







State of Koalas in the Sydney Basin: Second Annual Assessment. May 2025.



Acknowledgements:

The Sydney Basin Koala Network (SBKN) has been established by Total Environment Centre (TEC), partnering with 3 year funding from WIRES, to:

- Increase public knowledge and appreciation of the region's koala populations
- Inform local, state and federal governments about the existence, conservation status and threats to koala populations and effective measures to protect them
- · Provide local communities with community briefings and citizen science training
- Work with NGO's, scientists, and conservation agencies to achieve these aims.

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SBKN Network Partners

- Nature Conservation Council of NSW
- Australian Climate and Forest Alliance
- Humane Society International Australia
- Australian Wildlife Society
- International Fund for Animal Welfare Australia
- Australian Conservation Foundation (ACF) Greater Western Sydney
- Hawkesbury Environment Network
- Hunter Community Environment Centre
- Lithgow Environment Group
- Blue Mountains Conservation Society
- Sutherland Shire Environment Centre
- Save Manly Dam Catchment Committee
- Hills-Hornsby Rural Koala Project
- Save Sydney's Koalas
- Oatley Flora and Fauna Conservation Society
- Mountains for Wildlife Hawkesbury Blue Mountains
- Valley for Wildlife, MacDonald Valley Association
- DoSomething Foundation
- Lane Cove Bushland and Conservation Society
- WinZero (Wingecarribee Net Zero Emissions)
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Sydney Basin Koala Network: Protecting Koalas in the Sydney Basin

Executive Summary

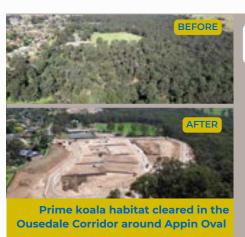
The <u>Sydney Basin Koala Network</u> (SBKN) was established by the <u>Total Environment Centre</u> (TEC) and <u>WIRES</u> to protect and expand connected, thriving koala core habitats and corridors across the Sydney Basin Bioregion, encompassing key koala populations threatened by development in the Southern Highlands, Hawkesbury, Cessnock/Lake Macquarie, Campbelltown/Wollondilly, the Sutherland Shire, Liverpool and the Lower Blue Mountains. In this time, koalas have been sighted in the Hills District, Hornsby, Penrith, and Wollongong LGAs and we are increasing our advocacy efforts to ensure Koala habitat is recognised and conserved in these areas.

In 2024 we released our <u>first annual progress report</u> which included an assessment finding the area where koalas are found in the Sydney Basin was declining and the areas supporting long standing breeding populations of koalas are also in decline. This, our second progress report focuses on the slow progress the NSW Government is making towards improving protections for koalas, despite fast tracking urban sprawl leading to the dramatic increase vehicle strike.

Analysis in this report by expert Koala ecologists Biolink (pg 28) indicates that vehicle strike in Campbelltown has impacted 37-62% of the koala population since 2019. Strike rates in Campbelltown are unsustainable and have exceeded the 3% annum threshold since 2021. Strike rates of over 3% are known to cause koala population decline. SBKN analyses shows vehicle strike of koalas across South-West Sydney has risen 56% from 2023 to 2024.

Despite alarming figures on a marked increase in road strikes, the State Government continues to ignore the increasingly dire situation for koalas in Campbelltown, with plans to cut off the vital Koala corridor at Mallaty Creek, and not acquiring real estate within the committed George's River Koala National Park, leaving it to trade on the open market creating uncertainty.

Since the Cumberland Plain Conservation Plan (CPCP) was approved last year, the clearing of a Koala breeding ground in Appin, and other planning proposals are occurring despite announced "enhancements" to the CPCP not being finalised (EDO). Meanwhile the cumulative impacts of quarries in the Hunter also continues at pace with cumulatively over 266ha of Koala habitat approved to be cleared. Urban sprawl is hurting our Koala populations not only in the South West, but in the mining for the bricks and mortar needed in the North of the Sydney Basin.



Case Study - CPCP approval: habitat clearing in Appin

The approval of the Cumberland Plain Conservation Plan has allowed clearing of intact critically endangered Shale Sandstone Transition Forest. The cleared woodland at Macquariedale Road in Appin (left) was home to a breeding ground of SW Sydney Koalas. Displaced koalas are at higher risk of road strike and disease from stress. This habitat was also in the Ousedale Creek Koala Corridor - the only East-West corridor that the CPCP is maintaining in Macarthur.

The Minns government must acknowledge existing plans to protect Sydney Basin koalas are failing, and more habitat protection and connectivity for koalas must be committed to urgently.

Federally, progress on koalas has been a great disappointment with approval of Koala Habitat tripling nationally in 2024. The overhaul of federal environment laws has been "killed off" in parliament. Subsequently, the Federal Government's Nature Positive Plan remains in limbo.

Positive news has been occurring at a local level, with our network of member groups successfully advocating for greater protections of koalas to their local councils, with Hawkesbury, Liverpool, and Sutherland Shire councils moving forward with Koala Plans of Management (full local council progress listed on page 7). Our citizen science training days in the Sutherland Shire and Lower Blue Mountains have also led to broader community awareness.

Landcare's Wild Seek program has also worked with our Network members to discover koalas thought lost in the Hills District and also in areas earmarked for development in the Sutherland Shire. These developments at a local level come despite slow or no progress by the State and Federal Governments.

SBKN has outlined key policy recommendations for the State to move urgently on page 8. Our in depth progress report on legislative reform by the Environmental Defenders Office is on page 10, and our detailed analysis on the key threatening process of vehicle strike on koalas in the Sydney Basin by koala expert ecologists Biolink is on page 28.

In 2025 SBKN will continue to push for the best outcomes for koalas in the Sydney Basin based on these reports, ensuring that the NSW's Government's "Plan for Nature", NSW Koala Strategy, and Biodiversity Offsets reforms contain genuine outcomes to protect Koala populations via legislation rather than band aid solutions. We will deliver our own blueprint for a Koala Greenbelt in the Sydney Basin, identifying key habitat corridors to ensure key focal areas remain connected, and identify opportunities for restoration.

In light of the sharp increase in Koala vehicle strike in South West Sydney, and other parts of NSW, we have submitted a nomination to the NSW Threatened Species Scientific Committee to formally recognise fragmentation by roads and the resultant increase in vehicle strike as a Key Threatening Process to koalas in NSW.

We will continue to advocate for greater action at Local, State and Federal levels, and contribute our expertise to local community groups concerned by developments threatening their local koalas, pressing for maximum area C2 zoning when planning proposals come to the fore.

Case Study - Citizen Science Hills District

Our network members, the Hills - Hornsby Rural Koala Project, have been tracking koalas in the Glenorie area for years, and this year, with Landcare's Wildseek program, detected 13 koalas throughout their Glenorie and Maroota sites, finding koala presence on 4/5 sites, indicating a low density permanent population. These locations are not recognised as Koala habitat by the state, nor listed in the current koala strategy. It is a testament to community groups in the Sydney Basin that this population was discovered.



Koalas struck by vehicles in South West Sydney rose by 56% in 2024

In 2023 & 2024 100 koalas have been recorded being struck by vehicles on the roads of South West Sydney with the majority on notorious Appin Road. The increase in deaths correlate with development activity in the area, and alarmingly include an increase in females and joeys suggesting displacement. In Campbelltown LGA the Appin Road upgrade, approved to facilitate the housing development at Mt Gilead, has disrupted movement of koalas, while the clear-felling of a Koala breeding ground in Appin for a housing development also correlates with an increase of Koala deaths on Appin Road at the Southern end. To date, none of the promised underpasses are complete, and plans to cut off an important migratory corridor at Mallaty Creek is proceeding against expert advice.

In the Sutherland Shire, strikes on Heathcote Road have more than doubled, driven by poorly implemented fencing, and a new hotspot in Liverpool correlates with roadworks in the area. Recent announcements by Transport NSW of trials of light paint and AI - already trailed and failed in Northern NSW, distract from the catastrophe unfolding on the roads of South-West Sydney.

VOALA VEHICLE CTRIVES Courth Wort Sydnox

KOALA VEHICLE STRIKES - South West Sydney			
ROAD NAME	# KOALAS STRUCK	2023	2024
Appin Rd Campbelltown/Wolld	ondilly	18	24
Heathcote Rd Liverpool/Suther	rland	7	15
Picton Rd Wollondilly, Wollong	ong	7	1
Ben Lomond Rd, Campbelltow	'n	2	2
Hume Hwy, Wollondilly, Winge	carribee	1	2
Wedderburn Rd, Campbelltow	n	0	3
Cambridge Ave, Campbelltowr	٦	1	1
Princes Highway, Sutherland		0	2
Canterbury Rd, Campbelltown		0	1
Hansens Rd, Campbelltown		0	2
Junction Rd, Campbelltown		1	2
Katanna Rd, Campbelltown		0	1
Leumeah Rd, Campbelltown		0	1
Moorebank Rd, Campbelltown		2	0
New Illawarra Road, Sutherland	d	0	1
Almond St, Wollondilly		0	1

*Figures sourced from local wildlife rescuers and NSW Koala Strategy

0

39



Total

Old Hume Highway, Wollondilly

Mill Road, Campbelltown

Case Study - TfNSW Failing Koalas: Appin Road Upgrade

Appin Road is <u>Sydney's deadliest road for koalas</u>. Koala road strike is severe and the death toll rises year on year because wildlife crossings are overdue, poorly designed and badly implemented;

- Authorities failed to implement expert advice provided in 2018.
- Development began before wildlife crossings and fencing were implemented and shown to be effective, loss of habitat is likely to have displaced koalas increasing road strike.
- Fencing is pushing hotspots to fence ends and trapping koalas in the road corridors.
- The design and placement of wildlife crossings falls short of expert advice and there is no crossing planned at the Mallaty Creek corridor where a current road strike hotspot exists.

Local Council Action

While Federal and State reforms lag behind, our campaign work in local councils has seen significant progress in the last year. In the run up to the September 2024 local council elections we provided the community with a 2024 Council Election Toolkit including information on what local councils can do to protect koalas. Member groups around the Sydney Basin took this knowledge and asked candidates to commit to 2024 Council Election Toolkit including information on what local councils can do to protect koalas. Member groups around the Sydney Basin took this knowledge and asked candidates to commit to 2024 Council Election Toolkit including information on what local councils can do to protect koalas.

After years of stagnation at the local council level, our advocacy combined with pressure from local communities has seen momentum grow across the Sydney Basin since the 2024 council elections.

WINS FOR KOALAS AT THE COUNCIL LEVEL

HAWKESBURY - In November 2024 Hawkesbury Council unanimously voted to fund a Koala Management Strategy in full, including corridor mapping (<u>Hawkesbury City Council meeting minutes Nov 26 2024 - pg 20</u>). A huge win for the community and Hawkesbury's koalas. It's the result of years of advocacy and pressure from network members Hawkesbury Environment Network HEN, Mountains for Wildlife, Hawkesbury - Blue Mountains, MacDonald Valley Association and WIRES with our support.



CAMPBELLTOWN - In December 2024, Campbelltown City Council advocated to the State Government for action on Appin Road - a state road and the deadliest road for koalas in Campbelltown (<u>Campbelltown City Council meeting minutes Feb 15 2025 - pg 43-48</u>). The Council asked the NSW Government to commit to the earliest delivery of:

- 1. Koala Awareness Zones on Appin Road from Noorumba to Mallaty Creek,
- 2. Reduction of speed limits at known koala crossing points on Appin Road from dusk to dawn including monitoring and enforcement activities,
- 3. Effective Koala fencing and interventions along the entire length of Appin Road where any Koala Crossings occur and
- 4. An additional Koala Crossing at Mallaty Creek to ensure safe connection of habitat between the Georges and Nepean Rivers.

WOLLONDILLY - Wollondilly Shire Council took on community feedback to impose a 390m setback between the Nepean River and a proposed development to maintain the Nepean River Koala Corridor (Wollondilly Shire Council meeting minutes Feb 25 - pg 23).

LIVERPOOL - In December 2024, Liverpool City Council voted unanimously to develop a Koala Management Plan that supports a range of conservation actions to provide more habitat for koalas, support local community action, improve koala health and safely and build the knowledge to improve koala conservation (<u>Liverpool Council meeting minutes 10 Dec 2024 - pg 35).</u>

PORT STEPHENS - Port Stephens Council has committed to updating its Comprehensive Koala Plan of Management (CKPoM) by <u>revising its koala habitat map</u>. With funding from both state and federal governments, the council is undertaking detailed vegetation and habitat mapping to ensure that current data informs decision-making for koala conservation. This update is long overdue, as the original plan dates back to 2002, and much has changed since then. The new mapping will provide a stronger foundation for evidence-based decisions, leading to better outcomes for Port Stephens' koalas.

SUTHERLAND – Council is pushing forward with a <u>Sutherland Shire Koala Plan of Management</u> despite the state government failing to add Sutherland Shire to the Koala SEPP. This action shows that Councils can take action in their own LGA, regardless of state action.

Case Study - Council Action: Sutherland CKPoM

Despite not being included in either Koala SEPP, Sutherland Shire Council is taking proactive steps by undertaking vegetation mapping and developing a Comprehensive Koala Plan of Management (CKPoM) under alternative legislation. This demonstrates that local councils can advance koala protections even as the state government lags behind. While the absence of a SEPP means the plan won't function exactly as a CKPoM, the council's commitment is a significant step forward for Sutherland's koalas.



Koala 2024, Sandy Point, Sutherland Shire LGA

LAKE MACQUARIE - Lake Macquarie Council passed a notice of motion that strives to develop koala guidelines, allocate resources towards the marsupial's protection, and consolidate habitat corridors (<u>Lake Macquare City Council meeting minutes Feb 24th 2025 - pg 315</u>).

CESSNOCK - In partnership with the NSW Koala Strategy, Cessnock City Council have committed to conducting a <u>koala habitat mapping study</u> and targeted koala surveys in the Mulbring and Ellalong areas and the western slops of the Watagan Mountains, in the area which is connected to Lake Macquarie.

WOLLONGONG - Wollongong Council has advocated to the state government for protections for koalas on Appin Road in December 2024. More recently a motion was unanimously passed on 24th February 2025 (Wollongong City Council meeting minutes page 4, item 10) to write to the NSW Government about wildlife fencing maintenance and crossings in future roads and upgrades.

These wins are a step in the right direction, but many councils still lack CKPoMs and adequate koala protections. Notably in the Sydney Basin; **the Blue Mountains**, and **the Hills District** are lagging behind with koala protections.

Strong local legislation remains a vital safeguard, regardless of state or federal actions, and councils can help protect koalas by:

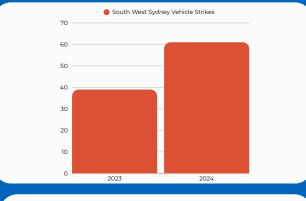
- Implementing a Comprehensive Koala Plan of Management
- Action on council roads to address vehicle strikes and ensure safe road crossing for koalas.
- · Community education and supporting local landholders to protect and restore koala habitat
- More stringent assessment of development applications affecting koala habitat by ensuring planning controls in council's CKPoM, Local Environment Plan (LEP) and Development Control Plan (DCP) provide adequate protection for koalas and their habitat.
- · Opting out of the unscientific and damaging Rural Boundary Clearing Code
- Increasing monitoring and compliance for unauthorised tree removal and roaming pets.
- Advocating to NSW Government on key issues affecting koalas including resolution of the Koala SEPP and draft guidelines, reform of legislation that allows 'zombie' development, and action on vehicle strike hotspots on state roads.

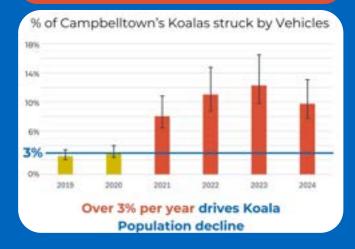
SYDNEY BASIN KOALAS IN PERIL

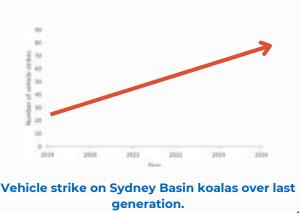
79.8% of Vehicle Strikes are in South West Sydney

37-62% of Campbelltown Koalas have been impacted by vehicle strike

56% increase in vehicle strike in South West Sydney in 2024







KOALA PROTECTION POLICY PROGRESS

- Ensure legal protections apply to all koala habitat by implementing consistent, comprehensive mapping across NSW as a matter of urgency.
- Maximise protection of koala habitat by mandating appropriate and consistent levels of regulation.
- Bolster safeguards in assessment and determination processes. The Government has made legislative changes to the NSW Biodiversity Offsets Scheme but must act on NSW Plan for Nature commitments to amending and strengthening the BC Act and relevant legislation.
- Improve accountability and enforcement of laws.

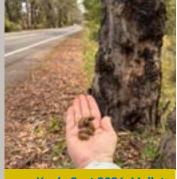
- Prohibit logging in koala habitat.
 Logging is still permitted in koala habitat (on public and private land).
 Stakeholders await finalisation of both a revised NSW Koala Strategy and a Forestry Industry Action Plan.
- Optimise the use of conservation and strategic planning tools. The NSW Government has made a number of commitments consistent with this recommendation, but many of those commitments remain undelivered.
- Overhaul national environmental laws. Stage 2 Bills have been "killed off" before the Federal election. Subsequently, the Federal Government's Nature Positive Plan remains in limbo.

SBKN 2025 Koala Protection Recommendations

- 1. Reform the Biodiversity Conservation Act (BCA) to strengthen protection for koalas (and other species).
- 2. Protect and restore Mallaty Creek habitat corridor in Campbelltown LGA for koalas with an additional wildlife crossing on Appin Road to mitigate the unprecedented amounts of roadkill on Appin Road, and as previously advised by koala experts.
- 3. Apply a scientifically robust definition of koala habitat to legal frameworks and apply this to all LGAs with koala sightings so all councils can quickly proceed with habitat mapping and Comprehensive Koala Plans of Management.
- 4. Apply the Chief Scientist corridor advice for Campbelltown and Macathur across the Sydney Basin, connecting the South-West with the North West, and the North-West to the lower Hunter and zone corridors as C2 to prevent fragmentation.
- 5. Reform the LLS act to end code based clearing and remove the outdated 1990 regrowth rule.
- 6. Scrap the unscientific Rural Boundary Clearing Code to prevent fragmentation of habitat.
- 7. Curb urban sprawl and ongoing fragmentation of bushland
- 8. Ensure any new transport routes do not clear and dissect koala corridors
- 9. Undertake a strategic supply plan to reduce ad-hoc quarry development on koala habitat.
- 10. Prohibit logging of Koala Habitat.

Case Study - Connectivity: Mallaty Creek Koala Corridor

Healthy and resilient koala' populations require movement so young adults can disperse into unoccupied habitat and find new mates to avoid inbreeding. koalas in SW Sydney need increased connectivity to avoid local extinction, yet a <u>scientifically recognised</u> koala habitat corridor that is currently in use by koalas will be lost under the CPCP. Mallaty Creek Corridor provides connectivity and habitat that is critical to the survival of koalas and current plans to fence koalas out of this habitat corridor are irresponsible and <u>misguided</u>. This corridor must remain open to koalas and a wildlife crossing installed at Appin Road.



Koala Scat 2024, Mallaty Corridor at Appin Road

Case Study - Cumulative impacts in Port Stephens

Lack of planning and consideration of the cumulative impacts has led to the loss of over 266 ha of koala habitat in the vicinity of Port Stephens. Individually, 9 separate quarry expansions argued their clearing is insignificant, but combined koalas are losing hundreds of hectares of habitat. The NSW Government must urgently develop a Quarry Cumulative Impact Mitigation Action Plan and implement a strategic supply plan to reduce ad-hoc quarry development (see koala strategy submission for more details).



pala Stone Ridge Quarry, Port Stephens LGA



Legal Progress on Koala policy reform, Environmental Defenders Office report.



PROTECTING KOALAS IN THE SYDNEY BASIN BIOREGION: Strengthening NSW laws to protect the trees that koalas call home

Second Annual Progress Report: May 2025

1.Introduction

In February 2023, Environmental Defenders Office (EDO) released its report <u>Protecting koalas in the Sydney Basin bioregion - Strengthening NSW laws to protect the trees that koalas call home (Protecting koalas in the Sydney Basin bioregion)</u>. The report, funded by and produced to support the work of the Sydney Basin Koala Network (SBKN), analysed laws aimed at koala protection and identified key areas for reform aimed at strengthening legal protections for koalas and preventing further decline in koala populations and extinction of this iconic Australian species.

In March 2024, SBKN released its <u>State of Koalas in the Sydney Basin - First Annual Assessment</u>. It included a progress report prepared by EDO, which considered progress against key EDO recommendations (as set out in Protecting koalas in the Sydney Basin bioregion), and key opportunities for ongoing implementation of EDO recommendations.

This Second Annual Progress Report:

- Considers progress since the first annual assessment against key EDO recommendations for
 protecting koalas and their habitat (as set out in Protecting koalas in the Sydney Basin
 bioregion); and key opportunities for ongoing implementation of EDO recommendations; and
- Provides an update on how the Government has addressed concerns regarding the Cumberland Plan Conservation Plan (CPCP) and highlights outstanding areas of concern.

In summary:

• The NSW Government is making slow progress towards improving protections for koalas, including in the Sydney Basin bioregion. As highlighted in the State of Koalas in the Sydney Basin - First Annual Assessment, the Government has made a number of significant commitments for increasing protections for koalas and their habitat, but at the time of writing this second assessment many of these commitments remain undelivered in full. These include finalising the revised NSW Koala Strategy, creating a Great Koala National Park on the mid north coast between Kempsey and Coffs Harbour and fast-tracking the creation of a Georges River Koala National Park in Southwest Sydney.

- One of the most significant developments in the past 12 months has been the release of the NSW Plan for Nature the NSW Government's long-awaited response to the 5-year statutory reviews to the NSW Biodiversity Conservation Act 2016 (BC Act) and Part 5A of the Local Land Services Act 2013 (LLS Act). The NSW Plan for Nature sets out an ambitious reform agenda for nature in NSW, including developing a NSW Nature Strategy and strengthening the BC Act. Strengthening laws and policies for nature, as proposed in the Plan, should, if adequately resourced and implemented, deliver improvements for threatened species, including koalas.
- The Government has progressed its commitment to 'fix' the NSW Biodiversity Offsets Scheme by introducing the Biodiversity Conservation Amendment (Biodiversity Offsets Scheme) Bill 2024 (Offsets Amendment Bill). The Bill, which passed the NSW Parliament in November 2024, makes a number of important changes to the NSW Biodiversity Offsets Scheme (BOS). It is expected more changes will follow as part of broader reforms.
- In mid-2023, the NSW Government indicated it would look at <u>increasing protections for koalas</u> under the Cumberland Plain Conservation Plan, and in March 2024 announced a <u>suite of CPCP enhancements</u> (but made no changes to the CPCP itself). The Government is still in the process of delivering its CPCP enhancements see Part 3 below.
- In April 2025, the Government announced <u>proposed changes</u> to Chapter 2 (Vegetation in non-rural areas) of State Environmental Planning Policy (Biodiversity and Conservation) 2021 (non-rural vegetation clearing rules) to help prevent illegal tree and vegetation clearing in non-rural areas.
- The Government also appointed an Independent Forestry Panel to engage with stakeholders to inform the development of the <u>Forestry Industry Action Plan</u> by the NSW Government. This provides an opportunity to consider the protection of koalas in public and private forests.

As further outlined below, the commitments made by Government provide important opportunities to take urgent, critical action to strengthen the laws that protect koalas in the Sydney Basin bioregion and across NSW, including in line with EDO's original recommendations in *Protecting koalas in the Sydney Basin bioregion*.



Case Study - Poor planning is displacing koalas

In 2024 headlines were made after a Koala named Klaus ended up disorientated in Casula Train Station. Opposite the station on the banks of the Georges River, 7.5 ha of Koala Habitat was approved to be cleared for a supermarket distribution centre in 2021. Habitat along rivers is known to be important for connectivity. The continual clearing and fragmentation of habitat on the urban fridge is causing displacement of koalas, like Klaus, who are pushed into urban areas where they face many threats. Klaus ended up in a nearby backyard with dogs. Luckily he was rescued before he got to the nearby Hume Highway. Planning decisions must consider habitat and aim to increase connectivity rather than fragment habitat.

2. PROGRESS AGAINST KEY EDO RECOMMENDATIONS FOR PROTECTING KOALAS

This section considers progress (for the period March 2024 – May 2025) against key EDO recommendations for protecting koalas and their habitat, as set out in EDO's report <u>Protecting koalas in the Sydney Basin bioregion - Strengthening NSW laws to protect the trees that koalas call home</u>. It also highlights key opportunities for ongoing implementation of EDO recommendations.

A. Ensure legal protections apply to all koala habitat by implementing consistent, comprehensive mapping across NSW as a matter of urgency

In the past 12 months, there has still been no action taken to adopt a consistent, scientifically robust definition of koala habitat across various legal frameworks, or to finalise consistent statewide mapping to be adopted in law for regulatory purposes. The Government's ongoing work to review the NSW Koala Strategy and deliver comprehensive biodiversity conservation and land management reforms provides a timely opportunity to align legal frameworks, deliver a consistent definition of koala habitat and move to comprehensive and consistent mapping of koala habitat across the State.

EDO Recommendation	Progress	Opportunity
Recommendation 1: Apply a scientifically robust, and clearly defined, definition of koala habitat to be used consistently across various legal frameworks.	There have been no changes to current definitions of koala habitat, and no steps to align definitions across various legal frameworks.	As part of ongoing work on biodiversity conservation and reviewing the NSW Koala Strategy, the NSW Government should take steps to align legal definitions and protections for koalas across all legal frameworks.
Recommendation 2: Map all koala habitat in approved maps as a matter of urgency. This could be achieved by either: • the NSW Government funding relevant local councils to develop maps as part of koala plans of management (KPOMS) under the Koala SEPPs, and legislating a timeframe for the finalisation of plans; or • the NSW Government leading the development of a single, state-wide map of koala habitat to be adopted in law.	NSW is still without comprehensive, uniform mapping of koala habitat that is adopted in law. As set out in Protecting koalas in the Sydney Basin bioregion, we recognise that the Government has taken steps to improve information and data on koalas and improve mapping, including through: mapping Areas of Regional Koala Significance (ARKS) across NSW to identifying areas where koalas are known to occur in moderate to high densities; the statewide Koala Habitat Information Base as part of the NSW Koala Strategy; key commitments in the NSW Koala Strategy; key commitments in the NSW Koala Strategy, including to support local councils to develop koala habitat maps. We also note that as part of its CPCP enhancements (see Part 3 below), the Government has committed to publish a map of koala habitat and corridors in the Cumberland Plan region. However, the failure to comprehensively map koala habitat and adopt those maps in law for regulatory purposes means that important legal protections continue to have limited application.	KPoMs within a specified timeframe. While koala habitat maps can help local councils with strategic land use planning, KPoMs are legally recognised instruments and are tied to decision-making in law. Alternatively, the NSW Government should commit to leading the development of a single, state-wide map of koala habitat to be adopted in law. This could potentially align with commitments under the NSW Koala Strategy and National Recovery Plan for the Koala including the development of baseline mapping area of total koala habitat, including core and locally refined areas.[1] However, any state-led mapping would need to be adopted in law for regulatory purposes in order to strengthen legal protections for koalas. There must be a robust and consistent methodology underpinning the mapping of any koala habitat, that includes a requirement for comprehensive surveys. [1] See, for example Annual Report 2023 National Recovery Plan for the Koala Phascolarctos cinereus (combined populations of Queensland, New South Wales and the Australian Capital Territory) which indicated the NSW Government has committed to establishing a "baseline mapped area of total koala habitat, including core and locally refined areas (NSW Action 4.2)". This cross-references Action 4.2 of the NSW Koala Strategy.

EDO Recommendation	Progress	Opportunity
Recommendation 3: Update all relevant laws to align legal definitions of and protections for koala habitat with approved maps.	Implementation of Recommendation 3 would follow action on Recommendations 1 and 2.	Following the implementation of comprehensive mapping per Recommendation 2, the NSW Government should align legal definitions and protections for koalas across all legal frameworks.

B. Maximise protection of koala habitat by mandating appropriate and consistent levels of oversight

To date, the NSW Government has made no major changes to approval pathways to improve oversight and protections for koalas.

The NSW Plan for Nature flags several areas in which the Government is looking to make changes, including in relation to:

- approval pathways for major natural capital investments, such as investments in blue carbon and landscape restoration; and
- how the Biodiversity Offsets Scheme applies to small-scale, regional developments.

The Government has also introduced a new Housing Delivery Authority (HDA) to lead a new streamlined State Significant Development (SSD) pathway for major housing developments. There is a risk that this new pathway will override important protections for koalas put in place by local councils (e.g. planning controls in Development Control Plans (DCPs) or Local Environment Plans (LEPs), Koala Plans of Management, vegetation mapping, land use zoning, standard or best practice conditions of consent).

While proposals in the NSW Plan for Nature require further consideration, EDO cautions against streamlined pathways that remove important oversight and robust assessment processes.

In relation to clearing on rural land, while the Government has made no commitments regarding changes to assessment pathways, there may be an opportunity for this to be considered as part of the independent review being undertaken by the Natural Resources Commission to provide advice on options to further protect and restore biodiversity in regional landscapes and enhance value and support for landholders (as flagged in the NSW Plan for Nature).

EDO Recommendation	Progress	Opportunity
Recommendation 4: Direct all proposals likely to have an impact on koala habitat into the most robust assessment pathway.	To date there have been no changes to assessment pathways in line with EDO recommendations. The NSW Plan for Nature flags a number of areas in which the Government is looking to make changes, including in relation to: • approval pathways for major natural capital investments, such as investments in blue carbon and landscape restoration; (NSW Plan for Nature pg19) • how the Biodiversity Offsets Scheme applies to small-scale, regional developments.[1]	Fast-track approval pathways must not remove important oversight and robust assessment processes, or override important protections for koalas put in place by local councils (e.g. planning controls in Development Control Plans (DCPs) or Local Environment Plans (LEPs), Koala Plans of Management, vegetation mapping, land use zoning, standard or best practice conditions of consent). While the Government has made no commitments regarding changes to assessment pathways in the rural land management framework, there may be an opportunity for this to be considered as part of the independent review being undertaken by the Natural Resources Commission to provide advice on options to further protect and restore biodiversity in regional landscapes and enhance value and support for landholders (as flagged in the NSW Plan for Nature).

EDO Recommendation	Progress	Opportunity
	The Government has also introduced a new Housing Delivery Authority (HDA) to lead a new streamlined State Significant Development (SSD) pathway for major housing developments. While these areas require further consideration, EDO cautions against streamlined pathways that remove important oversight and robust assessment processes, or override important protections for koalas put in place by local councils. The Government has made no commitments regarding changes to assessment pathways in the rural land management framework. [1] NSW Plan for Nature, p 13. The Offsets Amendment Bill allows for the Regulations to prescribe particular Part 4 development under the Environmental Planning and Assessment Act 1979 (EP&A Act) as not likely to significantly affect threatened species or ecological communities (meaning the BOS will not apply).	EDO reiterates its recommendations for ensuring proposals likely to have an impact on koala habitat are assessed under the most robust assessment pathway. In particular, we recommend: a. Strictly limit the scope of allowable activities under the LLS Act. b. Ensure only genuinely low impact activities are permitted as allowable activities under the Vegetation in non-rural areas SEPP. c. End code-based clearing of koala habitat for agricultural and urban development. All such proposals must be subject to full environmental assessment. This can be achieved by: • updating the definition of 'environmentally sensitive area' in cl 1.5 of the Exempt and Complying Development SEPP to explicitly include koala habitat; or • ensuring all koala habitat (not just that currently mapped as core koala habitat in approved KPoMs) is categorised as category 2 sensitive land.
Recommendation 5: Abandon plans to 'decouple' koala protections from rural land.	The Labor Government in NSW has not pursued the former Government's plans to 'decouple' koala protections on rural land.	There have been no specific commitments from the Government in relation to improving protections for koalas on rural land. However, commitments to improve the land management framework, as set out in the NSW Plan for Nature, may lead to improved outcomes for koalas, including: • strengthening protections in Code-based clearing • better managing environmental risks • improve transparency and awareness • reducing unallocated clearing • expanding incentives for land owners Additionally, the Government has commissioned an independent review, being undertaken by the Natural Resources Commission with the support of an advisory panel, to provide the government with advice on options to further protect and restore biodiversity in regional landscapes and enhance value and support for landholders. This review provides an opportunity to identify further opportunities to increase protections for biodiversity, including koalas.

C. Bolster safeguards in assessment and determination processes

The Government is taking important steps in this area:

- The Government's NSW Plan for Nature commits to amending and strengthening the BC Act
 and reviewing relevant legislation (e.g. the Environmental Planning and Assessment Act 1979
 (EP&A Act)) to strengthen biodiversity outcomes. More specific commitments are flagged
 below. Implementation of the Plan provides an opportunity to bolster safeguards for koalas,
 including in line with EDO's previous recommendations.
- The Government has made legislative changes to the BC Act to strengthen the NSW Biodiversity Offsets Scheme. While none of the changes relate specifically to koalas, the changes made by the Bill are important steps to improving the BOS. Further improvements would address outstanding stakeholder concerns and the Government has signalled that it is open to making further changes as part of its broader reforms.
- Separate to commitments in the NSW Plan for Nature, the Government has also announced <u>proposed changes</u> to non-rural vegetation clearing rules to help prevent illegal tree and vegetation clearing in non-rural areas.

These are important steps in the right direction and the Government must continue to act on its commitments to actively turn around biodiversity loss and restore habitats and biodiversity, including by bolstering safeguards in assessment and determination processes.

EDO Recommendation	Progress	Opportunity
Recommendation 6: Reform biodiversity laws to strengthen protections for koala populations and habitat.	The NSW Government has committed to amending and strengthening the BC Act and reviewing relevant to strengthen biodiversity outcomes. Specifically, the Government has committed to: • revise the objects of the BC Act to support our ambition to set nature on a path to recovery; • work with experts and stakeholders to identify other potential amendments to the operative provisions of the BC Act to support the revised objects, including consideration of how the BC Act can contribute to the achievement of national and international biodiversity targets; • amend operative provisions of the BC Act to give the revised objects meaning; • prioritise Aboriginal cultural values, connecting to Country, cultural practices and opportunities for Aboriginal economic development; and • review NSW legislation with biodiversity implications to identify opportunities to improve biodiversity outcomes. (NSW Plan for Nature, pg. 9). The Government has also announced proposed changes to non-rural vegetation clearing rules to help prevent illegal tree and vegetation clearing in non-rural areas. These changes include: • increasing fines and penalties for illegal tree and vegetation clearing • ensuring existing restrictions on complying development where illegal clearing has occurred can be enforced • improving compliance and enforcement outcomes by making the policy clearer, giving councils the power to issue orders relating to vegetation clearing • closing potential loopholes associated with the removal of dead, dying and dangerous vegetation requiring tree clearing permits to include a condition to replace cleared vegetation.	EDO reiterates the following specific recommendations for reform to the BC Act to strengthen protections for koala populations and habitat: a.Re-introduce provisions to list specific koala populations as a separate listing, irrespective of whether a species is already listed; b.Give stronger legislative effect to the Save our Species (SoS) program; c.Impose duties on developers and development decision makers to act consistently with SoS conservation priorities; d.Require environmental assessments to state whether approving the development will contribute to key threatening processes listed under the BC Act, and if so, how this will be minimised, and any alternatives available for the decision-maker to consider. Further recommendations for reform are set out in EDO's Submission to the Statutory Review of the Biodiversity Conservation Act 2016 and the Final Report – Independent Review of the Biodiversity Conservation Act 2016. Proposed changes to rules for vegetation clearing in non-rural areas must align with the Government's broader commitments to improve outcomes for biodiversity in NSW.

EDO Recommendation	Progress	Opportunity
Recommendation 7: Overhaul the NSW Biodiversity Offsets Scheme in line with best practice.	In November 2024, the NSW Parliament passed the Government's Biodiversity Conservation Amendment (Biodiversity Offsets Scheme) Bill 2024 (Offsets Amendment Bill). The Offsets Amendment Bill makes a number of important changes to the NSW Biodiversity Offsets Scheme (BOS). In particular, the Bill: • signals a transition of the BOS to 'net positive' – the Bill requires the NSW Environment Minister to develop a strategy to transition the BOS to deliver net positive biodiversity outcomes; • better embeds the 'mitigation hierarchy' (i.e. avoid, minimise impacts and as a last resort, offset impacts) into law; • makes changes to the way money is paid into and spent from the Biodiversity Conservation Fund (BCF), as a means of satisfying offsets obligations; • creates new requirements for Environment Minister concurrence for reducing biodiversity credit requirements for State significant development and infrastructure; and • introduces new public registers to increase transparency, including in relation to decisions on serious and irreversible impacts, measures for avoiding and minimising impacts on biodiversity values, approved offsets obligations and progress towards meeting these obligations, and orders made by the Minister to exempt particular development applications from the BOS. The Government has indicated that the Bill is the first step in its reform plans and that further changes to the BOS and the BC Act more broadly can be expected.	The Bill allows for new key policy settings to be set by the Regulations (e.g. in relation to low impact development that will be exempt from the BOS, and in relation to limiting payments into the BCF) and there will be a further opportunity for stakeholder engagement on these key issues. Outstanding key concerns, such as the failure of the Scheme to set thresholds for where offsets should not be used, may be able to be addressed through the next stages of reform.
Recommendation 8: Strengthen the 'serious and irreversible impacts' mechanism to more accurately reflect the principles of ecologically sustainable development.	There have been no changes made to the 'serious and irreversible impacts' provisions of the BC Act, however the NSW Plan for Nature commits to providing stronger and clear guidance to support decision-makers in determining serious and irreversible impacts on biodiversity,[1] (NSW Plan for Nature, pg 13) and in response to stakeholder feedback on the Offsets Amendment Bill, the Government has committed to give further consideration to improving the mechanism.	EDO reiterates its recommendations for strengthening the 'serious and irreversible impacts' mechanism. a)Reframe the standard as serious 'or' irreversible impacts. b)Require the test to be applied objectively, not subjectively (i.e. – not in the opinion of the decision maker). c)References to extinction risk should be clarified to refer to an appropriate scale and scope (see Principles applicable to determination of "serious and irreversible impacts on biodiversity values", Biodiversity Conservation Regulation 2017, cl 6.7).

EDO Recommendation	Progress	Opportunity
		d)Consent authorities should be required to have regard to the precautionary principle and cumulative impacts on threatened species. e)Provide specific guidance on the application of serious and irreversible impacts (SII) to koalas and koala habitat. f)The mandatory requirement to refuse development proposals that will have serious and irreversible impacts on biodiversity should be applied to both state significant developments and state significant infrastructure (replacing the current discretionary application of the mechanism). EDO also generally supports the Recommendations 13-15 of the Final Report – Independent Review of the
		Biodiversity Conservation Act 2016 which recommends setting a requirement in the BC Act to publish reasons for approving serious and irreversible impacts and maintain a statutory register of these decisions. All areas over which the Minister for the Environment considers a project would cause a serious and irreversible impact should be added to the single spatial tool as a 'no-go' area (noting that the Offsets Amendment Bill does introduce a requirement to publish serious and irreversible impact refusal decisions on a register).
Recommendation 9: Address ongoing concerns with the operation and implementation of the Koala SEPP.	There have been no changes announced or made to the Koala SEPP in the past 12 months. Implementation of the Koala SEPP continues to lag: for example: • two separate Koala SEPPs remain in place due to unresolved policy issues regarding protection of koalas on rural land, • anticipated Koala Habitat Protection Guidelines still pending, and • the majority of councils still without KPoMs.	Immediate steps can be taken to improve the implementation of the Koala SEPP as currently in force, including: • updating Schedule 2 of the Biodiversity and Conservation SEPP to add councils with known koala populations (including Sutherland, the Hills Shire and Penrith), • finalising guidelines intended to support the current Koala SEPP, and • progressing KPoMs for all councils. • There is no reason to delay effective implementation of current laws. • In the longer term, the anticipated revisions to the NSW Koala Strategy must clarify the Government's position in relation to the Koala SEPP and set out clear actions for consolidating, updating and finalising a single SEPP that provides robust and comprehensive protections for koalas. Broader reforms to the BC Act also provide an opportunity to strengthen protections for threatened species, including koalas, and improve the interaction between threatened species conservation and planning decisions.

D. Prohibit logging in koala habitat

Logging is still permitted in koala habitat (on public and private land). However, in addition to work already under way (including work towards establishing the <u>Great Koala National Park</u>, and <u>koala research</u>, <u>monitoring</u>, and evaluation of <u>koala mapping</u> being carried out by the Natural Resources Commission (NRC), the Government has in the last 12 months:

- Held a NSW Koala Summit and consulted on a NSW Koala Strategy Discussion Paper; and
- Appointed an Independent Foresty Panel to engage with stakeholders to inform the development of the <u>Forestry Industry Action Plan</u> by the NSW Government.

With consultation periods over, stakeholders await finalisation of both a revised NSW Koala Strategy and a Forestry Industry Action Plan.

EDO Recommendation	Progress	Opportunity
Recommendation 10: Reinstate a comprehensive exclusion of private native forestry (PNF) in all koala habitat. Specifically, PNF should be excluded in all koala habitat, and this should be properly implemented by completing comprehensive koala habitat mapping in all relevant LGAs per Recommendations 1 - 3.	A comprehensive exclusion of private native forestry (PNF) in all koala habitat has not been reinstated. However, we note work being undertaken by the NRC including, • overseeing a Private Native Forestry Monitoring, Evaluation and Reporting (PNF MER) Framework (approved November 2023); and • commissioning an independent evaluation of Private Native Forestry Koala Prescription Map.	As part of ongoing work on koala conservation and forestry, the NSW Government should reconsider koala protections in the PNF framework, including reinstating a comprehensive exclusion of private native forestry (PNF) in all koala habitat.
Recommendation 11: Prohibit public land native forest logging in koala habitat. This can be implemented by finalising comprehensive mapping of koala habitat and introducing exclusions for forestry operations in these areas.	No comprehensive prohibition on public land native forest logging in koala habitat has been announced or introduced. As reported in the last Annual Progress report: The NSW Government has committed to establishing the Great Koala National Park, with up to approximately 171,000 hectares of State forest under assessment for declaration as part of the Park. The Government and Forestry Corporation NSW have agreed to halt timber harvesting operations in 106 koala hubs within the proposed area while assessments are being carried out. While this has been welcomed, there are still areas of important koala habitat in the proposed Great Koala National Park that are at risk from logging. The NRC has also appointed experts to review the Coastal IFOA koala browse tree list for the upper and lower north-east CIFOA subregions.	The development of a new Forestry Industry Action Plan for NSW provides an opportunity to consider the future management of forests in NSW, and specifically the prohibition of public land native forest logging in koala habitat and other sensitive areas.

E. Improve accountability and enforcement of laws

There have been a number of improvements made regarding transparency and accountability in the past 12 months and further changes expected as part of ongoing reforms. For example:

- The <u>Offsets Amendment Bill</u> (passed in November 2024) introduces new requirements for registers to increase transparency, including in relation to decisions on serious and irreversible impacts, measures for avoiding and minimising impacts on biodiversity values, approved offsets obligations and progress towards meeting these obligations.
- The <u>NSW Plan for Nature</u> commits to reviewing compliance and enforcement powers and penalties for unlawful clearing and enhancing reporting on compliance and enforcement actions under the BC Act and LLS Act, such as response to Enviroline inquiries, warning letters, penalties and remediation orders (page 26).

EDO Recommendation	Progress	Opportunity
Recommendation 12: Improve transparency by ensuring public registers are in place and information available on public registers is comprehensive and readily accessible. This includes registers of approvals for development, clearing and forestry, offset agreements, biodiversity certificates etc.	The NSW Government has made good progress against this recommendation. As a first step in implementing elements of the NSW Plan for Nature, it has already introduced new requirements (under the Offsets Amendment Bill) for the following public registers: • orders made by the Minister under new section 7.7(3) of the BC Act (exempting development from requiring a Biodiversity Development Assessment Report); • decisions where serious and irreversible impacts have been considered; • measures for avoiding and minimising impacts on biodiversity values, and • approved offsets • obligations and progress towards meeting these obligations. The NSW Plan for Nature generally commits to improving accountability and transparency across various aspects of the land management and biodiversity conservation framework.	Ongoing implementation of the NSW Plan for Nature provides an opportunity for the NSW Government to further consider transparency measures in other related laws including Part 5A of the LLS Act (relating to land clearing), Part 5B of the LLS Act (relating to private native forestry) and the EP&A Act.
Recommendation 13: Improve reporting and monitoring of compliance with consent and approval conditions to ensure conditions are met and biodiversity outcomes are achieved. This can include, for example, monitoring and reporting on set aside obligations under clearing laws, biodiversity offsets obligations under development approvals and clearing approvals, and mitigation measures under biodiversity certificates.	As noted above, the Offsets Amendment Bill introduces a requirement to establish a new register offsets obligations and when and how they have been met. Similar provisions could be included in other relevant legislation to improve reporting and monitoring of compliance with other consent and approval conditions.	Implementation of the NSW Plan for Nature provides an opportunity for the NSW Government to further improve reporting and monitoring of compliance with consent and approval conditions to ensure conditions are met and biodiversity outcomes are achieved. This could include monitoring and reporting on set aside obligations under clearing laws and monitoring and reporting on planning approvals.

EDO Recommendation	Progress	Opportunity
Recommendation 14: To improve accountability, ensure that third party appeal rights are available, including third party merit appeal rights for major projects under the EP&A Act and open standing to enforce breaches of the Forestry Act.	Neither third party merit appeal rights for major projects under the EP&A Act or open standing to enforce breaches of the Forestry Act have been reinstated. We note that while the High Court decision in Forestry Corporation of New South Wales v South East Forest Rescue Incorporated [2025] HCA 15 confirmed that conservation groups can bring legal action to enforce forestry laws in NSW (see https://www.edo.org.au/2025/04/09/high-court-ruling-confirms-third-parties-may-hold-forestry-corp-to-account/), it does not overcome the need for open standing provisions in the Forestry Act.	Reinstating third party merit appeal rights for major projects and civil enforcement provisions for forestry breaches would complement the other initiatives Government is undertaking to improve compliance and enforcement to improve protections for nature.
Recommendation 15: Compliance and enforcement policies should identify and promote opportunities to seek remedies for unlawful activities that include the restoration and enhancement of koala habitat.	There have been no changes to compliance and enforcement policies (relevant to the protection of koalas and their habitat) in the last 12 months. In the NSW Plan for Nature, the NSW Government has committed to: • review compliance and enforcement powers and penalties for unlawful clearing; and, • enhance reporting on compliance and enforcement actions under the BC Act and LLS Act, such as response to Enviroline inquiries, warning letters, penalties and remediation orders.	Implementation of the NSW Plan for Nature, including commitments to review compliance and enforcement powers and penalties for unlawful clearing, provide an opportunity to expand remedies to include the restoration and enhancement of koala habitat.

F. Optimise the use of conservation and strategic planning tools

As previously reported, the NSW Government has made a number of commitments consistent with this recommendation, but many of those commitments remain undelivered. Commitments in progress (but still undelivered) include reviewing the NSW Koala Strategy, creation of the Great Koala National Park, and creation of the Georges River Koala National Park.

No new AOBVs have been declared despite this being a specific action in the NSW Koala Strategy; and the NSW Plan for Nature contains no specific commitment to making better use of or strengthening provisions relating to Areas of Outstanding Biodiversity Value.

EDO Recommendation	Progress	Opportunity
Recommendation 16: Make better use of the area of outstanding biodiversity value (AOBV) mechanism to protect koala habitat.	No new AOBVs have been declared in the last 12 months (none have been declared since the BC Act commenced in 2017). This is despite the NSW Koala Strategy having a specific action to "establish one Area of Outstanding Biodiversity Value (AOBV) for koalas under the Biodiversity Conservation Act" (Action 1.10). We note the NSW Government has declared 24 assets of intergenerational significance for koalas under the National Parks and Wildlife Act 1974, an increase from 15 reported in 2023. See: Annual Report 2024 National Recovery Plan for the Koala Phascolarctos cinereus (combined populations of Queensland, New South Wales and the Australian Capital Territory.	The Government must prioritise the declaration an AOBV for koala protection in line with Action 1.10 of the NSW Koala Strategy. The NSW Plan for Nature contains no specific commitment to making better use of or strengthening provisions relating to Areas of Outstanding Biodiversity Value. This is disappointing. EDO has previously recommended the Government make better use of the area of outstanding biodiversity value (AOBV) mechanism to protect koala habitat by: a) Declaring SoS sites (outside national parks and reserves) AOBVs; and funding these AOBVs for protection and making them off-limits from harm – including by mining interests (which otherwise continue to override biodiversity protection); and, b) Removing the requirement for third parties to obtain landholder support prior to nominating an area as an AOBV.
Recommendation 17: Continue and enhance funding to protected areas including national parks and conservation agreements on private land. This should include continued targeted funding for the NSW Biodiversity Conservation Trust to drive an uptake in private land conservation in priority koala habitat areas.	As previously reported, the NSW Government has made a number of commitments consistent with this recommendation, but many of those commitments remain undelivered. These include reviewing the NSW Koala Strategy and creating the Great Koala National Park. However, the Government is moving ahead with fast-tracking the Georges River Koala National Park, transferring land to the National Parks and Wildlife Service, but the Park is yet to be formally created (gazetted). The Government has also made additional commitments, announced in March 2024, as enhancements to the Cumberland Plain Conservation Plan – these include: - Fast-tracking the delivery of a new national park in the Gulguer area to provide an east-west connection for wildlife; and - A \$31 million voluntary private land acquisition program in areas such as Orchard Hills and the Aerotropolis. See our additional comments on the Cumberland Plain Conservation Plan below.	The NSW Government must deliver on its commitments to protect koala habitat through the establishment of new national parks and investment in private land conservation. Further commitments could be outlined in the revised Koala Strategy.

G. Overhaul national environmental laws

Progress towards reforming national environmental laws has stalled. On 16 April 2024, Environment Minister Tanya Plibersek announced that rather than introducing a full package of legislation implementing its Nature Positive Plan, the Federal Government would implement reforms to the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) in stages. Specifically, the Government indicated it would introduce legislation to establish Environment Protection Australia (EPA) and Environment Information Australia (EIA) (stage 2), delaying important broader reforms, including the introduction of National Environmental Standards, improvements to conservation planning, and changes to assessment and approval pathways, to a later stage (stage 3). It indicated that earlier reforms that established the Nature Repair Market and expanded the 'water trigger' under the EPBC Act were considered stage 1. The stage 2 package of legislation was introduced into the Federal Parliament in May 2024. It included:

- Nature Positive (Environment Protection Australia) Bill 2024;
- Nature Positive (Environment Information Australia) Bill 2024; and
- Nature Positive (Environment Law Amendments and Transitional Provisions) Bill 2024.

The Bills passed the lower house in July 2024, but debate in the Senate has not progressed. In November 2024, it was reported that Prime Minister Albanese 'killed off' a deal between Environment Minister Tanya Plibersek and the cross-bench to pass the laws in the final sitting week of 2024. On 5 February 2025, the Senate passed a motion to remove the Nature Positive (Environment Protection Australia) Bill 2024 and related bills from the Notice Paper. Subsequently, broader stage 3 reforms were also put on hold ahead of the 2025 Federal election. With the re-election of the Albanese Government in early May 2025, it is yet to be seen how the Government will progress its nature positive reforms, although it has indicated it remains committed to establishing a Federal Environment Protection Authority.

EDO Recommendation	Progress	Opportunity
Recommendation 18: Overhaul national environmental laws to effectively protect koalas and koala habitat.	Progress on implementing the Federal Government's Nature Positive Plan and reforming national environmental laws has stalled. In May 2024, the Federal Government published an Implementation Plan 2024 for the National Recovery Plan for the Koala, made under the EPBC Act.	The Federal government must deliver on its commitments to: -Deliver better environmental protection and laws that are nature positive; -halt and reverse biodiversity loss; -reduce the risk of extinction for all priority species, including koalas; and halt and reverse forest loss and land degradation by 2030. Relevantly, EDO has previously made the following key recommendations for improving protections for koalas under national environmental laws: a) Prioritise the implementation of the proposed new National Environmental Standard for Regional Planning and regional plans to ensure timely protection for koalas; b) Identify koala habitat in proposed new regional plans to ensure these areas are priority areas for action; c) Ensure that any koala habitat that is critical to the survival of koalas is declared as 'critical habitat' and designated 'red' – high environmental values. Proposed 'unacceptable impacts' should apply to critical koala habitat under new laws;

EDO Recommendation	Progress	Opportunity
		d) Develop a National Environmental Standard for koalas setting out specific requirements for activities that will have a significant impact on koalas, including restrictions on clearing koala habitat; e) Ensure all proposed National Environmental Standards are outcomesfocused and legally binding on all decisions and functions under the EPBC Act; and, f) More broadly, strengthen threatened species safeguards in both threat abatement and recovery planning, and assessment and determination processes.

3. Cumberland Plain Conservation Plan

The Cumberland Plain Conservation Plan (CPCP) is a strategic conservation plan guiding development and conservation in western Sydney. It is given legal effect by:

- A <u>Ministerial Order</u> conferring strategic biodiversity certification under the NSW Biodiversity Conservation Act 2016 (BC Act) (Certification Order);
- provisions of <u>Chapter 13 of State Environmental Planning Policy</u> (Biodiversity and Conservation) 2021 (Chapter 13, Biodiversity and Conservation SEPP), including development controls; and
- a <u>Ministerial Direction</u> issued under section 9.1(2) of the NSW Environmental Planning and Assessment Act 1979 (EP&A Act) that restricts the rezoning of land (Ministerial Direction).

SBKN's <u>State of Koalas in the Sydney Basin - First Annual Assessment</u> made a number of recommendations for improving protections for koalas via the CPCP (p 22-23). In mid-2023, the NSW Government indicated it <u>would look at increasing protections for koalas under the Plan</u>, and in March 2024 announced a suite of <u>CPCP enhancements</u> (but made no changes to the CPCP itself).

Specifically, the Government has committed to:

- 1. Publish a map of koala habitat and corridors in the region. This map will reflect the Office of the NSW Chief Scientist and Engineer's advice, and planning controls will be updated to ensure that land on the map is rezoned C2 Environment Conservation zone (or similar zone) at the planning proposal stage. Any re-zoning would only come into effect when a new planning proposal for relevant land is submitted to a consent authority for consideration.
- 2. Prepare koala fencing guidelines to provide clarity to landholders, developers and consent authorities on the best-practice design for koala exclusion fencing, including technical specifications and location.
- 3. Update planning controls to clarify that land avoided from development under the CPCP should be zoned C2 Environmental Conservation Zone (or similar) at the planning proposal stage.
- 4. Provide precinct planning level guidance about protecting native vegetation and the benefits of co-locating open space and parks with existing vegetation to reduce urban heat effects and support more liveable communities.
- 5. Fast-track the delivery of a new national park in the Gulguer area to provide an east-west connection for wildlife between Burragorang State Conservation Area and Gulguer Nature Reserve, including \$49 million to purchase private land for the first stage of the national park.

- 6. Protect around 60 hectares of critically endangered Cumberland Plain Woodland by committing an additional \$22 million to purchase biodiversity credits.
- 7. Protect small, isolated patches of high-value vegetation which would otherwise likely degrade over time through a \$31 million voluntary private land acquisition program in areas such as Orchard Hills and the Aerotropolis.
- 8. Commit \$2.5 million to start delivering the Caring for Country Aboriginal Outcomes Strategy including cultural burning and ranger program.

To the best of our knowledge many of the CPCP enhancements have not yet been implemented; for example, planning controls have not been updated and additional guidance and mapping has not been published, although the Government did consult on <u>Draft Guidelines for Koala Exclusion Fencing</u> and <u>Draft updated Mitigation Measures</u> in March-April 2025.

Table 1 outlines our previous recommendations for increasing protections for koalas under the CPCP (as set out in SBKN's <u>State of Koalas in the Sydney Basin - First Annual Assessment</u>), and explains how the CPCP enhancements respond to our recommendations and highlights areas of outstanding concern.

Table 1 - Outline of SBKN recommendation for strengthening the CPCP.

Previous recommendation	Government response	Outstanding concerns
1. Impose a moratorium The NSW Government should impose an immediate moratorium on approving any further planning proposals to rezone land or development applications for housing development in the CPCP Area, Wilton Growth Area, Greater Macarthur Growth Area and Greater Penrith Investigation Area until the NSW government crystallizes its plan to curb urban sprawl and protect koalas and other ecological communities.	The Government has not imposed a moratorium on approving any further planning proposals to rezone land or development applications.	A moratorium would still be appropriate while the Government implements its CPCP enhancements. Those enhancements are intended to guide the design of proposals, guide decision making and strengthen biodiversity outcomes, and are not yet in place. Allowing planning proposals and development applications to continue in the interim undermines the Government's intentions to increase protections for biodiversity.
2. Realign the CPCP with commitments to curb urban sprawl and save koalas from extinction. In particular, the NSW Government should: a) Ensure all areas of high biodiversity land are mapped as avoided land, not for development b) Protect habitat corridors and significant conservation lands c) Road crossings should be best practice	As part of its CPCP enhancements, the Government has committed to publish a map of koala habitat and corridors in the region (reflecting the Office of the NSW Chief Scientist and Engineer's advice) and update planning controls to ensure that land on the map is rezoned C2 Environment Conservation zone (or similar zone) at the planning proposal stage. This proposed new map has the potential to improve protection for koalas and must be implemented urgently. The announced CPCP enhancements made no commitments regarding road crossings.	We await further details on the planning controls and the legal mechanism to give legal protection to areas identified in the new map. Guidance provided under the CPCP enhancements could include guidance on the design of best practice road crossings.

Previous recommendation	Government response	Outstanding concerns
3. Zone Avoided Land to Environmental Conservation (C2) The draft exhibited CPCP proposed to zone avoided land as environmental conservation C2 to ensure its ongoing protection. This was deleted in the final CPCP (instead restrictions on rezoning and development controls apply to avoided land). The original proposal should be reinstated, with all avoided land (expanded as proposed above) being rezoned to C2.	This recommendation has been addressed as part of the announced CPCP enhancement. The Government has committed to update planning controls to clarify that land avoided from development under the CPCP should be zoned C2 Environmental Conservation Zone (or similar) at the planning proposal stage. However, to date, no changes have been made to planning controls.	To date, there have been no changes made to planning controls. We await further details on the planning controls and the legal mechanism to give legal protection to areas identified in the new map.
4. Deliver conservation reserves quicker While we welcomed the 2023/2024 budget announcement regarding dedicated funding to accelerate parts of the Georges River Koala National Park, we urge fast-tracking of other earmarked conservation reserves including those arising from the Gulguer Reserve Investigation Area and the Confluence Reserve Investigation Area. The proposed 15-20 year span is just an invitation to allow further damaging development and urban sprawl in the meantime, especially, as we understand, conservation reserves will be sourced from the strategic conservation area - which, although subject to some rezoning and development restrictions, are not off-limits to development.	As part of the CPCP enhancements, the Government committed to fast-track the delivery of a new national park in the Gulguer area to provide an east-west connection for wildlife between Burragorang State Conservation Area and Gulguer Nature Reserve, including \$49 million to purchase private land for the first stage of the national park. According to the Cumberland Plain Conservation Plan second annual update 1 July 2023 – 30 June 2024, 916 hectares has been transferred to National Parks and Wildlife Service for the Georges River Koala Reserve (970 hectares have now been transferred in total) (p 2). The Government is also engaging with landholders as part of its CPCP voluntary land purchase program (p 8).	We strongly encourage Government to continue to fast-track this important work.

Previous recommendation	Government response	Outstanding concerns
5. No translocation or exclusion of koalas a) Do not exclude koalas from existing koala corridors: Koala habitat is under threat but at the same time, in a generational event, the population is expanding naturally. It is perverse to have a conservation plan that excludes koalas from existing koala corridors. Rather than excluding koalas from koala habitat in Macarthur, Corridors C & D (especially Mallaty Creek) must be preserved and restored to an appropriate width as recommended by the Chief Scientist.	The proposed new map of koala habitat and corridors and planning controls to give effect to that map has the potential to improve protection for koalas and must be implemented urgently.	We await further details on the proposed new map of koala habitat and corridors and planning controls.
b) Do not use translocation to mitigate risks associated with development or land clearing: The CPCP proposes translocation of koalas to mitigate impacts of clearing. Translocation should not be used to mitigate risks associated with development or land clearing. This is the position taken in the current NSW Koala Translocation program.	The announced CPCP enhancements do not address translocation.	Translocation is still identified as a potential mitigation measure in the <u>Cumberland Plain Conservation Plan</u> , p 132.



Vehicle Strike and Koala Populations in the Sydney Basin Bioregion, Biolink Report



Vehicle Strike and Koala Populations in the Sydney Basin Bioregion

Annual Progress Report: February 2025

1. Summary

This report provides an update on the status of koala populations in the Sydney Basin Bioregion (hereafter referred to as 'the Sydney Basin'), following preceding annual reports which demonstrated a decline in koala populations across the region (Biolink 2023, Biolink 2024). To better understand the drivers of this decline we conducted a threats analysis with a focus on the impacts of vehicle strike. Vehicle strike has been identified as a major threat to koalas (OCSE 2016) and mitigation of vehicle strike is a stated priority of the current New South Wales (NSW) Koala Strategy (DPE 2022a). For this report, data on vehicle strikes was downloaded from publicly available databases, coded according to the year of occurrence and mapped across the Sydney Basin. Over the preceding koala generation, a period of 6 years (Phillips 2000) with the latest koala generation being 2019-2024, there have been 297 documented vehicle strikes on koalas in the Sydney Basin. The predominance of these records (79.80%; n=237) are mapped across four adjoining Local Government Areas (LGAs) in south-west Sydney, namely Campbelltown (n=110), Wollondilly (n=65), Sutherland (n=41) and Liverpool (n=21). The identified vehicle strike blackspot at the interface of Liverpool and Sutherland LGAs and vehicle strike blackspots in Campbelltown and Wollondilly LGAs are all increasing over time while concurrently being the subject of priority mitigation projects by the NSW Koala Strategy and Transport for NSW (TfNSW). Given that vehicle strike in these locations is persistent and increasing over time, measures of the success of mitigation works should be sought as they are not reflected in the available data. Vehicle strikes on koalas are known to be impacted by development pressures within the surrounding landscape (Dexter et al. 2024) making it imperative that mitigation is appropriately planned and implemented ahead of time to prevent localised extinctions. We caution that this is not reflected in the current practices of TfNSW.



1.1 Limitations

- 1. It is acknowledged that that the actual number of koalas hit by cars will be higher than is reflected in the data as not all vehicle strike on koalas is reported. As little as 50% are reported in some rural areas (Phillips and Fitzgerald 2014, Ecosure Biolink 2015).
- 2. There is a known lag in the entry of koala vehicle strike data into the Bionet and Atlas of Living Australia databases. Wildlife carers (e.g. Wildlife Information, Rescue and Education Service [WIRES]) are obligated to report to the NSW Department of Planning and Environment (DPE) annually at the end of each financial year. Data from July December of 2024 is likely to be incomplete at the time of this analysis.
- 3. Information on the mortality rates of koalas struck by vehicles was not available in the data set. The fate of koalas hit by vehicles is overwhelmingly negative with documented mortality rates 74% 92% in other areas (PSC 2002, Biolink 2023a, Biolink 2023b).
- 4. The Sydney Basin is the defined study area for this report and subsequently only the portions of LGAs that intersect the Sydney Basin are considered in depth in this report. We acknowledge that LGAs with partial overlap (e.g. Port Stephens) have higher levels of vehicle strike across the entirety of their LGA than is reflected in this report. Indeed while only 34 vehicle strikes on koalas have been recorded in the Sydney Basin portion of Port Stephens, LGA-wide there have been 532 vehicle strikes on koalas.
- 5. The number of wildlife sightings records tend to increase over time as the associated databases have moved into the public domain and invite contribution. While it is not possible to completely disentangle observer effects from the true incidence of vehicle strike on koalas we have limited discussion of increases in vehicle strike to the most recent koala generation (2019-2024), a period subsequent to the legal requirement for wildlife care organisations to report the location of koala vehicle strikes to the NSW government and to the release of the 'I Spy Koala' sightings App.

1.2 Key Findings

Vehicle strike represents a major threatening process to koalas across urbanised portions of the Sydney Basin. In at least two Focal Areas of study (Campbelltown/Wollondilly and Sutherland) vehicle strike is occurring at levels that may threaten the persistence of local populations. Current approaches to mitigation are ineffectual and can lack scientific basis with vehicle strike continuing to increase in areas where such measures are in place.

- There have been 581 recorded vehicle strikes on koalas across 27 LGAs in the Sydney Basin for the period 1962-2024. Two-hundred and ninety-seven (297) of these occurred within the most recent koala generation (2019-2024) across a subset of 18 LGAs.
- The highest recorded vehicle strike is in south-west Sydney (Campbelltown, Wollondilly, Sutherland and Liverpool LGAs) at the interface of urban development and areas of bushland.

- Vehicle strike of koalas should be understood in the context of the local population size. Data indicates that vehicle strike in Campbelltown has impacted ~37-62% of the population since 2019 (depending on the population size estimate), with vehicle strike increasing along Appin Road over the course of the most recent koala generation (2019-2024) (linear regression, R²=0.8349).
- Appin Road has been a known koala vehicle strike blackspot since at least 2017 and mitigation measures here are managed by Transport for NSW (TfNSW).
- Vehicle strike is similarly increasing over the course of the most recent koala generation (2019-2024) along Picton Road in Wollondilly LGA (R²=0.5307), despite being a priority area for koala vehicle strike mitigation by the NSW Koala Strategy. Vehicle strike is also increasing along Heathcote Road in Liverpool and Sutherland LGAs (R²=0.5278 and R²=0.5143 respectively), also priority areas for vehicle strike mitigation.
- Data evidencing increasing vehicle strike at known blackspot locations is at odds with NSW government reporting. The 2021-2022 annual report card for Koalas (NSW SoS 2022) reported "threat management is known to be on track at all sites". The stated action of the NSW Koala Strategy of fixing priority koala vehicle strike hotspots has been addressed by "18 best practice vehicle strike mitigation measures funded", though data on the effectiveness of any of these measures is not provided (DCCEEW 2024).
- Monitoring the local koala population before, during and after mitigation strategies are put in
 place is necessary to measure the success (or otherwise) of the project. Data strongly
 suggests that at locations where mitigation work has been enacted, it has not been effective.
 It is arguable that mitigation measures are not adhering to best-practice and may be
 exacerbating the problem by trapping koalas in the road corridor where they are vulnerable
 to vehicle strike in increased numbers.
- Findings and recommendations stemming from this report are applicable beyond the boundaries of the Sydney Basin and we restate the high levels of recorded vehicle strike on koalas across Port Stephens LGA (n=532).



2. Methods

2.1 Records Analysis

Koala sightings records were downloaded from BioNet and the Atlas of Living Australia (ALA) databases in January 2024 for the Sydney Basin. These two data sets were variously linked and/or displayed overlap. Once the extent of these relationships was determined (according to year and location within 11 m) and duplications were removed, a final data set of records were checked for the presence of radiotracking data (which can produce hundreds of records for a single animal) and spatial context. Radiotracking data was determined where the column "Sightingnote" in the attribute table had the name of the animal and/or "Collared as part of the Southern Highlands Koala Conservation Project" in the description. For radiotracking data, a single data point was used for each individual koala for each 2 km grid-cell in which that koala was present, to prevent swamping the data. The resulting data set was then partitioned chronologically to enable comparisons over time, placing weight on the concept of taxon-specific generation time to align with International Union for the Conservation of Nature considerations of the appropriate time-frame to assess endangerment (WCUSSC 1994). A period of six years is accepted as a single koala generation (Phillips 2000).

Records were identified as pertaining to a vehicle strike when they were classified as Observation Types 'R' or 'RI' in Bionet, which represent Road kill and Road injury respectively (L. Petit, DPE, pers comm)¹. Records that were classified under alternate Observation Types but that contained information in the Sightings Note column to indicate vehicle strike (e.g. Encounter broad: Collision; Encounter narrow: Collision Motor Vehicle) were also included. Records were partitioned chronologically and considered in context of the year of occurrence and whether they fell in the most recent koala generation (2019–2024).

3. Results and Discussion

3.1 Sydney Basin-wide

The first record of a vehicle strike on a koala in the Sydney Basin is dated to 1962, with subsequent records occurring sporadically across the 1960's and 1970's. Vehicle strikes were more consistently recorded in the 1980's, 1990's and 2000's and records increased substantively in number from 2010 onwards. The chronological distribution and associated number of these records is presented in **Figure 1**. In total there are 581 records of vehicle strikes on koalas across the Sydney Basin for the period 1962-2024, the spatial distribution of which which is shown in **Figure 2**. Two hundred and ninety-seven (297) of these records are from the most recent koala generation (2019-2024) with records increasing over this time period (Linear regression: R²=0.6244; data for most recent koala generation [2019-2024]) (**Figure 3**).

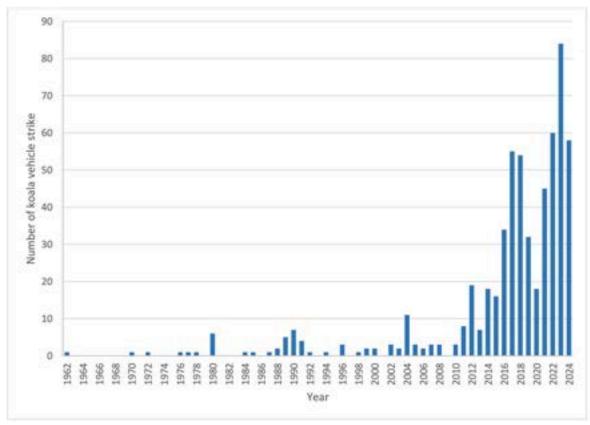


Figure 1. Histogram of recorded koala vehicle strike in the Sydney Basin over time, since the first such record in 1962.

Vehicle strikes were recorded in 27 of the 65 LGAs that intersect the Sydney Basin, with a subset of 18 of these LGA's recording vehicle strike in the most recent koala generation (2019-2024) (Table 1). The four LGA's with the highest vehicle strike in the most recent koala generation are Campbelltown (n=110), Wollondilly (n=65), Sutherland (n=41) and Liverpool (n=21), which collectively account for 79.80% of koala vehicle strike records for this time period. For consistency with previous reporting, vehicle strike will be considered in context of six previously identified Focal Areas; 1) Campbelltown/Wollondilly, 2) Liverpool, 3) Sutherland, 4) Wingecarribee, 5) Hawkesbury and 6) Cessnock/Lake Macquarie (see Biolink 2023c, 2024). These Focal Areas collectively support 87.26% of recorded vehicle strikes across the Sydney Basin since the time of first record to the present (1962-2024) and 93.27% of recorded vehicle strike in the most recent koala generation (2019-2024). We note that Port Stephens contributes an additional 5.84% (n=34) for the period 1962-2024 and 1.68% (n=5) for the period 2019-2024. As only ~25% of the LGA intersects with the Sydney Basin, with the predominance of vehicle strike falling outside the intersect area, this complicates a meaningful understanding of analyses. We therefore do not analyse vehicle strike in Port Stephens further in this report however we acknowledge that the LGA has on-going vehicle strike issues that need to be effectively managed by the Port Stephens Comprehensive Koala Plan of Management (PSC 2002) in collaboration with the NSW Koala Strategy.



Figure 2. Distribution of 581 koala vehicle strike records across the Sydney Basin (white boundary), with records from the most recent koala generation (2019-2024) shown as blue circles (n=297), generation 2 (2013-2018) as red circles (n=184), generation 3 (2007-2012) as green circles (n=36) and pre-2007 as white circles (n=64).

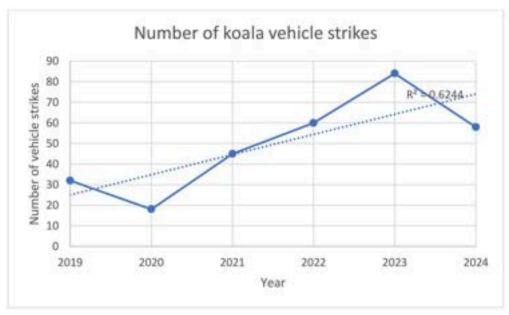


Figure 3. Recorded koala vehicle strikes across the Sydney Basin for the most recent koala generation (2019-2024). Linear regression shows that records are increasing over time (R^2 =0.6244). Note that records for 2024 may be incomplete (see Limitations sections of this report).

Table 1. Number of recorded koala vehicle strikes across LGAs that intersect the Sydney Basin since the inception of records and for the most recent koala generation (2019-2024). Note that some LGAs only partially intersect the Sydney Basin (indicated with *); in these cases the number of vehicle strikes LGA-wide is shown in brackets after the number for the Sydney Basin portion of that LGA.

Local Government Area	Koala vehicle strikes 1962-2024	Koala vehicle strikes 2019-2024
Blacktown City Council	1	
Blue Mountains City Council	3	
Campbelltown City Council	171	110
Canterbury-Bankstown Council	2	2
Central Coast Council	3	1
Cessnock City Council	11	7
Council of the City of Sydney	1	-
Cumberland Council	1	**
Dungog Shire Council*	1 (16)	- (4)
Fairfield City Council	2	2
Hawkesbury City Council	20	3
Lake Macquarie City Council	27	16
Lithgow City Council*	1(3)	1(1)
Liverpool City Council	28	21
Maitland City Council*	2 (3)	1(2)
Mid-Western Regional Council*	2 (5)	1(1)
Mosman Municipal Council	1	1
Muswellbrook Shire Council*	1(1)	1(1)
Northern Beaches Council	1	
Port Stephens Council*	34 (532)	5 (54)
Shellharbour City Council	1	
Shoalhaven City Council*	3 (3)	- (-)
Singleton Council*	2 (7)	-(1)
Sutherland Shire Council	61	41
Wingecarribee Shire Council*	47 (47)	14 (14)
Wollondilly Shire Council*	142 (142)	65 (65)
Wollongong City Council	12	5
Total	581	297

^{*} Indicates partial overlap of the LGA with the Sydney Basin. The number of recorded vehicle strikes on koalas for the entire LGA is shown in brackets after the number for the Sydney Basin intersect.

3.2 Campbelltown/Wollondilly Focal Area

Campbelltown and Wollondilly LGAs support the highest and second highest number of recorded vehicle strikes (n=171 and n=142 respectively) across the Sydney Basin; these LGAs collectively comprising one of the pre-defined Focal Areas for this study. Of these recorded vehicle strikes, n=110 and n=65 respectively are from the most recent koala generation (2019-2024). The spatial and temporal distribution of these records is shown in **Figure 4**.

The highest number of recorded vehicle strikes on any road within this Focal Area occurs on Appin Road, which stretches through both constituent LGAs, with 65 records in Campbelltown LGA and 30 in Wollondilly LGA. This includes three vehicle strikes on a short stretch of contiguous road which is named Bulli-Appin Road on the Wollondilly cadaster; TfNSW terminology for this road is B69 Appin Road and we therefore consider it part of Appin Road. Vehicle strike is persistent on Appin Road, spanning the period 2006–2024, and is increasing over time (Linear regression: R²=0.8249; data for most recent koala generation [2019-2024]) with a peak of 17 vehicles strikes in 2022, followed by 15 in 2023 and 17 again in 2024 (**Figure 5**). There are several concentrated areas of vehicle strike along Appin Road; since the first recorded vehicle strike in 2006 there are 17 records in ~900 m near Noorumba Reserve, 16 in the ~550 m stretch that runs adjacent to Beluah biobanking site and an additional seven in the ~450m directly south of this site, nine in a 500 m stretch near Mallaty Creek and 11 in ~1km at the southern end of Appin township.

Vehicle strike / km for the portion of Appin Road from Noorumba Reserve to Appin township for the most recent two koala generations (2013-2018 and 2019-2024) is displayed in **Figure 6**, demonstrating that blackspots have persisted for over a decade.



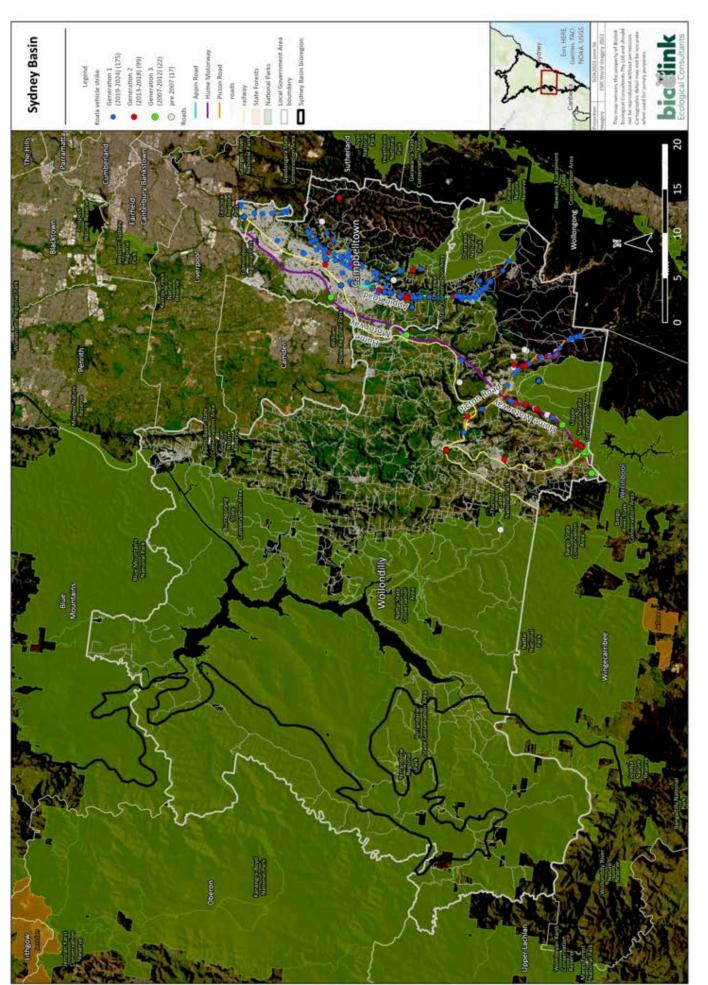


Figure 4. Distribution of 313 koala vehicle strike records across the Campbelltown and Wollondilly Local Government Areas with records from the most recent koala generation (2019-2024) shown as blue circles (n=175), generation 2 (2013-2018) as red circles (n=99), generation 3 (2007-2012) as green circles (n=22) and pre-2007 as white circles (n=17).

Three of the four areas with the highest concentration of vehicle strike on Appin Road (Noorumba Reserve, Beluah biobanking site and Mallaty Creek) correspond to the location of three recommended overpasses and associated wildlife exclusion fencing aimed to reduce vehicle strike and support east-west passage of koalas from the general area of the Wedderburn Plateau within the Georges River catchment to the adjoining Nepean River catchment (Biolink 2017, OSCE 2020). Underpasses are currently being pursued at two of these locations; Noorumba Reserve and Beluah biobanking site, in projects managed by TfNSW. No known action is being taken at Mallaty Creek. A third underpass is planned at Brians Road, a corridor location referred to in the Chief Scientist and Engineer's report (2020).

The effectiveness of the planned underpasses at Noorumba Reserve, the Beluah biobanking site and Brians Road have been challenged, based on the viability of underpasses leading to mostly cleared lands, not meeting best-practice standards for underpass size and fence-end management issues which may allow access to the road corridor (Phillips 2023). There is currently temporary construction fencing along portions of Appin Road, but no wildlife exclusion fencing at the time of writing this report.

South-west Sydney, and specifically the Greater MacArthur growth area which spans both Campbelltown and Wollondilly LGAs, has been subject to significant urban expansion over the preceding koala generation (2019-2024), particularly along Appin Road (**Figure 7**). At the time of writing this report, Appin Road is being widened from two to four lanes along with the construction of new intersections in a project funded by Lendlease / Stocklands as part of a planning agreement with DPE.

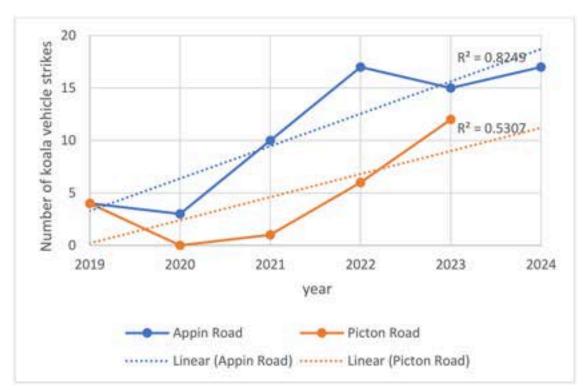
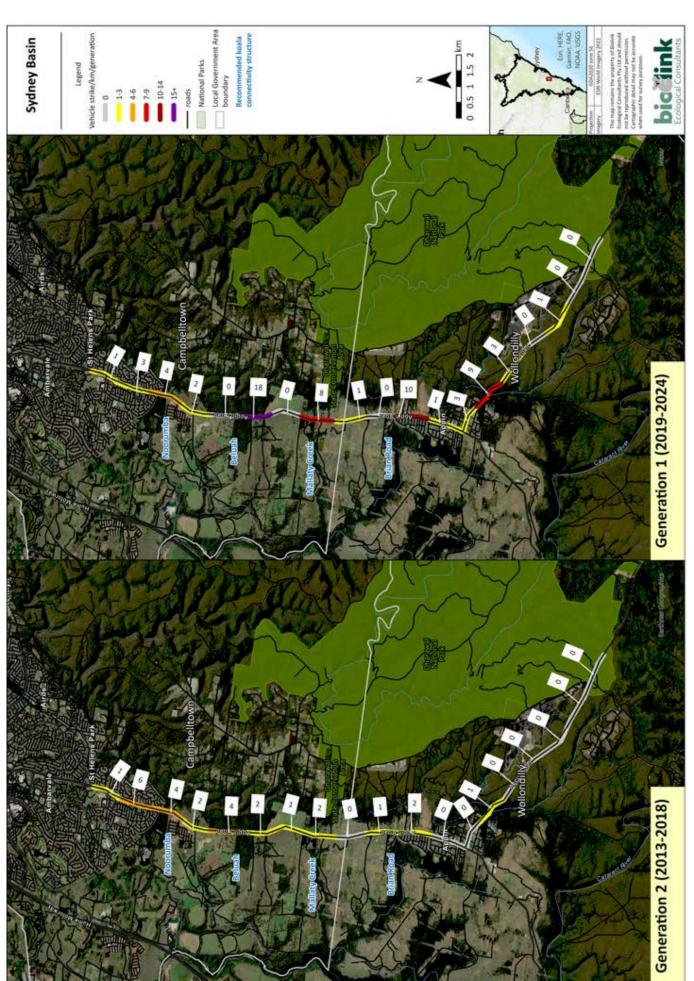


Figure 5. Recorded koala vehicle strike on Appin Road (spanning Campbelltown and Wollondilly LGAs) and Picton Road (Wollondilly LGA) for the most recent koala generation (2019-2024). Linear regressions show that records are increasing over time for both Appin Road (R²=0.8249) and Picton Road (R²=0.5307). Data for Picton Road from 2024 is not displayed as publicly available data for 2024 is confirmed to be inconsistent with other data held by DPE (WIRES perscomm).

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vehicle strikes during the most recent koala generation (2019-2024) shown in the image to the right, and generation 2 (2013-2018) shown in the Figure 6. The koala vehicle strike blackspot along Appin Road, spanning southern Campbelltown and northern Wollondilly LGAs, with recorded image to the left. The number of vehicle strike records km-1 generation-1 are colour coded with 1-3 in yellow, 4-6 in orange, 7-9 in red, 1-14 in purple and >15 in magenta. Note that the satellite imagery is from 2024 and does not reflect urban expansion over this period.

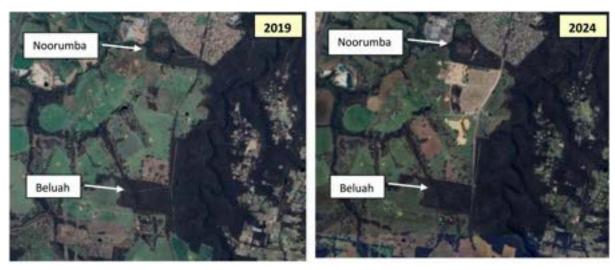


Figure 7. Google Earth imagery showing urban expansion along Appin Road over the preceding koala generation (2019-2024).

The road with the second highest number of vehicle strikes in this Focal Area is Picton Road (n=51). Picton Road is located in Wollondilly Shire (also Wollongong), with the majority of recorded vehicle strikes (n=44) occurring in a 9 km stretch south-east of Wilton. Vehicle strike is persistent here, spanning the period 1999–2024, and is increasing over time (Linear regression: R²=0.5307; data for the most recent koala generation [2019-2024]) with a peak of 12 vehicles strikes in 2023 (**Figure 5**).

A stated achievement of the 2018-2021 Koala Strategy was "installing fencing on Picton Road in south-west Sydney to protect koalas from vehicle strike" (DPE 2022a pg. 9). Fencing has been installed since 2019 though data has not been presented by the NSW government to determine its effectiveness. koalas can only be effectively excluded from the road corridor if fence-ends are correctly tied-off and entry nodes such as intersections and driveways are appropriately gridded (Phillips 2014). When the exclusion principal is not maintained koalas can become trapped in the road corridor where they are vulnerable to vehicle strike in larger numbers. Damage to the Picton Road fence² that allows entry to the road corridor also compromises the exclusion principle. Best practice mitigation of vehicle strike also requires that wildlife exclusion fencing is used in conjunction with connectivity structures to provide locations for safe movement opportunities (DES 2022). As such, exclusion fencing has the dual purpose of guiding koalas towards safe crossing points such as over/underpasses.

The road with the third highest number of vehicle strikes is the Hume Motorway (n=28) and occurs predominantly (n=25) where the motorway runs between the Upper Nepean State Conservation Area to the east and the rural / peri-urban areas of Bargo and Pheasants Nest to the west and is persistent with records starting in 1998.

Fencing is proposed to be enacted in December 2024 for the Hume Highway, with ~420m of fencing near Moolgan Creek Bridge and ~1.4km of fencing at the intersection with Picton Road (TfNSW 2024). There are no known modifications in the form of over/underpasses associated with these fences which rely on the suitability of existing crossing under the road (TfNSW 2024).

There are several smaller areas of vehicle strike through-out suburban Campbelltown, the most notable of which are; Ben Lomond Road (n=9), Junction Road (n=6), Georges River Road (n=6), Railway Parade (n=6), Wedderburn Road (n=4), Hansens Road (n=4), Cambridge Avenue (n=4) and Wills Road (n=3), the remaining vehicle strikes records being less geographically concentrated.

The Campbelltown koala population was estimated at 236 ± 60 koalas based on field survey, current to 2019 (Biolink 2021a). A somewhat higher population estimate of 600 koalas was proposed based on measures of genetic diversity³ (McLennan et al. 2025). Field-based population estimates are considered more reliable than those based on genetic modelling and we therefore use the 236 ± 60 population estimate in this report. Considering only the area for which local population data exists (Campbelltown LGA), the 110 vehicle strikes recorded across this LGA over the preceding six years (2019-2024) could represent 37-62% of the local population (from a population of 236 ± 60 koalas). Mindful that not every recorded vehicle strike is a fatality (see Limitations section of this report), fatality rates of 74-92% koalas struck by vehicles in other locations (PSC 2002, Biolink 2023a, Biolink 2023b) implies that mortality is likely to be high. Previously enacted Population Viability Analysis (PVA) for koala populations in south-east Queensland predicted that anthropogenically driven / incidental mortality of >3% annually has negative population-wide impacts resulting in decline (Biolink 2023b). Considering the number of reported vehicle strikes on koalas across Campbelltown for the most recent koala generation (2019 n=6; 2020 n=7; 2021 n=19; 2022 n=26; 2023 n=29; 2024 n=23) these figures exceed the 3% threshold for every year in context of the lower end of the population estimate (176 koalas) and exceed the threshold for the years 2021-2024 in context of the higher end of the population estimate (296 koalas).

Even considering the highest available population estimate of 600 koalas, the 3% threshold is exceeded for the years 2021-2024.

There is no current population estimate for koalas across Wollondilly LGA against which the current rate of vehicle strike can be assessed, though it is arguable that the recorded vehicle strike of 65 koalas over the preceding koala generation (2019-2024) presents a substantive threat.



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3.3 Liverpool Focal Area

There are 28 recorded koala vehicle strikes across Liverpool LGA, the majority of which (n=21) are from the most recent koala generation (2019-2024). The spatial and temporal distribution of these records is shown in **Figure 8.** The largest number of recorded vehicle strikes on any given road occurs on Heathcote Road (n=18) where it is persistent, spanning the period 2011–2024, and is increasing over time (Linear regression: R²=0.5278; data for most recent koala generation [2019-2024]) (**Figure 9**). In relation to Heathcote Road, 12 records are concentrated in a ~450 m stretch near Deadmans Creek bridge where Heathcote Road enters Sutherland Shire. Another four records are concentrated within ~250m near the intersection of Heathcote Road and Alec Campbell Drive. The remainder of records are distributed across the east of the LGA with one each on Moorebank Avenue, Campbelltown Road, Beale Street, Delfin Drive, Corryton Court, Cambridge Avenue and four more on small, unnamed roads, none of which support more than one record.

Heathcote Road at Deadmans Creek is identified as a priority area for vehicle strike mitigation works by the NSW Koala Strategy (DCCEEW 2024). It is subject to a proposal by TfNSW to install fencing as a mitigation measure, based on vehicle strike data up to 2021 (WSP 2021, TfNSW 2024). This proposal does not address fence-end issues, relies on the current condition of Holsworthy Military Base fencing, includes escape devices with no documented efficacy and provides no data on baseline koala occupancy against which the success of the project could be measured (WSP 2021, TfNSW 2024).

Foundational data on the status of the Liverpool koala population indicates a substantive increase in the extent of koala occupancy across the LGA since 2002 with koalas expanding out of Campbelltown and colonizing the Georges River (Biolink 2021b). There are no population estimates for the Liverpool LGA though current levels of vehicle strike should be understood in the context of an expanding population with a vehicle strike blackspot occurring in this area of expansion.

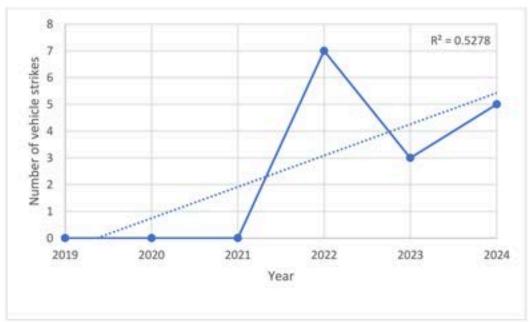


Figure 9. Recorded koala vehicle strike on Heathcote Road (Liverpool LGA) for the most recent koala generation (2019-2024). Linear regressions show that records are increasing over time (R^2 =0.5278). Note that records for 2024 may be incomplete (see Limitations sections of this report).

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Figure 8. Distribution of 28 koala vehicle strike records across the Liverpool Local Government Areas with records from the most recent koala generation (2019-2024) shown as blue circles (n=21), generation 2 (2013-2018) as red circles (n=6), generation 3 (2007-2012) as green circles (n=1) and pre-2007 as white circles (no records).

3.4 Sutherland Focal Area

There are 61 recorded koala vehicle strikes across Sutherland Shire, the majority of which (n=41) are from the most recent koala generation (2019-2024). The spatial and temporal distribution of these records is shown in **Figure 10**. The largest number of recorded vehicle strikes on any given road occurs on Heathcote Road (n=29) where vehicle strike is persistent, with records spanning 2004-2024, and increasing (Linear regression: R²=0.5143; data for most recent koala generation [2019-2024]) (**Figure 11**).

A ~150 m stretch of Heathcote Road in the vicinity of Heathcote Road Bridge over the Woronora River has five recorded vehicle strikes along this distance; one in 2010, 2018 and 2022 and two in 2023. There are four records on Heathcote Road in the ~130 m south of Deadmans Creek bridge where the road enters Liverpool LGA; one from 2022, two from 2023 and one from 2024. Seventeen (17) of the remaining 20 records occur along the ~10 km stretch of Heathcote between these two bridges, the majority of which (n=14) are from the most recent koala generation (2019-2024).

Heathcote Road at Deadmans Creek is identified as a priority area for vehicle strike mitigation works by the NSW Koala Strategy (DCCEEW 2024), as described in Section 4.3 of this report (Liverpool Focal Area). In relation to the blackspot near Heathcote Road Bridge over the Woronora River, the NSW Koala Strategy 2022-2023 Annual Report states a commitment to "protect the Woronora wildlife corridor near Heathcote" (DPE 2024, pg. 7). This commitment is also stated in the Review of the NSW Koala Strategy (DCCEEW 2024, pg. 6). An upgrade of the Heathcote Road bridge over the Woronora River was completed mid-2023; the informing report to this upgrade stating that "the vegetation in these areas....was not found to provide habitat for koalas" (TfNSW 2022, pg. vii). This is inconsistent with koala sightings records and the NSW Koala Strategy (DPE 2022). Details of wildlife exclusion fencing and / or koala connectivity structures are not provided in the aforementioned report.

Of the 32 remaining vehicle strike records which are not located on Heathcote Road there are recorded vehicle strikes located on the Princes Highway (n=9), St Georges Crescent (n=7), New Illawarra Road (n=3), Old Illawarra Road (n=2), Eckersley Road (n=2), one each on Sir Bertram Stevens Road, Easton Avenue, Prince Edward Park Road, Lorikeet Close, Lantana Road and at Benedict Sands Quarry and three more on small, unnamed roads through-out the LGA.





Figure 10. Distribution of 61 koala vehicle strike records across the Sutherland Local Government Areas with records from the most recent koala generation (2019-2024) shown as blue circles (n=41), generation 2 (2013-2018) as red circles (n=16), generation 3 (2007-2012) as green circles (n=2) and pre-2007 as white circles (n=2).

Sightings records indicate koala occupancy of Sutherland Shire from Barden Ridge to Loftus, Woronora, Heathcote and Engadine and in the adjoining National Parks of Heathcote and Royal (Biolink 2023c). Genetic analysis of these koalas confirms that they are connected to the expanding south-west Sydney population centered on Campbelltown (C. Hogg pers. comm.). While there are no definitive population estimates for the LGA, available evidence from citizen scientists (Anyon-Smith and Kristensen 2021) suggests that it is relatively small; Sutherland Shire Council proposes ~140 koalas (https://www.sutherlandshire.nsw.gov.au/your-environment/native-wildlife/koalas). Rates of vehicle strike should be understood in this context; the 41 recorded vehicle strikes over the most recent koala generation represents ~30% of the local population if Council estimates are correct.

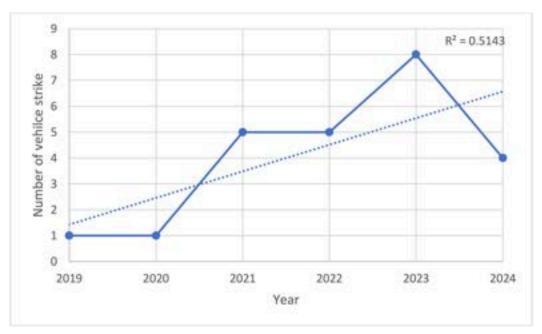


Figure 11. Recorded koala vehicle strike on Heathcote Road for the most recent koala generation (2019-2024). Linear regressions show that records are increasing over time (R²=0.5143). Note that records for 2024 may be incomplete (see Limitations sections of this report).

3.5 Wingecarribee Focal Area

There are 47 recorded vehicle strikes across Wingecarribee LGA, 14 of which are from the most recent koala generation (2019-2024). The spatial and temporal distribution of these records is shown in **Figure 12.** The largest number of recorded vehicle strikes occurs along the Hume Motorway (n=31) where vehicle strike is persistent and on-going (records dating from 2000-2024). The majority of records are concentrated in the northern portion of the Hume Motorway, with 74.19% (n=23) of records in the northernmost ~14 km of this road, west of Yerrinbool. Within this area the highest concentration of vehicle strike records occurs within a ~670 m stretch of the Hume Motorway (~1.5 km north of the intersection with the Old Hume Highway) which accounts for nine recorded vehicle strikes. The remainder of records are distributed across the LGA with three on the Old Hume Highway and one each on Tourist Road, Old South Road, Church Avenue, Yarrawa Road, Mittagong Road, Oxley Drive, Tugalong Road, Nattai Street and Braemar Avenue and four more on small, unnamed roads, none of which support more than one record.

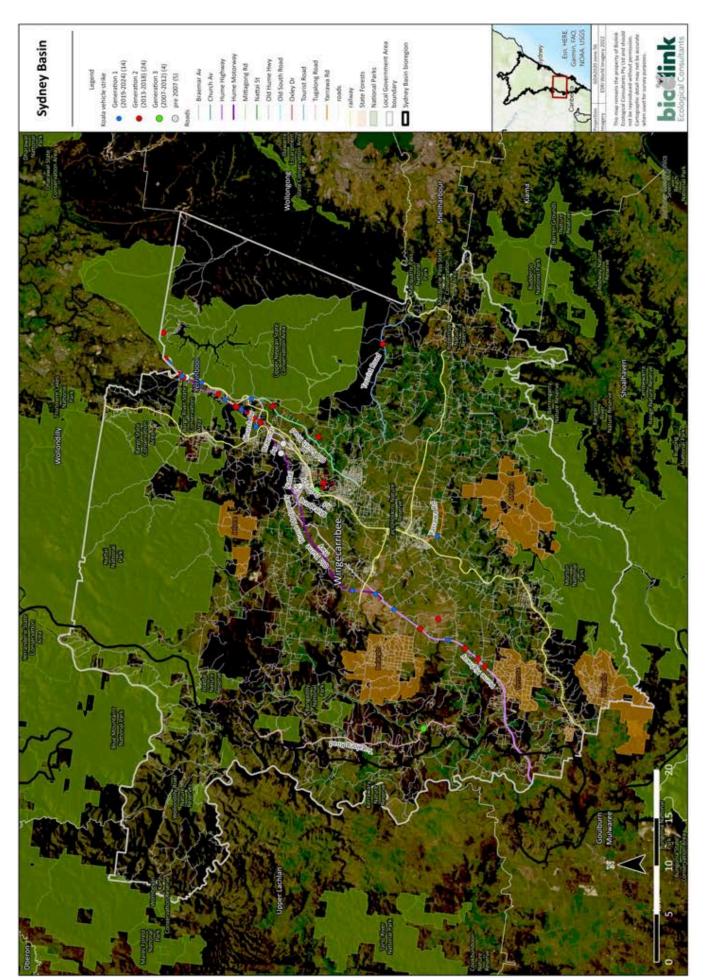


Figure 12. Distribution of 47 koala vehicle strike records across the Wingecarribee Local Government Areas with records from the most recent koala generation (2019-2024) shown as blue circles (n=14), generation 2 (2013-2018) as red circles (n=24), generation 3 (2007-2012) as green circles (n=4) and pre-2007 as white circles (n=5).

3.6 Hawkesbury Focal Area

There are 20 recorded vehicle strikes across Hawkesbury LGA, three of which are from the most recent koala generation (2019-2024). The spatial and temporal distribution of these records is shown in **Figure 13.** The road with the most recorded vehicle strikes is Putty Road (n=6) followed by Bells Line of Road (n=5). Vehicle strike is persistent and on-going on both roads with records dating from 2013-2023 and 1996-2020 respectively. There are isolated vehicle strikes (all n=1) on McDougall Drive, Comleroy Road, Kurmond Road, Wilberforce Road, Browns Road and Mountain Lagoon Road and a further four recorded strikes on small, unnamed roads.





Figure 13. Distribution of 20 koala vehicle strike records across the Hawkesbury Local Government Area with records from the most recent koala generation (2019-2024) shown as blue circles (n=3), generation 2 (2013-2018) as red circles (n=12), generation 3 (2007-2012) as green circles (n=2) and pre-2007 as white circles (n=3).

3.7 Cessnock/Lake Macquarie Focal Area

There are 27 recorded vehicle strikes across Lake Macquarie LGA and 11 across Cessnock LGA, the majority of which (16 and 7 respectively) are from the most recent koala generation (2019-2024). The spatial and temporal distribution of these records is shown in **Figure 14**. The road with the largest number of recorded vehicle strikes is the Sydney Newcastle Freeway (n=12) (Lake Macquarie LGA) where vehicle strike is persistent, on-going (records dating from 2017-2024) and increasing (Linear regression: R²=0.6857) (**Figure 15**). Additional recorded vehicle strikes are located on Freemans Drive (n=5) (Lake Macquarie LGA) and the adjoining Leggetts Drive (n=1) (Cessnock LGA), both located on the western side of the Newcastle Freeway. Further to the west in Cessnock LGA there are isolated vehicle strikes (all n=1) on Lake Road, John Renshaw Drive, Aberdare Street, Hanwood Road, Mount View Road, Great North Road and a further four recorded strikes on small, unnamed roads throughout Cessnock. On the eastern side of the Newcastle Freeway (Lake Macquarie LGA), there are isolated vehicle strikes (all n=1) on McCanns Road, Constitution Drive and Mount Waring Road and a further seven recorded strikes on small unnamed roads through-out Lake Macquarie.

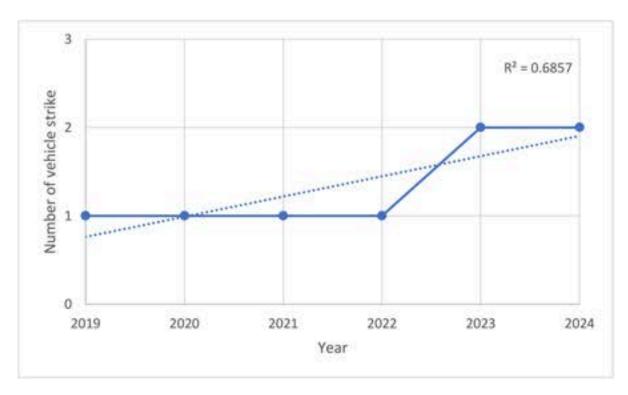


Figure 15. Recorded koala vehicle strike on the Newcastle Freeway for the most recent koala generation (2019-2024). Linear regressions show that records are increasing over time (R^2 =0.6857). Note that records for 2024 may be incomplete (see Limitations sections of this report).

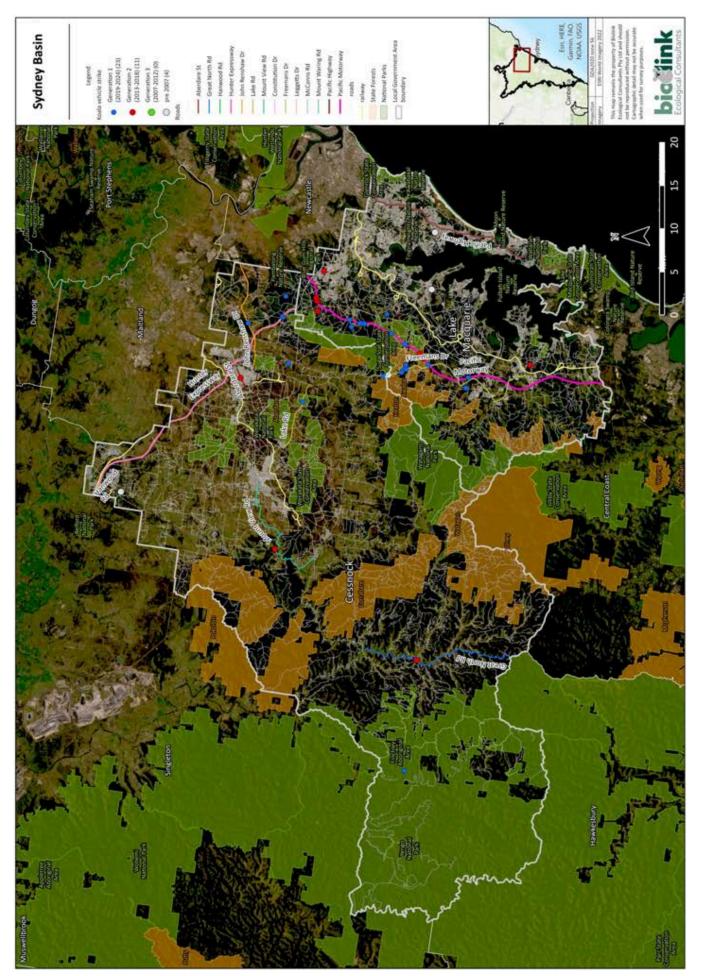


Figure 14. Distribution of 38 koala vehicle strike records across the Cessnock and Lake Macquarie Local Government Areas with records from the most recent koala generation (2019-2024) shown as blue circles (n=23), generation 2 (2013-2018) as red circles (n=11), generation 3 (2007-2012) as green circles (none present) and pre-2007 as white circles (n=4).

4. Conclusions and Recommendations

Publicly available records indicate that koalas inhabiting urbanised parts of the Sydney Basin have been increasingly impacted by vehicle strike over the most recent koala generation (2019-2024). Vehicle strike on koalas should be understood in the context of existing population size estimates and the low carrying capacity landscape in which they exist (Campbelltown koala population density ~0.07 koala ha-1; Biolink 2021). Given the proximity of recent urban expansion projects to known koala populations there is a need to build resilience into these peri-urban populations by protecting and maintaining viable linkages of adequate size and associated habitat patches. The threat posed by vehicle strike to koalas across the Sydney Basin is acknowledged by the NSW Koala Strategy and 18 priority areas for vehicle strike mitigation have ostensibly been funded across the state (DCCEEW 2024), though data on the efficacy of these projects has not been provided. Conservation funds are limited making it imperative that the effectiveness of funded projects be evaluated, to promote scientifically informed best practice approaches. Understanding factors that contribute to ongoing vehicle strike in areas where ameliorative measures have been installed provides a means of improving outcomes. We identify five matters where best practice may not be aligned with current practice in terms of mitigating vehicle strike across the Sydney Basin: 1) Fencing, 2) Connectivity structures, 3) Signage, 4) Implementation schedules and 5) Monitoring.

4.1 Fencing / enforcing the exclusion principal

To exclude koalas and other wildlife from the road corridor it is necessary that fences end at locations with natural (or enforced) barriers to movement. If fences end in contiguous bushland or an area with no hard barrier in place, koalas can enter the road corridor where the fencing ends and potentially become trapped inside. To the best of our knowledge at the time of writing this report, wildlife exclusion fences ending in areas of bushland are proposed as part of the Koala Fencing on Heathcote Road at Deadmans Creek (TfNSW 2024b).

There are further challenges in enforcing the exclusion principal with fencing at intersections and driveways. This has been addressed in previous successful road upgrades via the use of koala grids, their efficacy having been shown during a 5-year monitoring program (Biolink 2004-2009) among other projects (Phillips and Fitzgerald 2014). To the best of our knowledge at the time of writing this report, un-gridded driveways and service roads are proposed as part of the Appin Road upgrade (TfNSW 2022b) and Koala Fencing on Heathcote Road at Deadmans Creek (TfNSW 2024b).

The capital investment represented by fencing is substantive and the maintenance of this material asset is a key component in its ability to function at peak efficiency. The documented breaches in the Picton Road fence (breaches present 2023 and again November 2024 – current, with associated koala vehicle strikes; WIRES pers. comm. and media reporting⁴) indicates that the present maintenance regime is ineffective and needs to occur at greater frequency. This should include a rapid response to information on breaches provided by the local community and to weather events.

4.2 Connectivity structures

Data compiled by Phillips (2023) from publicly available reports on the <u>TfNSW website</u> (www.pacifichighway.nsw.gov.au/document-library?date_from=&date_to=&keyword=koala), a scientific publication (Goldingay et al. 2022), Council reports (Biolink 2004-2009) and other reports (AKF 1998), demonstrates that in cases with documented underpass use by koalas there is a positive relationship between the under-road traverse distance and underpass size (height and width; H x W). In brief, longer under-road traverses occur when underpass size is large (**Figure 16**). To this end, there is a disparity between theoretical best practice (as indicated by the trendline in **Figure 16**) and what is proposed for connectivity structures in Campbelltown LGA as part of the Appin Road upgrade, which all fall below minimum values that the available data supports (as indicated by intersecting red lines in **Figure 16**).

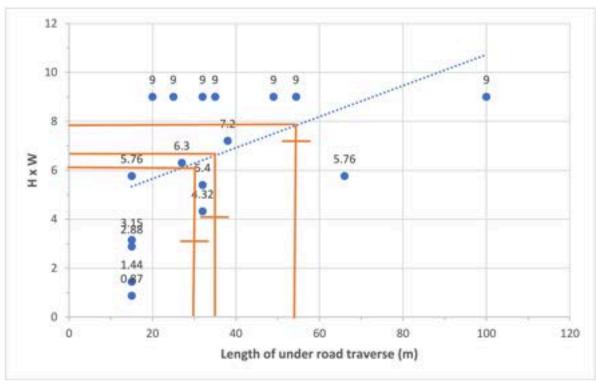


Figure 16. Modified from Figure 2 in Phillips (2023), updated with new proposed underpass dimensions as in TfNSW (2024c). Scatterplot and associated trendline (dotted line) illustrating the relationship between the standarised structure dimensions at headwall (Height x Width or π (D/2)2) and the length of under-road structures known to have been successfully used by koalas. Adopting the trendline (dotted line) as indicative of a minimum guideline to best practice, the intersecting horizontal and vertical red lines (left to right) appropriate Height x Width values for underpass structures at Browns Bush, Brian Road and Noorumbah – Glen Lorne respectively.

The proposed use of round pipes for at least one Appin Road underpass should acknowledge that round pipes frequently use fill as a substrate to provide a level surface for koalas to walk on, further reducing the opening dimensions. Round pipes also do not offer the same exposure interface at the headwall than do culverts of similar dimensions. Round pipes (<1 m diameter) are proposed for koala crossings as part of the Heathcote Road upgrade at Deadmans Creek (TfNSW 2024b). TfNSW should apply minimum specifications relating to underpasses and other fauna structures and consider size / exposure differences between round pipes and box-culverts.

The proposed opening of the underpass at Noorumba is situated in mostly cleared lands, beyond the southern boundary of the vegetated corridor. Vegetated habitat linkages should be retained or established by securing or enhancing habitat on either side of the road crossing structure to encourage use (DES 2022).

Best practice road crossing infrastructure is achieved with overpasses (land bridges / fauna arches), covered in natural substrate and vegetation to connect habitat on either side of a road (DES 2022). Such structures have been in place for upwards of a decade in various locations across NSW and have been repeatedly recommended for Appin Road (e.g. Biolink 2017, OCSE 2020, Phillips 2023).

4.3 Implementation schedule

Koala vehicle strike hotspots are known to correlate with urban expansion projects (Dexter et al. 2024) and wildlife movement solutions, around and across roads, must be appropriately planned and implemented ahead of development projects if they are to provide effective mitigation for local koala populations. To avoid the high levels of koala vehicle strike which are currently experienced on Appin Road, measures such as exclusion fencing and the implementation of effective connectivity structures should have been enacted at the start of urban development expansion and the associated upgrade of Appin Road. If permanent safe crossings cannot be implemented ahead of time, then other measures should be taken to effectively exclude koalas and other wildlife from the road corridor during urban expansion / road upgrade, until more permanent solutions can be achieved. Koala habitat adjacent to Appin Road was cleared for urban development before effective vehicle strike mitigation measures have been established, as reflected in the NSW governments own data (Bionet). This clearing may have resulted in the forced dispersal of koalas from their home ranges, potentially pushing them onto the road in higher numbers, exacerbating a known vehicle strike blackspot. Urban expansion projects planned in areas running through koala habitat must take effective action to prevent the death and injury of koalas on roads - the methods to do so exist and are known to planners and government agencies. Information should be sought from TfNSW as to why there is still no effective vehicle strike mitigation in place on Appin Road and why the measures which are being proposed are not those which have repeatedly been recommended by koala ecologists (Biolink 2017, Phillips 2023) and the Office of the Chief Scientist and Engineer (OSCE 2020). Further, wildlife exclusion fencing and associated connectivity structures should be considered when road upgrades through koala habitat are proposed as a more economical approach than retrofitting such structures at a later time.

4.4 Signage

Signage is among the most frequently used mitigation measures for addressing wildlife vehicle strike (Huijser et al. 2015) perhaps in part due to the lower cost when compared to other measures such as exclusion fencing and underpasses (Sandpiper 2019). Given its widespread use, it is imperative that the effectiveness of this approach be considered. A koala speed-zone trial in Redlands, Queensland, found that differential speed signs did not significantly reduce vehicle speeds or the number of koalas hit by vehicles (Dique et al. 2003). Conversely, a reduction in koala mortality was documented on Phillips Island in Victoria after speed limits were reduced and signs were erected, though this finding was confounded by a concurrent reduction in the koala population size at this location (Martin and Handasyne 1999).

The effectiveness of speed reduction as a means of reducing wildlife mortality broadly has been demonstrated (reviewed in Glister et al. 2009) and a relationship between mortality rates in koalas hit in areas of high speed versus lower speed has also been demonstrated (Biolink 2023a). A study of koala vehicle strike blackspots in Lismore in northern NSW revealed that the vehicle strike blackspot with the lowest speed limit (60kmph) had the highest proportion of koalas being successfully treated and subsequently released after a vehicle strike (83.33%; n=5/6). This survival rate far exceeded that of blackspot areas with higher speed limits e.g. 17.86% (n=5/28) treated and released at 80kmph and 7.41% (n=2/27) treated and released at 100kmph (Biolink 2023a). In humans there is a strong relationship between vehicle speed and the probability of a pedestrian fatality; a broad scale analysis revealing that 59kmph is the threshold for the risk of a pedestrian fatality exceeding 50% (Hussain et al 2019). It is likely that koalas, much like humans, have a low threshold for impact speed when it comes to surviving vehicle-strike. High vehicle speed also makes it more difficult for vehicles to stop and thereby avoid a vehicle strike completely.

The NSW Koala Strategy funded a project investigating the effectiveness of roadside signage at reducing koala vehicle strike at specific locations in northern NSW, with a focus on variable messaging signage and vehicle activated signage (Biolink 2023a). The data did not support either type of signage as being effective at reducing koala vehicle strike or of impacting driver behaviour by lowering average traffic speeds or the percentage of vehicles travelling over the prescribed speed limit.

We recommend that signage is not considered an effective mitigation approach unless paired with an enforced speed limit reduction or the use of traffic calming devices such as speed humps; there is not data to support the notion that signage alone will impact either driver behaviour or koala mortality. Speed limit reductions are not realistic for all scenarios including major roads with high speed limits. In these cases, signage should not be proposed as an effective approach to vehicle strike mitigation – koalas must be excluded from the road corridor via fencing and the implementation of associated connectivity structures (under/overpasses).

4.5 Monitoring and reporting (project accountability)

Reductions in recorded vehicle strikes do not equate with the success of a mitigation project unless informed by other monitoring data to indicate that koalas are still utilising the area; reductions in vehicle strike may also be due to a decline in the local koala population unless otherwise controlled for. The monitoring work typically undertaken in association with vehicle strike mitigation projects is not capable (beyond speculation) of reliably establishing occupancy by koalas (i.e. presence and density of resident animals) either side of roads / connectivity structures.

We recommend that TfNSW prepare minimum survey guidelines for koalas pre, during and post implementation of vehicle strike mitigation projects to evaluate their success. This should include field survey and an analysis of historical records across time frames of relevance to koala conservation.

Data should be sought from the NSW government on the effectiveness of the 18 funded vehicle strike mitigation projects that have formed part of the NSW Koala Strategy to date (DPE 2022a, DCCEEW 2024). If conservation funding is to be used effectively it must include an objective examination of project success, which in this case would be a reduction in koala vehicle strike at the location of funded mitigation works, in the context of survey data demonstrating no associated decline in the local koala population. Project outcomes should also be used to inform future funding i.e. not continuing to deploy signage, especially in areas of high traffic speeds, in lieu of approaches with demonstrably higher efficacy.

The failure of recent projects to ameliorate koala vehicle strike in known blackspot areas highlights the need for such projects to be based in scientifically informed best-practice and an adaptive management framework which uses, and is responsive to, monitoring. The current report is timely; the proposal for koala fencing at Deadmans Creek on Heathcote Road uses methods which are demonstrably sub-standard, including fences which do not support the exclusion principal, underpasses which may not be fit-for-purpose and a lack of effective monitoring (WSP 2021, TfNSW 2024b). Meanwhile, the death toll of koalas on Sydney roads continues to rise.

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