during the peak koala breeding season have been successfully trialled and rolled out in 'hot spots' across Brisbane. Based on the data from the Koala Hospital, sections of roads in the Whites Hill Reserve area must be considered 'hot spots' where the risk of koala-vehicle strikes is high.

Variable signs need to remain in place on both **Boundary and Pine Mountain Roads** (facing traffic in each direction) for the entire breeding season (a minimum of July – October each year).



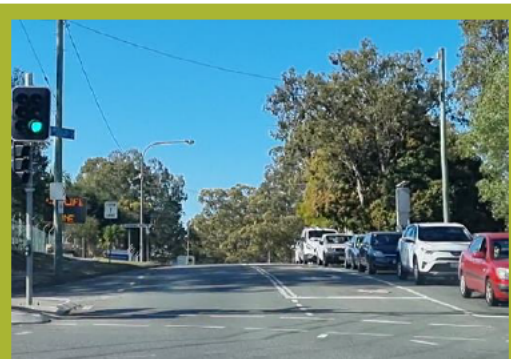
A community-driven working group would be well positioned to provide input into the optimal placement, messaging and type of signage used to continuously improve wildlife and driver safety. This may include, but not be limited to, the investigation of more emotive fixed and VMS signage.

4.2.1 Current variable message signage

Brisbane City Council has put in place variable message signs on Boundary Road which is a positive first step.

It's important that messaging on these signs can be quickly updated in a timely manner for changed circumstances and threats. For example, when five koalas were identified during one day as 'at risk' in trees on the fringe of Boundary Road.

These signs also need to be positioned in a prominent location. Currently both are off to the side of the road and obscured. This requires drivers to take their eyes off the road to see them which decreases the likelihood of reading them and increases driver risk.



With the amount of traffic recorded entering and exiting Whites Hill Reserve on any given day, an education opportunity exists around the road loop and drivers exiting onto Boundary Road need to be reminded about wildlife safety and driving slowly.

The community thanks Brisbane City Council for installing Wildlife Awareness signage around new trees planted within the Whites Hill Reserve precinct.



4.2.2 Recommendations for wildlife awareness road signage

No	Recommendation	Timeframe
7	VMS signs to be placed in prominent positions on Boundary and Pine Mountain Roads for the entire breeding season between July and October / November each year. Ensure these can be quickly and timely updated and changes as circumstances arise.	Immediate
8	Consider emotionally-driven and dynamic signage (using flashing lights) to create greater driver awareness both along the roads and within Whites Hill Reserve. See <i>Queensland's Koala-Sensitive Design Guideline</i> (2022).	Immediate / Medium term
9	Update SAM signs to show vehicle speeds as well as interchangeable messages and illustrations (similar to used at Christmas) on a regular basis to attract attention. Increase signage during breeding season.	Immediate
10	Install educational signage around the road loop at Whites Hill Reserve so people are aware that they are within a wildlife zone and upon exiting.	Medium term

Positive signs for koalas

KOALA awareness signs along main roads in the Redlands have been a welcome addition to the Department of Transport and Main Roads' (DTMR) Koala Retrofit Program.

The vehicle activated signs (VAS), unveiled last month, are part of a trial by DTMR aimed at influencing driver behaviour in reducing travel speeds in koala crossing areas.

The VAS detects the speed of oncoming vehicles by radar and triggers the lights on the sign if a vehicle is travelling faster than the recommended speed limit.

The signs consist of two solar powered flashing amber lights on top of a static wildlife advisory and slow down sign.

Motorists are advised to stay alert and recognise fauna signage when driving in koala movement areas.

Koala Action Group (KAG) president Debbie Pointing commended DTMR for moving towards better signage, saying it would remind drivers that a koala could step on to the road at any time.

"Traffic related koala mortality has always been highest along main roads – obviously, the higher the speed, the less time for a driver to notice a koala on the road," she said.

"We know that the council's flashing LED koala signs have greatly improved driver koala awareness in black spot locations along council roads, and now the same attention will be afforded to main roads."

Koala ambulance records show that more than 50 koalas have been killed crossing roads in the past year, with multiple numbers struck along Redland Bay and Mt Cotton roads, Cleveland-Redland Bay Road, Colburn Ave, Boundary Road, Wellington Street, Old Cleveland Road East and Mt Gravatt-Capalaba Road.

Koalas were also killed along Birkdale Road, Birkdale; Ney Road, Allambie Crescent, and Moreton Bay Road, Capalaba; Shore St, Shore St North, Princess St, and Bloomfield St Cleveland; Northern Arterial Road, Ormiston; Giles Road, Redland Bay; Campbell Road, Sheldon; Thorneside Road, Thorneside; Panorama Drive and South St, Thornlands; Jacob St, Wellington Pt; and East Coast Rd, Pt Lookout.



ONE of DTMR's new koala signs on Redland Bay Road, one of the worst roads for koala kills in the Redlands.



Example of a Department of Transport & Main Road illuminated koala sign and one installed on Redland Bay Road Capalaba.

Additional signage is required during breeding season where koala movements increase significantly.



4.3 Roadside maintenance and lighting

Slashing, pruning and maintaining roadside vegetation can improve driver visibility.

Streetlights at vehicle strike hotspots can help visibility by illuminating the road and verge
(Milton et al. 2015; Magnus et al. 2004).

4.3.1 Roadside maintenance

Although it needs to be acknowledged that some trimming was undertaken in mid-May 2023, the road fringe along Boundary Road is often overgrown with vegetation overhanging the road and street signs. When maintained, the area cut is minimal and some sections immediately adjacent to the road aren't always completed. Large clumps of grass are also left due to the mechanism of slashing being used.

A larger section of the road shoulder (similar to that which has been undertaken along Toohey Road) needs to be cleared and trimmed to improve driver vision of wildlife entering the road corridor. Trees are also currently obscuring a clear line of sight of signage and need to be cut back. This needs to be maintained through a regular maintenance program to ensure increased vegetation clearance and visibility.

Toohey Road



Boundary Road



Where koala 'blackspots' are identified, urgent action is required to ensure roadside is cut back and maintained to allow greater driver visibility of incoming koalas.

Where Doreen was hit twice and later killed, the roadside vegetation continues to be overgrown although requests have been submitted to Council.

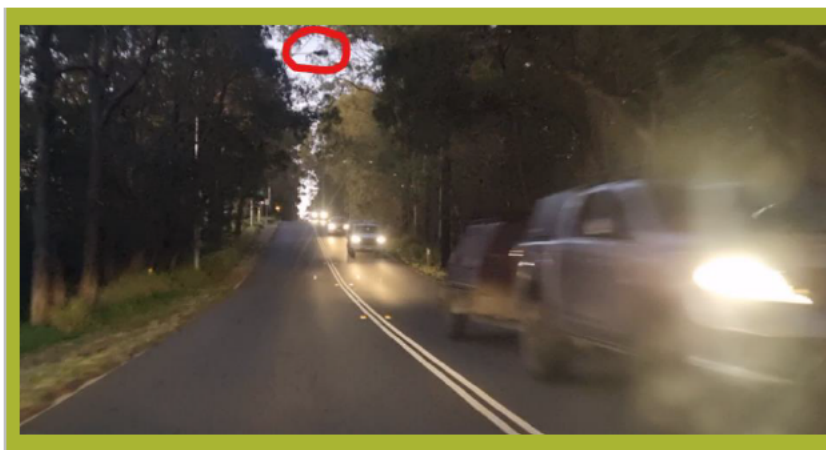


4.3.2 Lighting

Observations of street lights were taken on Monday 28 May between 5.10pm and 5.15pm and Tuesday between 5.10pm and 5.18pm.

During these times, it was sufficiently dark that all cars had their headlights on however at least nine street lights weren't yet illuminated. Only a small number of lights were working at this time even though sunset occurred at 5.02pm and 5.01pm respectively.

PHOTO TAKEN AT 5.17PM ON TUESDAY 29 MAY ON BOUNDARY RD, SOUTH OF THE WHITES HILL PARK, FACING NORTH. THIS IS ONE OF AT LEAST NINE STREET LIGHTS NOT ILLUMINATED AT THE TIME WHEN ALL CARS REQUIRED HEADLIGHTS.



Remaining lights came on at approximately 6.20pm however, there are two not working.

4.3.3 Recommendations for roadside maintenance and lighting

No	Recommendation	Timeframe
11	<p>Implement a regular roadside maintenance program of the roadside fringe to allow drivers to more easily see wildlife entering / traversing. The area should be cleared between 1 – 2 metres, with all overhanging branches and those obscuring signage cut back. Grass remains to be disposed of and all adjacent areas cleared.</p> <p>Where koala 'blackspots' are identified, urgent action is required to ensure roadside is cut back and maintained to allow greater driver visibility of incoming koalas.</p>	Immediate
12	<p>Review the timing of illumination of lights along Boundary Rd during Autumn and Winter seasons so their lighting coincides with dusk / sunset. This considers restricted daylight hours during breeding season and the potential for earlier wildlife movements.</p>	Medium term

Check that all current lighting is working effectively and complete maintenance or replacement if required.

Add additional lighting along Boundary and Pine Mountain Roads particularly in identified 'hot' and 'black' spots.
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4.4 Wildlife movement infrastructure

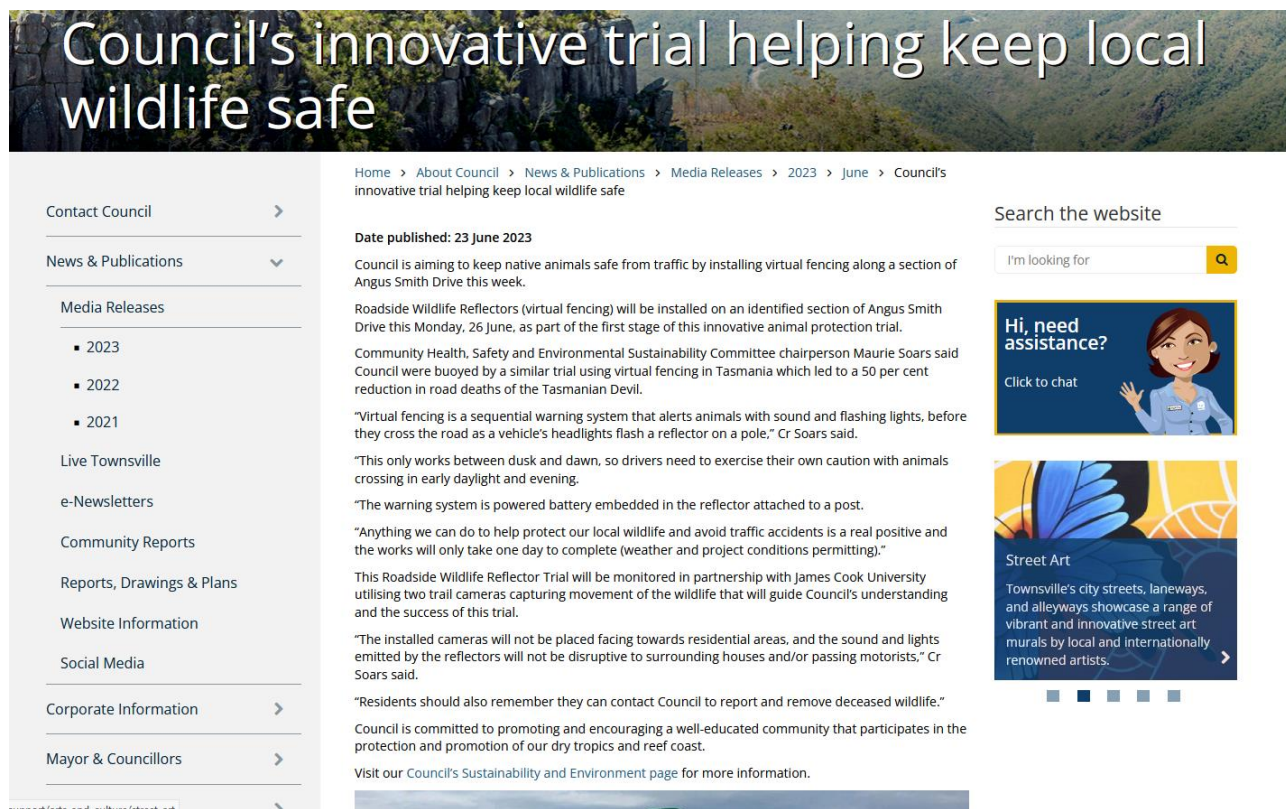
In 2022, Brisbane City Council completed a program of works to install koala climb-outs on Boundary Road, Camp Hill, to provide escape routes for koalas trapped on the road on the wrong side of the Reserve's fence line. In addition, the Council worked with the Australian Government and koala experts to design and construct an overhead log bridge to create a safe crossing point for koalas (pictured adjacent), escape poles and wildlife exclusion fencing.

We applaud the Council's efforts and agree with the Council that further exploration of wildlife movement solutions along other sections of Boundary Road and areas adjoining Whites Hill Reserve is required. This may include under-road crossings, wallaby jump-outs and additional fencing. Monitoring is also required on the current overpass to measure level of usage.

It is also understood that lighter coloured roads can significantly increase driver visibility and reduce wildlife deaths.



Townsville City Council is also currently trialling virtual wildlife fencing.



The screenshot shows the Townsville City Council website. The main header features a large image of a road winding through a forested area with the text "Council's innovative trial helping keep local wildlife safe". Below the header is a navigation menu on the left with links to Contact Council, News & Publications, Media Releases, Live Townsville, e-Newsletters, Community Reports, Reports, Drawings & Plans, Website Information, Social Media, Corporate Information, Mayor & Councillors, and a link to council/arts-and-culture/street-art. The main content area displays a news article titled "Council's innovative trial helping keep local wildlife safe" dated 23 June 2023. The article text states: "Council is aiming to keep native animals safe from traffic by installing virtual fencing along a section of Angus Smith Drive this week. Roadside Wildlife Reflectors (virtual fencing) will be installed on an identified section of Angus Smith Drive this Monday, 26 June, as part of the first stage of this innovative animal protection trial. Community Health, Safety and Environmental Sustainability Committee chairperson Maurie Soars said Council were buoyed by a similar trial using virtual fencing in Tasmania which led to a 50 per cent reduction in road deaths of the Tasmanian Devil. 'Virtual fencing is a sequential warning system that alerts animals with sound and flashing lights, before they cross the road as a vehicle's headlights flash a reflector on a pole,' Cr Soars said. 'This only works between dusk and dawn, so drivers need to exercise their own caution with animals crossing in early daylight and evening. 'The warning system is powered battery embedded in the reflector attached to a post. 'Anything we can do to help protect our local wildlife and avoid traffic accidents is a real positive and the works will only take one day to complete (weather and project conditions permitting).' This Roadside Wildlife Reflector Trial will be monitored in partnership with James Cook University utilising two trail cameras capturing movement of the wildlife that will guide Council's understanding and the success of this trial. 'The installed cameras will not be placed facing towards residential areas, and the sound and lights emitted by the reflectors will not be disruptive to surrounding houses and/or passing motorists,' Cr Soars said. 'Residents should also remember they can contact Council to report and remove deceased wildlife.' Council is committed to promoting and encouraging a well-educated community that participates in the protection and promotion of our dry tropics and reef coast. Visit our Council's Sustainability and Environment page for more information." To the right of the article is a search bar and two promotional banners: "Hi, need assistance? Click to chat" featuring a cartoon character, and "Street Art" featuring a butterfly and text about townsville's city streets and alleyways showcasing vibrant and innovative street art murals by local and internationally renowned artists.

Council's innovative trial helping keep local wildlife safe

Home > About Council > News & Publications > Media Releases > 2023 > June > Council's innovative trial helping keep local wildlife safe

Date published: 23 June 2023

Council is aiming to keep native animals safe from traffic by installing virtual fencing along a section of Angus Smith Drive this week.

Roadside Wildlife Reflectors (virtual fencing) will be installed on an identified section of Angus Smith Drive this Monday, 26 June, as part of the first stage of this innovative animal protection trial.

Community Health, Safety and Environmental Sustainability Committee chairperson Maurie Soars said Council were buoyed by a similar trial using virtual fencing in Tasmania which led to a 50 per cent reduction in road deaths of the Tasmanian Devil.

"Virtual fencing is a sequential warning system that alerts animals with sound and flashing lights, before they cross the road as a vehicle's headlights flash a reflector on a pole," Cr Soars said.

"This only works between dusk and dawn, so drivers need to exercise their own caution with animals crossing in early daylight and evening.

"The warning system is powered battery embedded in the reflector attached to a post.

"Anything we can do to help protect our local wildlife and avoid traffic accidents is a real positive and the works will only take one day to complete (weather and project conditions permitting)."

This Roadside Wildlife Reflector Trial will be monitored in partnership with James Cook University utilising two trail cameras capturing movement of the wildlife that will guide Council's understanding and the success of this trial.

"The installed cameras will not be placed facing towards residential areas, and the sound and lights emitted by the reflectors will not be disruptive to surrounding houses and/or passing motorists," Cr Soars said.

"Residents should also remember they can contact Council to report and remove deceased wildlife."

Council is committed to promoting and encouraging a well-educated community that participates in the protection and promotion of our dry tropics and reef coast.

Visit our Council's Sustainability and Environment page for more information.

Search the website

I'm looking for

Hi, need assistance?

Click to chat

Street Art

Townsville's city streets, laneways, and alleyways showcase a range of vibrant and innovative street art murals by local and internationally renowned artists.

Well-maintained wildlife fencing is an effective way to prevent koalas accessing roads.

(Clevenger et al. 2001; Ascensao et al. 2013; van der Ree et al. 2015; Phillips 2014).

Wildlife fencing also helps direct or funnel animals to road crossing structures.

4.4.1 Recommendations on wildlife movement infrastructure

No	Recommendation	Timeframe
13	Complete a site-specific review using <i>the Queensland Government's Koala Sensitive Design Guideline</i> to identify continued threats and areas of improvement for wildlife movement.	Immediate
14	Monitor and report on the use of existing wildlife movement solutions (infrastructure) using the latest camera and sensor technology deployed by university researchers in wildlife protection.	Medium term
15	Obtain expert opinion and complete a thorough analysis of the plausibility of extending exclusion fencing on Boundary Road.	Medium term
16	Commence a long-term feasibility study into under-road crossings on Boundary Road and other features such as a refuge strip in the middle of the road.	Long term



4.5 Monitoring and mapping

Monitoring traffic flow, population mapping, tracking of koala movement and identification of injury/death 'hot spots' is vital to the ongoing development of effective wildlife protection and conservation. As stated in the *SEQ Koala Conservation Strategy*, "*a detailed threat assessment to measure current population numbers and to quantify and map threats to local koalas is required*".

When requested from Brisbane City Council and the Queensland Government, **no data was provided on traffic flow, statistics on the current population of Whites Hill koalas was not known, and currently the site is not covered by any university research.**

Furthermore, **growing the amount of data available on the Whites Hill Reserve will depend on increased collaboration** between levels of government, researchers, wildlife organisations, corporate citizens and the local community.

Queensland Government recently introduced the QWildlife App with its development involving minimal consultation with local wildlife groups. Community feedback is that members of the public are largely not aware of it and in some cases reluctant to use it so greater community communication and education is required. The app captures the location of sighting but not route observed to help capture crossing needs. We also need to ensure that the outcome of sightings and data capture is clear (i.e. how often the data is reviewed and made available to stakeholders and resulting actions taken).

4.5.1 Recommendations for monitoring and mapping

No	Recommendation	Timeframe
17	Commission traffic flow monitoring on Boundary and Pine Mountain Roads.	Immediate
18	Partner with a university to conduct population mapping and a threat assessment at Whites Hill Reserve.	Medium term
19	Commence discussions with corporate citizens and government suppliers such as Mipela GeoSolutions on a potential solution for accurate capture and recording of koala populations and threats.	Medium term

4.6 Education and engagement

The development and promotion of an **education and engagement program targeting local residents, schools and the community** and users of Whites Hill Reserve (with particular emphasis before and during breeding season) would raise awareness of wildlife movement and influence driver behaviour.

This should involve **active and ongoing engagement with key user groups** including the Holland Park Hawks, Holland Park Cricket Club, Brisbane Touch Football Associations, bushwalking and running groups as well as local community groups and schools. Channels to be adopted would include on-site interpretative signage, event exhibits and displays, social media, school and club publications, webinars, and database marketing.

Specifically, due to the high number of night-time sporting fixtures, increased vigilance is required for individuals driving in and out of the Reserve, and surrounding roads.

A community-focused education program that focuses on koala road safety awareness, similar to the Noosa Biosphere's '[Koalas on the Move!](#)' campaign, could be developed.



Competitions may also be run amongst the local community (i.e. public sculptures, signage etc).



4.6.1 Recommendations for education and engagement

No	Recommendation	Timeframe
20	Seek funding to develop and implement an ongoing Whites Hill Reserve wildlife protection education and engagement program amongst the local community, and schools and sporting organisations.	Immediate / Medium term

5. Working group membership

We are conscious of the importance of having the ‘right people at the table’, including decision-makers and influencers who understand government policies and processes, subject matter experts, as well as locals with on-the-ground knowledge of Whites Hill Reserve.

With this in mind, we propose that the working group’s membership include representatives from:

- Federal Government
- State Government
- Brisbane City Council
- Community including Friends of Whites Hill Reserve, Save Koalas and Wallabies of Whites Hill Group, and representatives of the First Nations community
- Academia including Griffith University and University of Queensland
- Wildlife rescue and protection groups including Queensland Koala Society and RSPCA.

6. Summary of recommendations

1	Review the Manual of Uniform Control Traffic Devices (MUCTD), the rule book governing road speeds in Queensland, which <u>does not recognise wildlife strikes as a valid reason for speed limit reduction</u> on suburban roads in Queensland. The re-evaluation of existing rules and regulations is required to better account for the safety of wildlife in highly populated areas. Wildlife fatalities must be included as a crucial factor in the assessment process when considering changes to speed limits.	Completed
2	Increase speed camera and police presence on Boundary and Pine Mountain Roads.	Immediate
3	<p>Trial the reduction of the speed limit on Boundary Road – from 70km to 60km (day time) 70km/hr to 50km/hr between 6pm and 6am.</p> <p>Place chevrons on the road to encourage larger car spacing.</p> <hr/> <p><i>Boundary Rd is only 1.1 km in length so a reduction in speed limit from 70km/hr to 50km/hr during 'critical hours' would only increase the time of travel from 57 seconds to 79 seconds.</i></p> <hr/>	<p>Immediate</p> <p>Medium term</p>
4	Run a community information program via social media and local newspapers (online and paper) regarding the speed limit reduction trial.	Medium term
5	<p>Indicate the speed limit change through new informative and dynamic signage (similar to School Zone signage with flashing lights) and complementary signage such as 'Speed limits enforced'.</p> <div data-bbox="260 1552 927 2009" data-label="Image"> </div>	Medium term

6	Request Council, transport companies and corporates undertake driver awareness training.	Immediate
	Audit with the intention of potentially rerouting and restricting heavy vehicles (B-doubles, semi-trailers and prime movers) from using Boundary Road.	Longer term
7	VMS signs to be placed in prominent positions on Boundary and Pine Mountain Roads for the entire breeding season between July and October / November each year. Ensure these can be quickly and timely updated and changes as circumstances arise.	Immediate
8	Consider emotionally-driven and dynamic signage (using flashing lights) to create greater driver awareness both along the roads and within Whites Hill Reserve. See <i>Queensland's Koala-Sensitive Design Guideline (2022)</i> . Complete a review of the north-east facing <i>Prepare to Stop</i> sign which rarely illuminates.	Immediate / Medium term
9	Update SAM signs to show vehicle speeds as well as interchangeable messages and Illustrations (similar to used at Christmas) on a regular basis to attract attention. Increase signage during breeding season.	Immediate
10	Install educational signage around the road loop at Whites Hill Reserve so people are aware that they are within a wildlife zone and upon exiting.	Medium term
11	Implement a regular roadside maintenance program of the roadside fringe to allow drivers to more easily see wildlife entering / traversing. The area should be cleared between 1 – 2 metres, with all overhanging branches and those obscuring signage cut back. Grass remains to be disposed of and all adjacent areas cleared.	Immediate
12	Review the timing of illumination of lights along Boundary Rd during Autumn and Winter seasons so their lighting coincides with dusk / sunset This considers restricted daylight hours during breeding season and the potential for earlier wildlife movements. Check that all current lighting is working effectively and complete maintenance or replacement if required. Add additional lighting along Boundary and Pine Mountain Roads particularly in identified 'hot' and 'black' spots.	Medium term
13	Complete a site-specific review using <i>the Queensland Government's Koala Sensitive Design Guideline</i> to identify continued threats and areas of improvement for wildlife movement.	Immediate

14	Monitor and report on the use of existing wildlife movement solutions (infrastructure) using the latest camera and sensor technology deployed by university researchers in wildlife protection.	Medium term
15	Obtain expert opinion and complete a thorough analysis of the plausibility of extending exclusion fencing on Boundary Road.	Medium term
16	Commence a long-term feasibility study into under-road crossings on Boundary Road and other features such as a refuge strip in the middle of the road.	Long term
17	Commission traffic flow monitoring on Boundary and Pine Mountain Roads.	Immediate
18	Partner with a university to conduct population mapping and a threat assessment at Whites Hill Reserve.	Medium term
19	Commence discussions with corporate citizens and government suppliers such as Mipela GeoSolutions on a potential solution for accurate capture and recording of koala populations and threats.	Medium term
20	Seek funding to develop and implement an ongoing Whites Hill Reserve wildlife protection education and engagement program amongst the local community, and schools and sporting organisations.	Immediate / Medium term

Immediate: Between June and August 2023
Medium: Between June and December 2023
Long-Term: Between June 2023 and June 2025

7. Conclusion

Successful koala conservation relies on a collaborative approach across all sectors, and communities have a key role to play in protecting local koalas.

The high level of community support for the conservation of koalas provides an opportunity for a range of actions that contribute to shared goals, from formal partnerships for habitat protection to raising awareness.

Actions include engaging citizens in koala conservation science, supporting and training professionals and koala carers in the community.

(Department of Agriculture, Water and the Environment Conservation Advice for Phascolarctos cinereus (Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory in effect under the Environment Protection and Biodiversity Conservation Act 1999 from 12 February 2022).

The Save the Koalas and Wallabies of Whites Hill community group is a collective of passionate and concerned residents committed to protecting and preserving Whites Hill Reserve and its diverse wildlife for people's enjoyment for generations to come.

Our members are already actively involved in caring for Whites Hill Reserve and its wildlife, but we are inspired to do more – motivated by the knowledge that our beautiful and unique wildlife are being injured or dying on our roads at alarming rates.

Preece (2007), who modelled threats to koalas in SE Queensland, concluded that “**urban koala populations will not be able to withstand the high rates of anthropogenic mortality, such as roadkill, in addition to natural mortality with the result being localised extinctions**”.

McAlpine et al. (2015) concluded that “**a concerted effort was required in response to the unrelenting threat of road-related mortality of koalas**”.

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8. References

Ascensao F, et al. 2013, Wildlife-vehicle collision mitigation: Is partial fencing the answer? An agent-based model approach. *Ecological Modelling* 257, 36–43.

Biolink Ecological Consultants 2017, Koala habitat and population assessment, Lismore Local Government Area (part), final report, prepared for Lismore City Council.

Biolink Ecological Consultants, 2018, Road Works Koala Management Toolbox, Final report, prepared for Ballina Shire Council.

Bond A and Jones D 2013, Wildlife warning signs: public assessment of components, placement and designs to optimize driver response, *Animals* 3: 1142–61.

Brisbane City Council, *Belmont Hills to Whites Hill Koala Precinct Project*, viewed May 2023 <<https://www.brisbane.qld.gov.au/clean-and-green/natural-environment-and-water/bushland-reserves/belmont-hills-to-whites-hill-koala-precinct-project>>

Brisbane City Council, *Brisbane. Clean, Green, Sustainable 2017-2031*

Brisbane City Council, *Koalas*, viewed May 2023 <<https://www.brisbane.qld.gov.au/clean-and-green/natural-environment-and-water/biodiversity-in-brisbane/wildlife-in-brisbane/significant-species/koalas#research>>

Brisbane City Council, *Wildlife Movement Solutions*, viewed May 2023 <<https://www.brisbane.qld.gov.au/clean-and-green/natural-environment-and-water/biodiversity-in-brisbane/wildlife-in-brisbane/wildlife-movement-solutions>>

Caneris A 2006, *Preliminary Ecological Review Whites Hill-Belmont Hills Strategic Greenspace Direction*. (Report prepared for Bulimba Creek Catchment Coordinating Committee)

Clevenger A, et al. 2001, Highway mitigation fencing reduces wildlife-vehicle collisions. *Wildlife Society Bulletin* 29(2), 646–53.

Collinson W, et al. 2019, Protecting the protected: reducing wildlife roadkill in protected areas, *Animal Conservation* online early, <https://doi.org/10.1111/acv.12481>.

Davies N, Gramotnev G, Seabrook L, Bradley A, Baxter G, Rhodes J, Lunney D & McAlpine C 2013, 'Movement patterns of an arboreal marsupial at the edge of its range" a case study of the koala', *Movement Ecology*, 1:8.

DES 2020, *South East Queensland Koala Conservation Strategy 2020-2025*, Department of Environment and Science, Queensland Government.

DES 2022, *South East Queensland Koala Conservation Strategy 2020-2025, 2020-2021 Annual Report*, Department of Environment and Science, Queensland Government.

Dexter, C. E., Appleby, R. G., Scott, J., Edgar, J. P., and Jones, D. N. (2018). Individuals matter: predicting koala road crossing behaviour in south-east Queensland. *Australian Mammalogy* 40, 67–75.

Dique D, et al. 2003, Koala mortality on roads in south-east Queensland: the koala speed zone trial, *Wildlife Research* 30(4): 419–26.

Fahrig L, et al. 1995, Effect of road traffic on amphibian density, *Biological Conservation* 73, 177–82.

Found R and Boyce M 2011, Warning signs mitigate deer-vehicle collisions in an urban area. *Wildlife Society Bulletin* 35: 291–295.

Gasteen D, *Local Pilot of the Recovery Planning Process for White's Hill Reserve for Managing Threatened Flora and Fauna Species*. (Prepared for the Whites Hill/Pine Mountain Community Group)

Glista D, et al. 2009, A review of mitigation measures for reducing wildlife mortality on roads, *Landscape and Urban Planning*, 91(1), 1–7.

Hobday A and Minstrell M 2008, Distribution and abundance of roadkill on Tasmanian highways: human management options, *Wildlife Research*, 35, 712–26.

Huijser MP, et al. 2015, Wildlife warning signs and animal detection systems aimed at reducing wildlife-vehicle collisions, in: R van der Ree, D Smith & C Grilo (eds), *Handbook of Road Ecology*, John Wiley & Sons, Sussex, UK.

Kerlin DH, Grogan LF, & McCallum HI 2023, 'Insights and inferences on koala conservation from records of koalas arriving to care in South East Queensland', *Wildlife Research*, vol. 50(1), pp. 57–67.

McAlpine, C. A., Lunney, D., Melzer, A., Menkhorst, P., Phillips, S., Phalen, D., Ellis, W., Foley, W., Baxter, G., de Villiers, D., Kavanagh, R., Adams-Hosking, C., Todd, C., Whisson, D., Molsher, R., Walter, M., Lawler, I., and Close, R. (2015). Conserving koalas: a review of the contrasting regional trends, outlooks and policy challenges. *Biological Conservation* 192, 226–236.

Leiper G & McDonald G 2000, *Report on the Vegetation of White's Hill Reserve*.

Litvaitis J and Tash J 2008, An approach to understanding wildlife-vehicle collisions, *Environmental Management*, 42(4), 688–97.

NSW Government, Koala vehicle strike fact sheet 1: Wildlife vehicle strike and contributing factors

Queensland Department of Environment, *Koala facts*, viewed May 2023
<<https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/facts>>

Phillips S 2014, Factors contributing to ongoing koala mortalities in areas traversed by recent Pacific Highway upgrades on the far north coast NSW. Proceedings of the Australasian Network for Ecology and Transportation Conference, Coffs Harbour, Australia.

Preece, H. J. (2007). Monitoring and modelling threats to koala populations in rapidly urbanising landscapes: Koala coast, south east Queensland, Australia. PhD thesis, University of Queensland, Australia.

Rhodes JR, Melzer A, Mucci A 2017, *Queensland Koala Expert Panel – A new direction for the conservation of koalas in Queensland*.

Rhodes JR, Beyer HL, Preece HJ, McAlpine CA 2015, *South East Queensland Koala Population Modelling Study*, UniQuest, Brisbane, Australia. (Prepared for the Department of Environment and Heritage Protection)

Sullivan T, 2004, Effectiveness of temporary warning signs in reducing deer-vehicle collisions during mule deer migrations, *Wildlife Society Bulletin* 32, 907–15.

Van der Ree R, et al. 2015, Fencing: A valuable tool for reducing wildlife-vehicle collisions and funnelling fauna to crossing structures, in: R van der Ree, D Smith & C Grilo (eds), *Handbook of Road Ecology*, John Wiley & Sons, Sussex, UK.

Visintin C, et al. 2016, A simple framework for a complex problem? Predicting wildlife-vehicle collisions. *Ecology and Evolution* 6(17), 6409–6421.

Winnett MA and Wheeler AH 2002, Vehicle-activated signs: a large-scale evaluation. Prepared for Road Safety Division, Department of Transport, UK.

9. Endorsements

Professor Ben Wilson

Privacy-in-confidence

Privacy-in-confidence

25 May, 2023



BEN WILSON
CONSULTANCY

To Whom It May Concern,

My name is Benny Wilson and I am a Jagera man born and raised in the southern suburbs of Meanjin (Brisbane). Specifically, I grew up around and on the mountain Kaggur Mabul (more commonly known as Mt Gravatt) and the surrounding suburbs of Holland Park, Mansfield, and Carindale. My grandparents and now my parents have lived in a small house on Creek Rd in Mansfield since the mid 1970s. I attended primary school at Mansfield State Primary and played for the Mt Gravatt Eagles Baseball Club for over twenty years. Despite the fact that I have spent the past seven years in the ACT, I love this area and feel deeply connected to it.

I am writing today because of the harm that is being inflicted upon native wildlife on Boundary Rd in White's Hill. I believe we have a cultural obligation to care for our earth kin and when so many of them are losing their lives on our roads I further believe it is imperative that we take a stand. When my family, friends, and colleagues who still live in the area told me of how many earth kin were being hit by cars weekly, I was sickened. Boundary Rd has ever been a difficult road for travellers to traverse, being poorly lit and currently subject to a 70kph speed limit. While this limit seems to be safe for human beings, with few if any car crashes recorded over the past twenty years, the same cannot be said of the creatures that inhabit White's Hill Reserve, with many wallabies, wombats, echidnas, and possums losing their lives on this road due to the car traffic.

For First Nations' people who believe in our old ways, these earth kin lives are of critical importance. It saddens me that so little effort seems to be made in order to protect them. It is my earnest hope that local government will begin taking their responsibilities to the more-than-human creatures under their care more seriously. I would suggest a decrease in the speed limit to 60kph to start, and then perhaps an investment in better lighting – though I understand that this measure is largely subject to funding being available. A reduction in the speed limit, however, costs nothing and could save much.

Please do not hesitate to reach out and contact me if you require further information or discussion. I remain faithful that you will do the right thing by our place and its inhabitants.

Sincerely,

Professor Ben Wilson (BA, GdipEd, MEd, PhD)
Head of College of First Nations
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17 May 2023

To Whom It May Concern

Support letter for koala protection at Whites Hill Reserve

Bulimba Creek Catchment Coordinating Committee Inc (B4C) is a not-for-profit environment and Landcare organisation based in Carindale, Brisbane. B4C was started in 1997 in response to concerns within the community for protecting and enhancing the natural bushland within our catchment. Improvement and protections for habitat and food sources for wildlife such as koalas, wallabies, echidnas, possums, reptiles, birds, butterflies and other animals have been a major focus of our projects and on-ground works.

Whites Hill Reserve is one of the major reserves in Bulimba Creek Catchment, and it relies on the corridors of Salvin Creek, Phillips Creek and Spring Creek to connect with nearby Belmont Hills Reserve to the east and to Finger Gullies of Coorparoo to the west. Without the corridor connections, wildlife cannot safely move through the landscape.

B4C have been aware since our inception that wildlife in urban areas have a very difficult and dangerous time crossing roads and moving through residential areas, with impacts from car strikes and dog attacks accounting for the majority of deaths and injuries to koalas, wallabies and possums.

B4C is in support of all efforts of the community, Council and State Government to take actions to protect koalas and wallabies in particular. In recent times, Council has installed in Boundary Road, Camp Hill a koala overhead bridge and associated fauna fencing and at Creek Road, Carina, fauna fencing and refuge poles. This infrastructure will be vital in reducing road strikes and deaths.

Reducing speed along Boundary Road, Camp Hill will be another beneficial action. There have been several koala and wallaby deaths along the approximate 1.6 km length from Cavendish Road to Indus Street, where the current speed is 70 km per hours. B4C supports the petition to the State Government to include wildlife deaths in assessments under the Manual of Uniform Traffic Control Devices.

B4C supports actions from all organisations and levels of government that will assist in reducing the deaths of wildlife from any hazard.

Yours sincerely,

Heather Barns (secretary)