WILDLIFE
INFORMATION
RESCUE AND
EDUCATION
SERVICE

# Submission:
# Reviewing the NSW Koala Strategy

24 May 2024

**Submitted to:**
NSW Koala Strategy Review
Department of Climate Change, Energy, the Environment and Water
Locked Bag 5022
Parramatta NSW 2124

email: koalasummit@environment.nsw.gov.au

## Executive Summary

Reviewing the NSW Koala Strategy presents an opportunity to do more, and do it better. To protect habitat and connectivity, and to improve outcomes for koalas and the communities who care about them.

The volunteer wildlife rescue and rehabilitation sector has two overarching aims to ensure koalas can survive and thrive in NSW: (1) reducing the likelihood and number of koalas requiring rescue and rehabilitation, and (2) ensuring that any koala requiring rescue and rehabilitation receives appropriate care. With effective government support, both are possible.

An effective and enforceable Koala Strategy can provide a cornerstone to facilitate these aims. Key threatening processes including habitat destruction, roads, climate change and disease must be addressed. An updated NSW government response must be focussed on measurable outcomes, and not primarily action based.

Increased government intervention is critical to ensure the protection of present and potential koala habitat and connectivity across public and privately-held land.

Addressing key threats will incorporate elements across each of the four pillars outlined in the Discussion Paper. Habitat protection and restoration of connectivity requires working with communities, including valuable partnerships with First Nations, to continue to develop our knowledge and understanding of koalas and their habitat.

Support for the volunteer wildlife rescue and rehabilitation sector, including the co-funding of facilities to provide appropriate care, is an essential element of working with communities to ensure koalas to survive and thrive in NSW.

# Contents


Executive Summary .......... 2
About WIRES .......... 5
Introduction .......... 6
  Structure of this submission .......... 7
The current NSW Koala Strategy .......... 8
  Historical population .......... 10
  Habitat protection and connectivity .......... 10
  Disease .......... 11
  Providing appropriate care .......... 12
  Outcomes over actions .......... 12
Prioritising koala populations .......... 13
The importance of Aboriginal ecological knowledge to koala conservation .......... 15
Addressing the impacts of climate change .......... 17
Pillar 1: Koala habitat conservation .......... 19
  Announced National Park along the Georges River; east-west connectivity .......... 20
  Protecting and restoring habitat corridors .......... 20
  Supporting local councils .......... 22
  Expanded Voluntary Planning Agreements (VPAs) .......... 22
Pillar 2: Supporting local communities to conserve koalas .......... 24
  Targeted support to address local threats .......... 25
  Land acquisition .......... 25
  Co-funded 24/7 facilities .......... 26
Pillar 3: Improving the safety and health of koalas .......... 27
  Worlds-best land bridges and overpasses as BAU .......... 28
  Linked land bridges with, and as, habitat .......... 30
  Translocation as a last resort .......... 31
  Bushfire, prescribed and cultural burning .......... 31
  Emergency planning, preparedness and response .......... 32

Pillar 4: Building our knowledge of koalas ........ 34
Effective and available data to inform decision making ........ 34
Further support for peer-reviewed research........ 35
Supporting the wildlife carer sector ........ 36
Tackling disease in koalas........ 37
Conclusion: change is need to ensure koalas can survive and thrive in NSW ........ 39

## About WIRES

WIRES is Australia's largest wildlife rescue organisation, and operates a dedicated Wildlife Rescue Office assisting wildlife and the community across Australia 24-hours a day, 365 days a year, providing rescue advice and assistance for over 130,000 animals annually — including 862 koalas in 2023. We have around 4,000 dedicated volunteers as well as a fleet of Wildlife Ambulances operated by full-time, professional Emergency Responders across NSW, South-East Queensland and Tasmania. These ambulances travel, on average, 43,000 kms per year and have responded to more than 17,000 rescues since October 2020.

In addition, WIRES trains hundreds of rescuers and carers annually, are dedicated to the ongoing recruitment of new volunteers and the continued training of existing volunteers. This growing network is critical for the rescue and rehabilitation of our unique native wildlife. In 2021/22 WIRES responded to 70% of all wildlife rescues in NSW. Across NSW the volunteer contribution is estimated to save the government approximately $27 million per annum and is growing.[1]

WIRES has developed partnerships and programs and provides forward-thinking national support to hundreds of projects which aim to see listed species' populations increase though protection efforts. Since the 2019-2020 summer bushfires, we have had an increasing focus on supporting projects that protect and restore threatened habitats and provide for the long-term recovery of wildlife habitat and the preservation of native species in the wild.

[1] Department of Planning, Industry and Environment (2020). *NSW Volunteer Wildlife Rehabilitation Sector Strategy 2020-2023*, NSW Government.

## Introduction

NSW Wildlife Information and Rescue Service Inc (WIRES) welcomes the opportunity to provide a submission to the review of the NSW Koala Strategy.

Upgrading the status of koalas from vulnerable to endangered in 2022 (under both NSW and Commonwealth laws) reflects the varied and interconnected threats koalas face — and how they are valued by the community. Much more needs to be done to ensure koalas can survive and thrive in NSW, and a review of the Koala Strategy presents a means to refocus and implement effective outcomes-focused polices towards these ends.

> *Whereas the 2019-20 Black Summer Bushfires shone a brighter light on the plight of koalas in NSW, key threatening processes were already well-established with long-standing and dramatic population declines well known.*

A stated government aim of doubling koala numbers in NSW must be understood in terms of current and historical population levels. With as few as 6,000 koalas remaining in NSW, [2] a doubling of their numbers would amount to significantly less than half of one percent of the population that were here prior to the arrival of Europeans. Despite the staggering and ongoing loss of koalas in NSW, historical records from 1884-2021 confirm an enduring presence of koalas across the Sydney Basin.[3]

Koalas are faced with interlinked key threatening processes of habitat destruction and fragmentation, climate change, roads and disease. The NSW Government can and must do more to protect all remaining habitat and embark on a substantive program to support koalas through an active habitat restoration program.

A key component of habitat protection and active restoration programs is connectivity. Connected habitat — with corridors recognised as habitat — is crucial to ensure koalas can survive and thrive in NSW. As the impacts of climate change increase, so will the importance of connectivity. Koalas will increasingly move into riparian corridors, along creeks and drainage lines — emphasising the importance of their protection and restoration as viable habitat.

Connectivity must also extend east-west, linking the coast to the ranges including the Blue Mountains Plateau and beyond. Providing safe and effective land bridges and wildlife overpasses

---

[2] See 'Bob's Map', 2023 Edition, Australia Koala Foundation, https://www.savethekoala.com/our-work/bobs-map-koala-populations-then-and-now/

[3] Biolink (2023). *Sydney Basin Bioregion: Koala habitat and population assessment*. Report for Total Environment Centre by Biolink Ecological Consultants, Pottsville, NSW. p. 7.

is a critical component of ensuring koalas can move safely across their range. Wildlife-centred road mitigation must become business-as-usual for all new roads, and all road upgrade projects.

Stronger legislation to protect koala habitat on privately held land will increase community confidence in NSW Government processes, and signpost to landholders that the days of widespread and non-sanctioned destruction of habitat is over. Encouraging conservation, as a stated aim of the *State Environment Planning Policy (Biodiversity and Conservation) 2021*, is not enough.

An updated Koala Strategy, supporting legislation and government planning and approval processes, must continue the shift towards recognising and valuing Indigenous cultural authority, and the benefits of working on Country together. Respect for Indigenous Cultural and Intellectual Protocols (ICIP), Indigenous Data Sovereignty (IDS) principles and Free, Prior and Informed Consent (FPIC) must underpin these.

The volunteer wildlife rescue and rehabilitation sector has two overarching aims to ensure koalas can survive and thrive in NSW: (1) reducing the likelihood and number of koalas requiring rescue and rehabilitation, and (2) ensuring that any koala requiring rescue and rehabilitation receives appropriate care. With effective government support, both are possible.

To help facilitate appropriate care being available for koalas, the government can co-fund the establishment and ongoing operation of a network of rescue and rehabilitation facilities across NSW — providing on-call and 24/7 access to wildlife-trained veterinary professionals. Government commitments will also increase confidence amongst philanthropic and business partners to support these facilities, leading to better outcomes for koalas.

WIRES submission includes a suite of recommendations for change in Government policy, process and practice to ensure koalas can survive and thrive in NSW.

## Structure of this submission

WIRES' submission is structured around the themes outlined in the discussion paper, starting with initial comments on the current Strategy and areas where it can and must be improved — including clear and ongoing unmet commitments.

## The current NSW Koala Strategy

The conservation status of koalas in NSW was upgraded from vulnerable to endangered in 2022, under both NSW and Commonwealth laws. Notwithstanding the impacts of the 2019-2020 Black Summer bushfires, koalas were already facing significant threats with dramatic population declines already well-established. The upgrading of the listing of koalas, in part, reflects the ongoing impacts of multiple key threatening processes. In other words, current legislation, policy and practice is not fit for purpose.

An overarching goal of the current (2022) NSW Koala Strategy is to double the numbers of the koalas in NSW by 2050. Troublingly, whilst the then Minister for Environment and Heritage's the Hon James Griffin forward to the strategy clearly states that the 'NSW Government has committed to doubling koala numbers by 2050', the subtitle of the document is 'Towards doubling the number of koalas in New South Wales by 2050'. The subtitle does not instil confidence in the Government's commitment — which has been born out in the lack of effective action taken since its publication.

The former Minister's forward contains unmet commitments, including 'protecting and conserving koala habitat, improving the health and safety of koalas, supporting communities to conserve koalas, and expanding our knowledge of them.'

Clearly, there is much more to be done.

> *There needs to be a focus on clearly defined and legally enforceable outcomes, rather than a list of vague actions.*

The volunteer wildlife rescue and rehabilitation sector has two overarching aims to ensure koalas can survive and thrive in NSW: (1) reducing the likelihood and number of koalas requiring rescue and rehabilitation, and (2) ensuring that any koala requiring rescue and rehabilitation receives appropriate care.

There are number of specific challenges which need to be addressed to reverse the current decline in koala numbers. These include key threatening processes of habitat destruction and fragmentation, climate change, vehicle strike and disease. The scope and scale of population impacts of the latter two tend towards being location specific. Chlamydia, for example, is a major cause of koala death in multiple locations across NSW. Roads are a major killer of koalas in

Southern and South-Western Sydney, areas such as Campbelltown where Chlamydia has not (yet) entered the local koala (*garilwa*, in Dharawal[4]) colony.

The number of koalas (*kula* in Gandangara) killed on roads has increased five-fold in the Southerland Shire and Wingecarribee, and doubled across Campbelltown and Wollondilly for the current koala generation. For the adjoining Local Government Areas (LGAs) of Campbelltown, Wollondilly, Liverpool, Sutherland, and Wingecarribee over the period 2016-2021 at least 130 vehicle related koala mortalities were recorded. With this 'figure likely to be an underestimate as several studies infer that ~50% of vehicle strikes on koalas are reported.'[5]

Putting these numbers into (more) context, Campbelltown — an identified *Stronghold* — has recorded 86% of all koala vehicle strikes in Sydney, including more than 10% of the local population being killed along a short stretch of Appin Road over an 18 month period.[6] When viewed in the context of the 50% population decline across the 20-year period between 2001 and 2021 in the ACT, NSW and Queensland, the loss of 10% in such a short period is devastating to the local colony.

These impacts are not isolated to the Sydney Basin and South Western Sydney, with Friends of the Koala reporting 120 koalas (*burbi*, *dunggir* & *wumbuuddyi* in Yugambeh, Gumbayngirr and Yaygirr respectively) including 18 joeys, were killed on Northern Rivers roads between July 2022 and September 2023 — one third of these in the final three-months.

These devastating numbers require immediate intervention and a policy shift across all operations and levels of government to address the very real threat that these koala populations — including the critically important disease free one at Campbelltown — will be lost due to government and bureaucratic decision-making. Necessary action includes addressing Transport for NSW's (TfNSW) continued refusal to implement effective, necessary and worlds-best mitigation measures as part of the Appin Road widening to ensure Campbelltown's koalas and can survive and thrive.

---

[4] Wafer, Jim, and Amanda Lissarrague. 2008. *A Handbook of Aboriginal Languages of New South Wales and the Australian Capital Territory*. Nambucca Heads, NSW: Muurrbay Aboriginal Language and Culture Co-operative; Cahir, F, Schlagloth, R, and Clark, I.D. (2020). The Historic Importance of the Koala in Aboriginal Society in New South Wales, Australia: An Exploration of the Archival Record, *ab-Original: Journal of Indigenous Studies and First Nations and First Peoples' Cultures*, Vol. 3, No. 2, 172-191.

[5] Biolink (2023). *Sydney Basin Bioregion: Koala habitat and population assessment*. Report for Total Environment Centre by Biolink Ecological Consultants, Pottsville, NSW. p. 8.

[6] Dahlstrom (2023). Fears Sydney koalas on road to extinction as 'devastating' statistic revealed: Vehicle road strikes have increased five-fold in one key NSW region, *Yahoo News*, 21 March. https://au.news.yahoo.com/fears-sydney-koalas-on-road-to-extinction-as-devastating-statistic-revealed-210210444.html; Fernandez (2023). NSW Roads Minister urged to lower Appin Road speed limits to address rising koala fatalities, *ABC Illawarra*, 3 October, https://www.abc.net.au/news/2023-10-03/minister-asked-to-intervene-to-stop-koala-deaths/102923724

## Historical population

A doubling of the NSW population by 2050 would mark a welcome improvement in koala numbers in NSW. With as few as 6000 koalas remaining in NSW,[7] a doubling in their numbers must be understood in terms of historical population levels. Between 8 and 11 million koalas were killed for their skins from 1888 to 1927, driven by government bounties. A doubling of numbers in NSW would increase the population by significantly less than half of one percent of those sought out and killed for their skin during this period.

> *Based on 2023 population estimates of between 6,000 and 10,000 koalas in NSW, the Government's goal of a doubling of koala numbers by 2050 would equate to only 33-56% of the 36,000 reported population by the 2020 NSW Parliamentary Inquiry.*

Despite the high numbers of koalas being sought out and killed, and the continued dramatic decline in numbers across NSW, historical records from 1884-2021 confirm an enduring presence of koalas across the Sydney Basin. There have been signs of localised gains including the recent recovery of Campbelltown's koalas (*garilwa*), with the colony expanding to the north, west and south-west.[8] Unfortunately, other populations, such as the (*guba* in Gomeroi/Gamilaraay) colony at Gunnedah, is now functionally extinct.[9]

A NSW Government goal of doubling of numbers of koalas is a positive one. To make this possible a suite of measurable, enforceable and long-term outcomes-based plans to support koalas across NSW is essential.

## Habitat protection and connectivity

Of critical importance to ensure koalas will survive and thrive in NSW, to arrest their ongoing decline towards extinction, is the protection of all remaining koala habitat on public and privately held land — as an absolute minimum. The NSW Department of Planning's Circular number B35, issued in March 1995 — titled *State Environmental Planning Policy No 44 – Koala Habitat Protection*, stated that:

---

[7] See 'Bob's Map', 2023 Edition, Australia Koala Foundation, https://www.savethekoala.com/our-work/bobs-map-koala-populations-then-and-now/

[8] Biolink (2023). *Sydney Basin Bioregion: Koala habitat and population assessment*. Report for Total Environment Centre by Biolink Ecological Consultants, Pottsville, NSW. p. 7.

[9] See O'Malley, N. & Peeters, W. (2023). How the healthiest koala colony collapsed into extinction, *The Sydney Morning Herald*, 29 April. https://www.smh.com.au/environment/conservation/how-the-healthiest-koala-colony-collapsed-into-extinction-20230425-p5d34o.html

> The presently known geographic distribution of the koala in NSW is fragmented and most of the populations appear to be small and isolated. Many also occur where they are increasingly susceptible to habitat loss or modification, predation, exposure to drought and bushfire.

There are two clear themes in this excerpt from a government circular published 30 years ago: (1) a clear recognition of the threats posed by habitat destruction and fragmentation, and (2) more action is required beyond a limited focus on the 'present range' of koalas. Habitat destruction and fragmentation has demonstrably and destructively increased since the publication of the 1995 circular, reinforcing the need for immediate and broad scale action from the NSW Government. Action must include the protection of all 'present range' and 'potential habitat' across public and privately held lands in NSW. In addition, the protection and active restoration of corridors as habitat is essential if the government's goal of doubling the number of koalas in NSW by 2050 has any chance of realisation.

*Connectivity is crucial to ensure koalas can survive and thrive in NSW.*

The NSW Koala strategy must continue to focus on increasing protections for present range, potential habitat and connectivity across NSW. Expanded range and is necessary to provide habitat for a recovering population, and reducing the potential for an increase in stress-related risks associated with (imposed) higher densities. To state this clearly, directly, and simply, plans to support an increase in the koala population across the state — a reversal of ongoing and dramatic declines — requires a concomitant increase in protected and connected habitat.

The protection of all remaining habitat — including on privately held land — must ensure and include east-west connectivity across the Sydney Basin to, and beyond, the Blue Mountains as a clearly measurable outcome.

## Disease

Stresses linked to habitat destruction and fragmentation and climate change are drivers of disease in koala colonies. More research is needed into the development and efficacy of single-dose vaccines, the development of standard protocols and specialised training to support their use.

It is important to recognise that an increase in koala populations (1) without protection of all viable koala habitat (present and potential range) and (2) ineffective restoration of habitat and connectivity will lead to a further compounding of pressures. These compounding pressures include an increased rate of the spread of disease, koalas forced to move through fragmented habitats, across already dangerous road corridors and other urban and peri-urban infrastructure.

Standardised treatment protocols will improve outcomes for already infected koalas.

## Providing appropriate care

The volunteer wildlife rescue and rehabilitation sector provide a significant public good at an avoided cost to government for koalas and many other species. WIRES provides rescue advice and assistance for over 130,000 animals each year, and approximately two-thirds of all rescues in NSW. For direct comparison, the RSPCA answered 74,500 phone calls and received over $20 million in direct government funding in the last financial year.[10]

An overarching aim of the volunteer wildlife rescue and rehabilitation sector is the provision of appropriate and effective care for wildlife. In addition, reducing the number of animals requiring care is the long-term goal. Imperative to achieving this second aim is reducing the threats wildlife face.

> *The number of koalas coming into care is directly proportional to the protection of habitat and connectivity, and ensuring they can move safely across their range.*

There are further actions required by the NSW Government to ensure the volunteer wildlife rescue and rehabilitation sector can continue to provide appropriate and effective care for koalas, as the number requiring care continues to increase. As numerous government inquiries have determined, there is a clear need for increased support for the volunteer wildlife rescue and rehabilitation sector. More specific actions include supporting and co-funding the establishment and ongoing operation of a network of rescue and rehabilitation facilities across NSW, and enabling increased opportunities for specialised lower cost Continuing Professional Development (CPD) and other accessible training for veterinary professionals to treat wildlife.

## Outcomes over actions

In addition to the Strategy not being legally enforceable — an ongoing challenge to ensuring necessary protections for koalas are in place and enforced, there is a focus on actions in place of outcomes.

Outcomes enable clear and direct determination of effectiveness. Actions enable departments to say they are doing something, irrespective of whether such actions have any tangible benefit for

[10] Inquiry into the operation of the approved charitable organisations under the Prevention of Cruelty to Animals Act 1979 [transcript], Portfolio Committee No. 4 – Regional NSW, Macquarie Room, Parliament House, Sydney, 26 April 2023. Uncorrected transcript https://www.parliament.nsw.gov.au/committees/inquiries/Pages/inquiry-details.aspx?pk=3025#tab-hearingsandtranscripts

koalas. Without clear and measurable outcomes, there is lack of useful data to inform accompanying legislation, and ensure actions are both effective and undertaken. Unenforceable action will not reverse the ongoing dramatic decline in koala numbers towards extinction.

Without legal enforcement, actions to support koalas in NSW are subservient to policies and practices of other government departments. There are clear and widespread examples across NSW, with koala habitat being destroyed and fragmented daily, and any road mitigation measures ostensibly designed and implemented to facilitate the safe movement of koalas are underpinned by an approach where expedience dominates, rather than improving outcomes.

**Recommendation 1**
The Koala Strategy must include clear and measurable outcomes to ensure actions are effectively implemented to support the goal of a doubling koala numbers in NSW by 2050.

**Recommendation 2**
As an absolute minimum, the NSW government must immediately legislate to protect all known and potential koala habitat — on privately held and public lands — across NSW.

**Recommendation 3**
The NSW government must immediately legislate to prevent any further fragmentation of known and potential koala habitat — on privately held and public lands, including specifying clear and enforceable outcomes-based restoration-of-connectivity targets to be met in the short- and medium-term.

**Recommendation 4**
Protection and restoration of connectivity must include east-west corridors across the Sydney Basin to, and beyond, the Blue Mountains as a clearly measurable outcome.

## Prioritising koala populations

Koala populations in the state are under threat from several key threatening processes including habitat destruction and fragmentation, the impacts of climate change, roads and disease. Whereas all populations are exposed to each of these key threatening processes, the scale and severity of each differ with location.

The examples of koalas in Gunnedah and Campbelltown illustrate the significant and ongoing impacts of different (interlinked) key threatening processes: climate change and Chlamydia, and roads respectively. Both are identified as areas of investment in the DCCEEW *Reviewing the NSW Koala Strategy — Discussion Paper* (2024), with Campbelltown also listed as a *Stronghold*.

Gunnedah Shire Council describes the town as the 'Koala Capital of the World' and 'a wonderful place to come and visit koalas'.[11] Replanting projects in the 1990s — works undertaken to lower the water table and reduce salinity, not to support the local koala population — led to significant growth in the local population of koalas.

Unfortunately, the recovery of the local population did not last, with an estimated 25% dying as a result of heatwaves in 2009. Only months prior, chlamydia had taken root.[12]

> *By 2015, it was estimated that up to 70% of Gunnedah's koalas (guba) were infected with chlamydia and infertile. The population is now considered to be functionally extinct.*[13]

Similar to Gunnedah, Campbelltown City Council draws on the local population as part of the city's identity, having created the term Koalatown — seeking to highlight their importance, locally and beyond. The Campbelltown colony was identified in 2016 to be a growing population free of the clinical signs of chlamydia.[14] Over the last 18 months, more than 10% of the Campbelltown population has been killed on a short stretch of Appin Road. The road runs north-south in between the Nepean and Georges rivers, bisecting important east-west koala habitat corridors.

With a period of six years being accepted as a single koala generation, if this trend continues, the number lost from the current generation could be as high as 40%.[15]

---

[11] See https://visitgunnedah.com.au/see-do/our-natural-beauties/koalas, last accessed 23 April 2024.

[12] Lunney, D., Crowther, M.S., Wallis, I., Foley W.J., Lemon, J. Wheeler, R. Madani, G., Orscheg, C., Griffith, J.E., Krockenberger, M., Retamales, M. & Stalenberg, E. (2012). Koalas and climate change: a case study on the Liverpool Plains, north-west New South Wales, in *Wildlife and Climate Change: towards robust conservation strategies for Australian fauna*, edited by Daniel Lunney and Pat Hutchings, 2012. Royal Zoological Society of NSW, Mosman, NSW, Australia, pp. 150 – 168.

[13] See O'Malley, N. & Peeters, W. (2023). How the healthiest koala colony collapsed into extinction, *The Sydney Morning Herald*, 29 April. https://www.smh.com.au/environment/conservation/how-the-healthiest-koala-colony-collapsed-into-extinction-20230425-p5d34o.html

[14] Biolink (2016). *Analysing the historical record: aspects of the distribution and abundance of koalas in the Campbelltown City Council Local Government Area 1900 – 2012*. Report to Campbelltown City Council.

[15] Biolink (2023). *Sydney Basin Bioregion: Koala habitat and population assessment*. Report for Total Environment Centre by Biolink Ecological Consultants, Pottsville, NSW. p. 7.

> *Such numbers highlight a devastating level of preventable deaths, which threaten the viability of the critically important local koala (garilwa) population in Campbelltown.*

These figures are more telling when compared with findings of ecological modelling which has determined that a 3% mortality rate from anthropogenic sources such as vehicle strike — additional to natural mortality — could lead to a severe decline of a local koala population.[16]

An estimated potential decline of 40% during a six year period — across a single generation, when compared to the 50% population decline in the ACT, NSW and Queensland between 2001 and 2021, is clearly illustrative the threat faced by koalas in Campbelltown and across NSW.

These two examples illustrate that the Strategy action of 'identification of populations for immediate investment' and 'stronghold locations' are not enough to ensure koalas can survive and thrive in NSW. The Strategy must be outcomes based, supported by enforceable policy instruments and legislation, and drive immediate change in planning approval processes.

**Recommendation 5**
The koala strategy must be supported by enforceable policy instruments and legislation to prioritise koala populations and reverse their decline.

## The importance of Aboriginal ecological knowledge to koala conservation[17]

Aboriginal ecological knowledge is of critical importance for ensuring koalas can survive and thrive in NSW. Such knowledge is deeply held and connected to the land for tens of thousands of years — or more. Aboriginal people have lived in, with and across landscapes adopting sophisticated practices in harmony with them, guided by culture and lore.

[16] Biolink (2007). *Conserving koalas in the Coomera-Pimpama Koala Habitat Area — a view to the future*. Report to Gold Coast City Council. Biolink Ecological Consultants, Uki, NSW.

[17] Reflecting and respecting the 2022 report *Reimagining Conservation Working Together for Healthy Country*, a collaboration of the Australian Committee for the International Union for the Conservation of Nature (ACIUCN), Protected Areas Collaboration for Learning and Research (PAC) and North Australia Indigenous Land and Sea Management Alliance (NAILSMA), the terms 'Aboriginal', 'Indigenous' and 'First Nations' are used interchangeably throughout this document. Through the use of these terms, WIRES seek to acknowledge and honour diversity, shared knowledge and experiences.

Collaboration and consultation with Aboriginal communities and elders must be grounded in respect for Indigenous people's rights to heritage and culture — including all cultural practices, traditional knowledge, resources and knowledge systems. WIRES' submission respects these rights as Indigenous Cultural and Intellectual Protocols (ICIP) and forming part of Indigenous Data Sovereignty (IDS) principles.

In working with Aboriginal people and their communities, the NSW Government must also ensure Free, Prior and Informed Consent (FPIC) — a specific right in the *United Nations Declaration on the Rights of Indigenous Peoples* — is gained for any and all reference to ICIP. Consent must be actively sought out, informed, and provided voluntarily without coercion, intimidation or manipulation.

Research and action to support koalas to the thrive and survive in NSW must be based on *right-way science*. Right-way science is a process of western scientists working together with Aboriginal partners, based on listening, reciprocity, respect and learning.[18]

> *A right-way science approach, based on Free, Prior and Informed Consent (FPIC) and the rights of Indigenous Cultural and Intellectual Protocols (ICIP), will directly inform Government and research process and practices, and lead to opportunities for non-Indigenous Australians to build cultural competence to work respectfully and effectively with Aboriginal people and their communities.*

A much-needed shift in approach will centre the valuing of culture and recognising Indigenous cultural authority, laying foundations for working on Country together with a common goal of supporting koalas to survive and thrive in NSW.

The Minister experienced the value of Aboriginal ecological knowledge and its critical importance for ensuring koalas can survive and thrive in NSW during their *South Western Sydney Koala Forum* in Campbelltown in April 2024. Aunty Glenda Chaulker was clear on inadequacy of the proposed long dark Appin Road underpass adjacent to Noorumba Reserve, and the need for land bridge/overpass to assist koalas moving safely across their range between the Georges and Nepean Rivers (see *Worlds-best land bridges and overpasses as BAU*).

[18] See 'What is "right-way" science on the Bush Heritage Australia website, last accessed 24 April 2023. https://www.bushheritage.org.au/what-we-do/science/right-way

**Recommendation 6**
The Koala Strategy and all the NSW Government's outcomes-based actions implement Indigenous Cultural and Intellectual Protocols (ICIP) and Indigenous Data Sovereignty (IDS) principles.

**Recommendation 7**
The review panel and the NSW Government consult with Aboriginal communities to determine how the Koala Strategy and supporting legislation will more effectively integrate Aboriginal ecological knowledge, respect for culture, interests and rights in accordance with Free, Prior and Informed Consent (FPIC), Indigenous Data Sovereignty (IDS) and Indigenous Cultural and Intellectual Protocols (ICIP).

**Recommendation 8**
Partnership models be developed where members of local Aboriginal communities are empowered to play a central role in the development and implementation of NSW Koala Strategy, including decision making authority.

## Addressing the impacts of climate change

The archaeological record provides clear evidence that koalas are susceptible to climate change and resulting vegetation impacts. Anthropogenic climate change presents a key and significant threat to koalas and their habitat, increasing the risk of stress-related disease.

Modelling cited by the federal Department of Agriculture Water and Environment's (2022) *Conservation Advice for* Phascolarctos cinereus *(Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory* analysed the 'magnitude of projected changes in mean climate on the future geographic climate envelope of the koala.' The research found that a mean maximum summer temperature range of 23-26ºC being most suitable for koala health and survivability. Further increases in mean and maximum temperatures linked to anthropogenic climate change will further impact suitable habitat and spread of koalas in NSW: 'the koala's climate envelope is predicted to contract eastwards and southwards, with future distributions particularly concentrated in rapidly urbanising regions of coastal QLD and NSW.'[19]

[19] Adams-Hosking, C, Grantham H. S., Rhodes J. R., McAlpine C., & Moss P. T. (2011). Modelling climate-change-induced shifts in the distribution of the koala. *Wildlife Research* 38, 122-130. https://doi.org/10.1071/WR10156

Whereas the modelling identifies expected ideals, there are an increasing number of examples of the devastating implications of climate change on koala colonies, including the now functionally extinct population in Gunnedah (see also *Prioritising koala populations*).

A study of the Pillaga forests region (west of Gunnedah) found a significant decline in koala (*guba*) numbers linked to climate change, with a greater than 75% reduction in detection rates between 1993 and 2011. An increase in the mean average temperature was noted during this period, including significantly more days with an ambient temperature above 40° Celsius.[20] A maximum summer temperature of 37.7°C has been identified through a bioclimatic analysis as an upper limit for koalas.[21]

A significant broader implication of this research is that koalas moved towards creek corridors, and a general migration has commenced towards areas with a cooler wetter microclimate — a pattern observed in studies at other locations.[22] Ensuring (1) the protection of gully areas, drainage and creek lines, and (2) connectivity to ensure koalas can freely and safely move across habitat between permanent rivers, creeks and non-perennial water courses are crucial to ensuring koalas can survive and thrive through the direct heat impacts of anthropogenic climate change.

Increases in carbon dioxide ($CO_2$) concentrations in the atmosphere — anthropogenic pollution — and resulting stress on vegetation also directly impact koalas. The stress placed on vegetation leads to a lower water content (%) and reduced nutrient value of leaves. A direct outcome is increased rates of dehydration, further exacerbated by increased movement requirements for nutrient sustenance. Koalas face higher stresses, a greater potential for the spread of disease and worsening health and welfare outcomes.

Notwithstanding intersections with other climate change impacts and key threatening processes, there is a clear and present need to protect remaining koala habitat in urban and peri-urban areas — areas currently facing increasing pressures, including ongoing habitat destruction and fragmentation.

---

[20] Paull, D. C. (2012). Significant decline of a large Koala population: evidence for the effects of climate change, Paper presented to the *Australian Mammal Society Annual Meeting*. https://www.researchgate.net/publication/356840477

[21] Adams-Hosking, C, Grantham H. S., Rhodes J. R., McAlpine C., & Moss P. T. (2011). Modelling climate-change-induced shifts in the distribution of the koala. *Wildlife Research* 38, 122-130. https://doi.org/10.1071/WR10156

[22] Ellis, W., Melzer, A., Clifton, I. D. and Carrick, F. (2010). Climate change and the koala Phascolarctos cinereus: water and energy, *Australian Zoologist*, 35, 369-377; Gordon, G., Brown, A.S., Pulsford, T. 1988. A koala (Phascolarctos cinereus Goldfuss) population crash during drought and heatwave conditions in south-western Queensland. *Australian Journal of Ecology* 13, (4): 451–461.

**Recommendation 9**
The NSW Government act on the critical need to protect koala habitat and connectivity in rapidly urbanising regions, in recognition of the 'dramatic contraction'[23] in koala range linked to the ongoing and increasing impacts of anthropogenic climate change.

**Recommendation 10**
The Koala Strategy recognise that the protection of gully areas, drainage and creek lines, and their connectivity across habitat is of critical importance for the survivability of koalas in NSW.

## Pillar 1: Koala habitat conservation

Identified in the NSW Department of Planning's Circular number B35, titled *State Environmental Planning Policy No 44 – Koala Habitat Protection*, koalas were increasingly susceptible to habitat destruction and fragmentation in 1995, 30 years ago. Yet critical koala habitat, across present and potential ranges, continues to be destroyed at devastating rates.

There is a clear need for immediate and broad scale action from the NSW Government. Outcomes must include the protection of all koala (present and potential) habitat across public and privately held lands in NSW — including active restoration of corridors if the NSW Government's goal of doubling the number of koalas in NSW by 2050 has any chance of realisation.

> *Any plans to support an increase in koala populations in NSW — a reversal of ongoing and dramatic declines — requires a concomitant increase in protected and connected habitat.*

The Environmental Defenders Office (EDO) has highlighted a number of key areas for reform in their 2023 report titled *Protecting koalas in the Sydney Basin*, with a primary focus on the protection of all habitat as a matter of urgency.[24] The EDO report directly contrasts with Chapter 3 Koala habitat protection in the *State Environment Planning Policy (Biodiversity and Conservation) 2021*, (the SEPP) which has a stated aim of encouraging conservation and management of koala habitat. The weak language in the SEPP actively enables flexible

[23] Adams-Hosking, C, Grantham H. S., Rhodes J. R., McAlpine C., & Moss P. T. (2011). Modelling climate-change-induced shifts in the distribution of the koala. *Wildlife Research* 38, p. 125. https://doi.org/10.1071/WR10156

[24] EDO (2023). *Protecting koalas in the Sydney Basin bioregion: Strengthening NSW laws to protect the trees that koalas call home*, February.

interpretation of legislative requirements, inconsistent application and the clearing of critical koala habitat. The SEPP does little to ensure koalas can survive and thrive in NSW.

NSW Legislation must actively protect habitat on privately held land, and ensure east-west connectivity across the Sydney Basin to, and beyond, the Blue Mountains as a clearly measurable outcome.

## Announced National Park along the Georges River; east-west connectivity

The NSW Government announcement to establish a National Park along the Georges River, from Ingleburn to Appin, is a welcome addition to listed protected areas. Partnering with the local Aboriginal community to determine a Dharawal name for the National Park highlights the importance of Aboriginal ecological knowledge to the protection of the area. Respect for Aboriginal culture and communities is important component for working on Country together, and towards a common goal of supporting koalas to survive and thrive in NSW.

The establishment of the National Park will protect the movements of koalas in a north-south direction, and lays foundations for critically important protections to ensure koalas can move freely in an east-west direction between the Georges and Nepean Rivers. East-west connectivity is essential to support the Campbelltown colony and population growth.

The devastating numbers of koalas continuing to be killed on Appin Road provide direct evidence of the movement of koalas east-west, and the importance of protecting habitat corridors to maintain and expand connectivity. With more than 10% of Campbelltown's koala population killed whilst attempting to cross of Appin Road in an 18-month period, the number lost from a single generation could be as high as 40% (see *Prioritising koala populations*).

## Protecting and restoring habitat corridors

To ensure the effectiveness and viability of habitat corridors and connectivity, planning decisions must be based on absolute minimum widths, rather than current practices allowing proposals and projects to be approved based on average width calculations.

Where existing corridors have been impacted and currently do not meet minimum width requirements, they must be actively restored. Specifying that currently used and critically-important habitat corridors be fenced off and koalas removed — as currently proposed for Mallaty Creek at Appin, the shortest route between the Nepean and Georges Rivers and regularly used by koalas and other wildlife — will directly and further negatively impact the viability of colony's (see Pillar *3: Improving the safety and health of koalas*).

Lendlease's[25] Figtree Hill provides a clear example of the negative impacts on koalas of using average widths. Menangle Creek to Noorumba Reserve was identified in the advice of the Chief Scientist as *Corridor A* for the east-west movement of koalas and other wildlife. Additionally, the Chief Scientist identified the importance of widening of this corridor to a width of 390-425m, with reference to an effective minimum width of 200m.[26] The use of average widths was subsequently permitted and includes narrow sections which reduce its viability as habitat and increase risk to koalas — including less than 85m in some locations.

A width of 450m has been identified to as the minimum required for biodiversity, koalas and watershed green setbacks.[27] Corridors of effective widths can form part of a blue-green grid, including restoration work to ensure koalas can survive and thrive.[28] A blue-green grid[29] which protects gully areas, drainage and creek lines reflect patterns in koala movements in response to the impacts of climate change (see *Addressing the impacts of climate change*).[30]

The identification and protection of present and potential habitat in the Koala Strategy and supporting legislation would minimise such impacts, increase certainty for the community and landholders — and reduce the threats to koalas in NSW.

---

[25] At the time of writing (May 2024), Stockland's proposed acquisition of 12 of Lendlease's master-planned communities, including Figtree Hill, is still awaiting a determination by the Australia Competition and Consumer Register (ACCC). See Lendlease's December 2023 media release/ASX announcement https://www.lendlease.com/siteassets/lendlease/shared/investor-centre/announcements/asx/2023/12/2659617.pdf and ACCC's merger register https://www.accc.gov.au/public-registers/mergers-registers/public-informal-merger-reviews-register/stockland-supalai-residential-communities-partnership-pty-ltd-lendlease-group

[26] NSW Chief Scientist (2020). *Advice on the protection of the Campbelltown Koala population*, Koala Independent Expert Panel, 30 April, p. xiv. See also Table 5, p. 52.

[27] Hearing of the Inquiry into the Planning system and the impacts of climate change on the environment and communities, Portfolio Committee No. 7 — Planning and Environment, Macquarie Room, Parliament House, Sydney, 15 March, 2024. Uncorrected transcript, p. 28.

[28] Deane, S. (2023). Greenspace planning for Sydney and NSW: Planning Inquiry Submission, submission to the Inquiry into the Planning system and the impacts of climate change on the environment and communities, No. 92.

[29] Total Environment Centre (2023). The Blue Green Grid: Sydney's open Space Vision & Implementation Strategy, November. https://www.tec.org.au/blue_green_grid

[30] Ellis, W., Melzer, A., Clifton, I. D. and Carrick, F. (2010). Climate change and the koala Phascolarctos cinereus: water and energy, *Australian Zoologist*, 35, 369-377. Gordon, G., Brown, A.S., Pulsford, T. 1988. A koala (Phascolarctos cinereus Goldfuss) population crash during drought and heatwave conditions in south-western Queensland. *Australian Journal of Ecology* 13, (4): 451–461.

## Supporting local councils

The NSW Government can assist local councils and the communities they represent through supporting the development and enforcement of Koala Plans of Management (KPoMs) across more Local Government Areas (LGAs). LGAs with koala colonies which do not have a KPoM should be prioritised, alongside LGAs with existing KPoMs which have been identified as urban growth areas.

Matt Gould, the Mayor of Wollondilly was clear at a 6 May 2024 hearing for the *Inquiry into the Planning system and the impacts of climate change on the environment and communities* (Portfolio Committee No. 7 — Planning and Environment), held at Opal and Emerald Room, Campbelltown RSL on ongoing challenges: “Wollondilly has been trying to finalise our own koala plan of management for several years now, and we haven't been able to because the guidelines from the State Government haven't been finalised.” They have also identified the protection of corridors, and their width, as requiring critical attention.[31]

> *Supporting the development of enforceable KPoMs will increase the confidence of communities that their council and the NSW Government are actively supporting the koalas they care about, provide certainty to landholders and signpost the importance of habitat protection.*

KPoMs also need to be interlinked, reflecting that LGA boundaries do not align with ecological communities and biodiversity, connectivity and impacts — including habitat destruction and climate change. The impacts do not stop at the edges, and collaboration between LGAs is critical.[32]

## Expanded Voluntary Planning Agreements (VPAs)

Increasing pressure on koalas and their habitat are directly linked with urban expansion in the Sydney Basin and beyond, including the Macarthur Growth Area. Whereas there should be no further clearing of koala habitat, and active restoration of habitat and connectivity, there is scope

[31] Hearing of the Inquiry into the Planning system and the impacts of climate change on the environment and communities, Portfolio Committee No. 7 — Planning and Environment, Opal and Emerald Room, Campbelltown RSL, 16 May, 2024. Uncorrected transcript, p. 22.

[32] See Chris Mclean, Principal Strategic Planner and Senior Ecologist, Central Coast Council, Hearing of the Inquiry into the Planning system and the impacts of climate change on the environment and communities, Portfolio Committee No. 7 — Planning and Environment, Macquarie Room, Parliament House, Sydney, 10 April, 2024. Uncorrected transcript, p. 4.

to expand Voluntary Planning Agreements (VPAs) to support local communities and the koalas they care about and for.

Expanded VPAs can be used to fund restoration works and directly benefit the health and welfare of koalas through supporting the wildlife rescue and rehabilitation sector. Approved planning documents already include specifications for volunteer wildlife carers to be present on-site whilst works are underway — at no cost to the proponent of projects. These include private projects such as Walker Corporation's *Integrated Development Application No DA/2021/144/1* for land adjacent to Maquariedale Road at Appin. Wollondilly Council's *Notice of Determination No. 010.2021.00000144.001*, Dated 23 March 2023 specifies under section *4.4 Vegetation removal* that (emphasis added):

> 4.4.1 A suitably experienced ecologist must be engaged to conduct pre-clearance native fauna survey must occur not more than 7 days immediately before the clearing of native vegetation to ensure that arboreal mammals, roosting and hollow-using birds, bats and reptiles are restricted from accessing any vegetation to be cleared and are translocated in accordance with best practice.
>
> Translocation may require a licence from the department's Environment and Heritage group under the Translocation Operational Policy. Any identified threatened species must be relocated to the nearest available and accessible habitat by the ecological consultant supervising the tree removal activities <u>with the assistance of a wildlife carer</u>.
>
> 4.4.2 Having reference to the pre-clearance survey (condition 4.4.1) a suitably experienced ecologist <u>and wildlife carer must be present</u> when clearing activities are being undertaken or dewatering any water sources on site in the event fauna is present.

Government funded projects also include similar requirements, such as the Coffs Harbour Bypass: a Ferrovial Gamuda joint venture for the Australian and NSW Governments. The *Environmental Work Method Statement 04* (Revision E), issued 21 June 2023, includes two direct references to the requirement for volunteer wildlife carers. The 'Toolbox' table stipulates that (emphasis added):

> Ensure appropriately experienced Ecologist / <u>wildlife carer</u> is present during all clearing.

And item 27 in Table 2: Work Table Method, under Work Method and Risk Assessment states (emphasis added):

> Injured fauna would be initially assessed by ecologist before being transported to an appropriate vet or <u>licensed wildlife carer for treatment</u>. Treatment will be as per the NSW Code of Practice for Injured, Sick and Orphaned Protected Fauna (EPA 2011).

The expansion of VPAs can ensure that the impacts on koalas from such projects are further minimised, with any and all costs passed on to project proponents. Doing so will support local councils, the communities they represent, and the invaluable work of the volunteer wildlife rescue and rehabilitation sector.

**Recommendation 11**

The language in the *State Environment Planning Policy (Biodiversity and Conservation) 2021*, must be clear and strong on the requirement to protect all koala habitat. Encouragement is not enough to ensure koalas can survive and thrive in NSW.

**Recommendation 12**

The protection of all koala habitat and corridors — with a minimum width of 450m — is a requirement of all current and future project proposals, including housing projects in designated growth areas. Where corridors do not currently meet the minimum width requirements, active restoration and management plans must be developed.

**Recommendation 13**

Supporting local councils to identify habitat for protection must include connectivity as a priority, including north-south and east-west.

## Pillar 2: Supporting local communities to conserve koalas

Working with local communities is a core component to ensuring populations of koalas can survive and thrive. Tree planting days play an important role in connecting communities with their local environment and educating them about local wildlife, including koalas. Tree planting also provides feed trees for koalas in the care of the volunteer wildlife rescue and rehabilitation sector — increasingly essential as habitat destruction and fragmentation is continuing under government at all levels.

Whereas tree planting and similar community-based programs are important, they are complimentary to the protection of habitat and connectivity across the landscape.

A key and ongoing challenge is having safe locations for the release of rehabilitated koalas back into their home range. Continuing habitat destruction and fragmentation is leading to increased densities of koalas and their movement through impacted landscapes. Increased protections are essential to ensure there is ample suitable habitat available for koalas to be released into — at multiple locations across the state — where they can survive and thrive.

## Targeted support to address local threats

Restoration activities such as tree planting, building on increased protections for habitat and connectivity, are essential across all koala habitat in NSW. There are specific threats which differently impact local populations. Alongside habitat destruction and fragmentation, these include roads and vehicle strike, climate change, stress-induced disease including chlamydia, and dog attacks. Working with local council and communities to further develop, implement and enforce KPoMs provides an important and specific means to focus on issues which can be addressed at the local level.

In addition to supported and enforced KPoMs, the NSW Government must do more across local and regional planning to address key threats.

> *A strong and clear Koala Strategy, supported by enforceable policy instruments and legislation to protect koalas and their habitat is essential to reverse the ongoing decline in koala populations.*

Whereas vehicle strike can affect local populations differently, the location, designation and requirements for higher-traffic roads are primarily a NSW Government issue. Unfortunately, expedience and convenience continue to be prioritised over the safety and wellbeing of wildlife, including koalas. This is directly evidenced in number of koalas and other wildlife killed in multiple locations, with TfNSW continuing to fail to act to address the devastating impacts, impacts that are pushing local populations towards extinction (see *Pillar 3: Improving the safety and health of koalas*).

**Recommendation 14**
The NSW government increase support for regional partnerships and on on-ground koala conservation actions, including tree planting and other habitat and connectivity restoration activities.

**Recommendation 15**
Local Councils and communities be supported to develop Koala Plans of Management (KPoMs) across all local government areas with koala populations. KPoMs are legally enforceable, with the NSW Government ensuring that they are outcomes-based across habitat protection and restoration.

## Land acquisition

The NSW Government can further support koalas and the local communities who live amongst them through land acquisition. Working with philanthropic and business partners to strategically acquire habitat will assist in reducing the number of koalas coming into care. Streamlining processes for land to be protected in perpetuity as a koala (and other wildlife) asset will increase certainty for those wanting to financially contribute.

**Recommendation 16**
The NSW Government streamline processes for privately held and public lands to be protected for koalas and other wildlife.

## Co-funded 24/7 facilities

The NSW Government can further support local communities and the volunteer wildlife rescue and rehabilitation sector through co-funding facilities. There is a clear and present need for specialist koala facilities across NSW. A NSW Government program to co-fund and invest in the establishment and ongoing operational costs of wildlife rescues and rehabilitation facilities across the state will also increase confidence amongst philanthropic and business partners — leading to better outcomes for koalas.

There is an urgent need for after-hours veterinary services to treat sick and injured koalas. Most koalas are injured on roads after dusk and early morning. Prompt medical care is essential to their survival. There is very limited access to after-hours care in most regions of NSW, leading to poor welfare outcomes. Critically injured koalas who survived long enough are suffering for several hours waiting for specialist veterinary care to be available. The Minister's 28 April 2024 announcement of $4.5 million in funding for a koala care facility in the Macarthur region is a partial response to this critical need.[33]

**Recommendation 17**
The NSW Government work with the volunteer wildlife rescue and rehabilitation sector to develop a program designed to co-fund the establishment and operational costs of the koala facilities in key locations across NSW.

**Recommendation 18**
The NSW Government collaborate with the volunteer wildlife rescue and rehabilitation sector in seeking philanthropic and business support to co-fund the establishment and operational costs of koala facilities.

[33] NSW Government (2024). *$5 million to care for koalas in Sydney's South West*, Environment and Heritage, 28 April. https://www.environment.nsw.gov.au/news/5-million-to-care-for-koalas-in-sydneys-south-west

## Pillar 3: Improving the safety and health of koalas

The NSW Government can further support the safety and health of koalas in NSW through reducing the devastating death toll of roads, and supporting the volunteer wildlife rescue and rehabilitation sector to improve outcomes for those injured.

The increasing and devastating number of koalas injured and killed on Appin Road illustrate that the road is a very effective barrier to east-west connectivity between the Georges and Nepean Rivers — including the announced National Park along Georges River from Ingleburn to Appin.

The devastating number significantly contributes to 86% of all koala vehicle strikes in Sydney happening in Campbelltown — with at least 35, more than 10% of the local population, killed along a short stretch of Appin Road in an 18-month period.[34] Approved and proposed mitigation works, linked to the widening of Appin Road from two lanes to up to eight lanes in width, will further formalise the road as a singular barrier to critical east-west movements of koalas and other wildlife.

The numbers of koalas being killed is also exerting a significant toll on local wildlife carers and the volunteer wildlife rescue and rehabilitation sector. The Minister was directly exposed to these impacts at their *South Western Sydney Koala Forum* in Campbelltown in April 2024. A local WIRES member detailed their futile attempts to save a mother and pouch joey hit by and killed in preceding days, adding to the more than 30 koalas they had personally responded to on Appin Road.

The devastating number of koalas killed on Appin Road is not an outliner.

> *Roads are having a significant toll in multiple locations across the state, including the Northern Rivers and across the Sydney Basin.*

The immediate protection of current and potential koala habitat and restoration of connectivity is the most significant action the NSW Government can take to improve the health and safety of koalas. Protected and connected high value habitat enables koalas to safely move across their range, reduce impacts of climate change, reduce associated stress and the spread and severity of diseases including chlamydia.

[34] Dahlstrom, M. (2023). Fears Sydney koalas on road to extinction as 'devastating' statistic revealed: Vehicle road strikes have increased five-fold in one key NSW region, *Yahoo News*, 21 March. https://au.news.yahoo.com/fears-sydney-koalas-on-road-to-extinction-as-devastating-statistic-revealed-210210444.html; Fernandez, T. (2023). NSW Roads Minister urged to lower Appin Road speed limits to address rising koala fatalities, *ABC Illawarra*, 3 October, https://www.abc.net.au/news/2023-10-03/minister-asked-to-intervene-to-stop-koala-deaths/102923724

Government action to improve the safety and health of koalas will reduce the number of koalas coming in care, improving social and emotional wellbeing of local communities, wildlife carers and veterinary professionals.

## Worlds-best land bridges and overpasses as BAU

Roads are a key threatening process for koala populations across NSW. Alongside concerning numbers of koalas killed on Northern Rivers roads, Southerland Shire and Wingecarribee vehicle strike deaths have increased five-fold in the last generation. For Campbelltown and Wollondilly they have doubled, impacting a significant percentage of the population. Mitigating the impacts of roads is of crucial importance to the survival of koalas in NSW.

The NSW government must do more to facilitate safe movement of koalas across their range. The actions of TfNSW do not increase community confidence that enough is or will be done to support koalas to safely move across the roads that bisect their habitat.

The Appin Road upgrade is an illustrative example. TfNSW has refused repeated scientific and community calls for a land bridge or overpass to be built adjacent to Noorumba Reserve, an important koala corridor and Cumberland Plain Biobank site. In refusing to require a land bridge, reflecting worlds-best practice, TfNSW has specified and approved a concrete underpass. Koalas who do not give up attempting to move between the Nepean and Georges Rivers will be funnelled into Australia's longest and darkest concrete wildlife tunnel, extending 53 metres under Appin Road.

> *If facilitating connectivity of habitat and koala (garilwa) movement is the overarching goal, the approved 53m long concrete underpass adjacent to Noorumba Reserve and associated mitigation works are not fit-for-purpose.*

There are significant concerns that the TfNSW design will further harm the local population and make it less likely that the government goal of doubling the population of koalas in NSW by 2050 can be met. Further, such a design sets a poor precedent of expediency trumping better outcomes for koalas.

With such an anti-koala approach and design of road mitigation measures being facilitated and allowed by Government, the Koala Strategy, supporting policies and legislation for such a critically important population, what faith can the community have that the safety and survivability of koalas will take priority over expedient decision making?

At a broader landscape scale, the impending further loss of habitat and east-west connectivity renders what is otherwise a very welcome announcement to establish a National Park along the Georges River as of limited ability to ensure koalas can survive and thrive.

This is further evidenced in current plans to fence off the heavily used and critically important habitat corridor along Mallaty Creek – the shortest east-west corridor linking the Georges and Nepean Rivers. Fencing off the creek and removing koalas will significantly impact the local population and remove another creek corridor – a corridor which research has identified as of critical importance to mitigate the increasing impacts of climate change and supporting koala movements.[35]

Unfortunately, the poor outcomes and lack of fit-for-purpose road mitigation works underway and proposed along Appin Road reflect other examples across NSW. These include koala fencing on Hogbin Drive at Coffs Harbour, fencing which abruptly comes to an end – allowing koalas and other wildlife onto the road. There are also ongoing issues with inadequate fencing and other mitigation measures on Heathcote Road, with koalas continuing to be killed.

Troublingly, research covering the last 20 years in Queensland has identified a link between vehicle strike hotspots and significantly reduced local populations. Specifically, if the numbers of koalas killed along a section of road indicates a decline over time, there is a direct relationship with local extinction (extirpation). Concerningly:

> At face value a decline in koala vehicle-strike appears positive, but we advise caution because this may indicate a local population experiencing decline… we suspect that by the time the emergence of a hot spot is detectable, a local koala population is already under intense pressure.[36]

Other research has found that 'mitigation at single point locations is unlikely to be sufficient to maintain the long-term viability of populations', highlighting that effective road mitigation require a suite of approaches. Attempts to force koalas to cross at a single point exacerbates risk, more-so when the designs are not fit-for-purpose.[37] Locations identified as hotspots are 'typically just the worst clusters on roads already "littered" with wildlife vehicle-strike incidents.'[38]

---

[35] Ellis, W., Melzer, A., Clifton, I. D. and Carrick, F. (2010). Climate change and the koala Phascolarctos cinereus: water and energy, *Australian Zoologist*, 35, 369-377. Gordon, G., Brown, A.S., Pulsford, T. 1988. A koala (Phascolarctos cinereus Goldfuss) population crash during drought and heatwave conditions in south-western Queensland. *Australian Journal of Ecology* 13, (4): 451–461.

[36] Dexter, C.A., Scott, J., Blacker, A.R.F., Appleby, R.G., & Jones, D.N. (2023). Koalas in space and time: Lessons from 20 years of vehicle-strike trends and hot spots in South East Queensland, *Australian Ecology* 49(2), https://doi.org/10.1111/aec.13465

[37] Patrick, D.A., Gibbs, J.P., Popescu, V.D. & Nelson, D. (2012). Multi-scale habitat-resistance models for predicting road mortality "hotspots" for turtles and amphibians. *Herpetological Conservation and Biology*, 7, 407–426.

[38] Dexter, C.A., Scott, J., Blacker, A.R.F., Appleby, R.G., & Jones, D.N. (2023). Koalas in space and time: Lessons from 20 years of vehicle-strike trends and hot spots in South East Queensland, *Australian Ecology* 49(2). https://doi.org/10.1111/aec.13465

If the Koala Strategy, supporting government policy and legislation cannot protect critically important koala populations such as the Campbelltown colony, their habitat and connectivity, what chance do koalas have to survive and thrive in NSW?

**Recommendation 19**
The NSW Government commit to providing safe and effective land bridges and wildlife overpasses as business-as-usual for (1) all new roads, and (2) all road upgrade projects to mitigate their impacts on koalas. The design process must be led by recognised koala experts, and in collaboration with local communities to draw on their detailed knowledge.

**Recommendation 20**
Continued mapping of koala populations be used to create a register of existing roads where worlds-best practice land bridges, wildlife overpasses and associated mitigation works will facilitate the safe movement of koalas and connectivity of habitat.

## Linked land bridges with, and as, habitat

To support the safe movement of koalas across habitat, land bridges and overpasses must be built to link habitat where koalas are known to move across.

Where necessary to ensure the ongoing viability of habitat, restoration works be undertaken to widen these corridors to a minimum width of 450m. Where corridors are narrow, active restoration and management plans must be developed to ensure their long-term viability. Local communities can be engaged in in tree planting days, increasing their involvement support the koalas who live amongst them.

**Recommendation 21**
Wildlife land bridges and overpasses must be linked to protected and viable habitat corridors.

**Recommendation 22**
The NSW government immediately implement world-best practice and require a land bridge or overpass be built adjacent to Noorumba Reserve as part of the Appin Road widening and mitigation works.

**Recommendation 23**
The Mallaty Creek habitat corridor be protected and widened, with a land bridge at Appin Road built to facilitate the safe movement of koalas between the Georges and Nepean Rivers.

## Translocation as a last resort

The translocation of koalas must be viewed as a last resort, and not inform planning decisions to approve the destruction and fragmentation of koala habitat. There is a risk of other-emphasis on translocation as an option, in place of the protection and restoration of habitat and connectivity — including reducing the urgency of the NSW Government taking action.

Translocation also presents key and significant risks to koalas. A study by Cristescu and others found that very low genetic diversity is a direct outcome of translocation. Low genetic diversity leads to increased sensitivities to environmental stress and pathogens (disease impacts), exacerbating the environmental extinction risk. More broadly, there is an increased risk of extirpation linked to 'inbreeding debt'.[39]

**Recommendation 24**
The translocation of koalas must be a last resort, and not be a factor in decisions to approve the destruction and fragmentation of habitat.

## Bushfire, prescribed and cultural burning

Bushfire presents an additional threat to koalas. The scale and impact of the 2019-20 Black Summer bushfires has increased community expectations on government to protect koalas and other wildlife.[40]

Alongside the impacts of fire on koalas and other species, prescribed burning and other bushfire mitigation measures continue to take precedence over biodiversity.[41] Research indicates prescribed burning can lead to a cycle of preventing the establishment of healthy ecosystems, and locates a shift in understanding of the impacts of burning on biodiversity.

Climate change is leading to increased risk of severe bushfires. Australia's fire regime has shifted, and the shift is not linear.[42] Prescribed burns are a destructive process and can add to

---

[39] Cristescu, R., Cahill, V., Sherwin, W.B., Handasyde, K., Carlyon, K. Whisson, D., Herbert, C.A., Carlsson, B.L.J., Wilton, A.N., & Cooper, D.W. (2009). Inbreeding and testicular abnormalities in a bottlenecked population of koalas (Phascolarctos cinereus), *Wildlife Research* 36. 299–308.

[40] Rumpff, L., Legge, S., van Leeuwen, S., Wintle, B. Woinarski, J., Eds (2023) *Australia's Megafires: Biodiversity Impacts and Lessons from 2019-2020*, CSIRO Publishing.

[41] Dr Joe Fontaine in Brooks, S. (2023). Last year 5 million hectares of land was burnt in WA. So, does prescribed burning work? *WA Today*, 5 July. https://www.watoday.com.au/national/western-australia/last-year-5-million-hectares-of-land-was-burnt-in-wa-so-does-prescribed-burning-work-20230704-p5dlm2.html

[42] Jones, R. (2023). Fire regimes around Australia shifted abruptly 20 years ago – and falling humidity is why, *The Conversation*, 11 September. https://theconversation.com/fire-regimes-around-australia-shifted-abruptly-20-years-ago-and-falling-humidity-is-why-209689

this increased risk by replacing trees and understory vegetation which slow fire, with plants that act as fuel and increase the intensity of fires with flames twice the height of mature forests.[43] Whereas koalas can survive bushfires by seeking refuge higher up in trees, the increased height in flames through to eucalypt canopies — during higher intensity fires — leave no avenue for escape.

Working with local Aboriginal communities and firekeepers enables more-constructive, culturally informed and environmentally sensitive approaches to mitigating the intensity and severity of bushfires and reduce the impacts on biodiversity.[44]

**Recommendation 25**
NSW government agencies work with firekeepers and local Aboriginal communities across all present and potential koala habitat to co-design any burning activities, in accordance with Free, Prior and Informed Consent (FPIC), Indigenous Data Sovereignty (IDS) and Indigenous Cultural and Intellectual Protocols (ICIP).

## Emergency planning, preparedness and response

The NSW Wildlife in Emergencies Sub Plan outlines emergency management arrangements, specifically for emergencies which also impact wildlife in NSW.[45] With limited operational details provided, and the Sub Plan developed without consulting the volunteer wildlife rescue and rehabilitation sector, the opportunity to co-design an effective process — drawing on the expertise of the sector — continues to languish.

---

[43] Zylstra, P., Wardell-Johnson, G., Falster, D., Howe, M., McQuoid, N. and Neville, S. (2023). Mechanisms by which growth and succession limit the impact of fire in a south-western Australia, *Functional Ecology* 37, 5, pp. 1350-1365. https://doi.org/10.1111/1365-2435.14305; Campbell, T., Bradshaw, S.D., Dixon, K.W. and Zylstra, P. (2022). Wildfire risk management across diverse bioregions in a changing climate, *Geomatics, Natural Hazards and Risk* 13, 1, pp. 2405-2424. http://doi.org/10.1080/19475705.2022.2119891; Butler, G. (2023). Hazard burns could be fuelling the fire danger. Indigenous practices offer another way, *SBS News*, 16 September. https://www.sbs.com.au/news/article/hazard-burns-could-be-fuelling-the-fire-danger-indigenous-practices-offer-another-way/pevprmc3f

[44] Rodrigues, U., Lullfitz, A., Coyne, L., Dean. A., Eades, A., Flowers, E., Knapp, L., Pettersen, C., Woods, T. and Hopper, S.D. (2022). Indigenous Knowledge, Aspiration, and Potential Application in Contemporary Fire Mitigation in Southwest Australia, *Human Ecology* 50, pp. 963–980; McKemey, M. (2021) Developing cross-cultural knowledge ('right way' science) to support Indigenous cultural fire management [PhD Thesis], University of New England. https://trove.nla.gov.au/work/247730656

[45] EnvsFa (2023). *Wildlife in Emergencies Sub: Plan A Sub Plan of the State Emergency Management Plan*, NSW Government, 13 December.

There is much to be learnt from experiences of communities, the volunteer wildlife rescue and rehabilitation sector, and first responders during and following the 2019-20 Black Summer bushfires.

> *There is a clear need for more effective planning and improved integration of the volunteer wildlife rescue and rehabilitations sector into emergency planning, preparedness and response.*

Research undertaken to consider the effectiveness of emergency response found that the majority of wildlife rescues were delayed by up to 6-8 weeks after fires commenced, and effectively restricted to the edges of fires zones. Of the estimated 46.8 million marsupials inhabiting the fire zones in NSW, only 889 rescues were reported – 0.002%. The outcome being that many animals who survived the fires would have succumbed to their injuries during that time.[46] Koalas were found who were dying from starvation, dehydration, smoke inhalation and other hazards several weeks after fires had passed.[47]

One implication of the development of NSW Sub Plan without effective consultation with the volunteer wildlife rescue and rehabilitation sector are direct impacts on community confidence in government emergency management process. As the report of *Royal Commission into National Natural Disaster Arrangements* noted, 'in many instances wildlife rescue or protection efforts were initiated outside emergency services' and when community members self-deployed into fire zones, alongside direct personal risk, such actions can complicate formal operational responses and negatively impact outcomes.[48]

---

[46] Cope H.R., McArthur, C., Dickman, C.R., Newsome, T.M., Gray, R., Herbert. C.A. (2024). Trends in Rescue and Rehabilitation of Marsupials Surviving the Australia 2019-2020 Bushfires, *Animals* 14, 1019.

[47] Cristescu, R.H., & Frere, C. (2020). Scientists find burnt, starving, koalas weeks after the bushfires, *The Conversation*, 16 March, https://theconversation.com/scientists-find-burnt-starving-koalas-weeks-after-the-bushfires-133519

[48] Commonwealth of Australia (2020) *Royal Commission into National Natural Disaster Arrangements report*, p. 355, 360.
A delay in people leaving their homes, and delf-deployment to emergency areas can increase risks posed to first responders – a theme discussed at Sally Quinnell's, MP, Camden Emergency Resilience Roundtable on 10th May 2024. Attend by emergency management personal, first responders, representatives from other government agencies, suppliers of critical services and WIRES, the focus of the roundtable was to identify challenges and way to address these.

**Recommendation 26**
NSW Government agencies directly engage the wildlife rescue and rehabilitation sector in a co-design process to develop emergency planning, preparedness and response procedures to ensure key expertise and capabilities are integrated and lead to more effective outcomes.

## Pillar 4: Building our knowledge of koalas

Alongside failing to adequately consider the impacts on koalas, planning decisions are being made with incomplete data about population numbers and locations. Present and potential koala habitat continues to be cleared across NSW. In addition, the knowledge held by local communities, the volunteer wildlife rescue and rehabilitation sector and environmental Non-Government Organisations (eNGOs) are not being taken into account.

The volunteer wildlife rescue and rehabilitation sector and eNGOs hold significant knowledge and expertise, gained and developed through working on-the-ground with koalas and communities across critical habitat protection and restoration, rescue and rehabilitation and understanding the mechanics and spread of disease.

> *Supporting the volunteer wildlife rescue and rehabilitation sector and the communities they assist directly recognises the value of the sector and will further improve outcomes for koalas.*

### Effective and available data to inform decision making

On ongoing challenge — with disastrous consequences for koalas and other wildlife, the communities they live around and amongst, and the volunteer wildlife rescuer and rehabilitation sector — are delays in the updating of records in BioNET. The impacts cannot be understated.

Approvals enabling widespread habitat destruction of present and potential koala habitat, including Cumberland Plain Woodlands throughout south-western Sydney, ongoing loss of east-west habitat corridors from the coast to the Blue Mountains plateau, and in the Northern Rivers region, provide a very clear example of the impacts and key threat to the ability for koalas to survive and thrive in NSW.

Planning decisions are being made based on data approximately many years out of date, which do not take into account the detailed knowledge of populations and threats held by the volunteer wildlife rescue and rehabilitation sector and eNGOs, the broad knowledge of critical habitat and connectivity held by the volunteer wildlife rescue and rehabilitation sector and eNGOs, and the scientific studies and data informing this specialised knowledge.

**Recommendation 27**
The NSW government increase staffing numbers and other supports, including departmental processes, to ensure updating of records in BioNET in as close to in-real-time as practicable.

**Recommendation 28**
Government work with the volunteer wildlife rescue and recovery sector to facilitate improved processes for the transfer of records into BioNET. The development of a clear template, automated migration pathways, and a supported reporting tool-system available to the volunteer rescue and rehabilitation sector, be funded and actively supported by government through a co-design process.

**Recommendation 29**
In reflection of the importance of the volunteer rescue and rehabilitation sector to communities, local councils and the NSW Government, funding be provided to support the volunteer wildlife rescue and rehabilitation sector to undertake near-real-time updating of records.

## Further support for peer-reviewed research

The volunteer wildlife rescue and rehabilitation sector directly supports and enables key research on koala populations, key threatening processes, and new and novel approaches to further our knowledge of koalas.

In 2022 WIRES launched a Research Grants Program designed to address significant knowledge gaps surrounding Australian wildlife and their habitat. The program is proudly supported by the Royal Zoological Society of New South Wales. Through the Research Grants Program WIRES has committed $1.5 million dollars for projects which have tangible, positive and ideally long-term outcomes for wildlife.

The overall objectives of the program include

1. Identify and address current research gaps that will result in evidence-based approaches to objectively reduce future risk to and improve the health and habitats of Australian native species.
2. Advance scientific research into key issues impacting Australian wildlife and habitats through strategic investment.
3. Raise awareness and implementation of proven wildlife rehabilitation and conservation methods.
4. Promote best practice emergency preparedness and response in the context of wildlife conservation.

All four of these recommendations directly parallel aims of the NSW Koala Strategy, and are reflected in funded research projects including *Koalas, genotyping, trackers, and drones: Using* *thermal imaging, novel VHF/GPS tracking technology and genotyping to enhance post-release outcomes for rehabilitated koalas and support the recovery of the Port Stephens koala population* and *Securing the health and viability of koala populations in post-fire landscapes*.

Increased government support for research is needed, focussed on place-based key threatening processes. For example, the key threatening process for koalas include habitat destruction, disease, domesticated animals including dogs, and vehicle strike. In South-Western Sydney approximately 10% of the Campbelltown koala population was killed on Appin Road over an 18-month period — a staggering figure which threatens the survivability of the critically important population.

> *Ongoing peer reviewed and government supported research is essential to inform the Koala Strategy and drive policy reform in NSW.*

Supported research projects, for example, would ensure that road mitigation works are wildlife-centred rather than being based on expedience — which continues to be illustrated in decisions made by TfNSW, at the expense of kolas, other wildlife and the community.

**Recommendation 30**
Planning decisions which may impact koala populations must be informed by up-to-date and detailed research. Independent research must be supported and fully funded by Government and-both proponents of project proposals. Approvals for projects must be tied to independent research outcomes which ensure no or minimal unavoidable impacts on koalas and their habitat.

## Supporting the wildlife carer sector

The volunteer wildlife rescue and rehabilitation sector provides a valuable service to local communities across NSW, at significant avoided cost to government. A service which is expected by local communities, and essential to ensuring koalas will survive and thrive in NSW.

The volunteer wildlife rescue and sector can be further supported by the NSW government across financial, resourcing and procedural/policy areas.

For example, most koalas are injured on roads at or after dusk and early in the morning. Prompt medical care is essential to their survival. The current situation of very limited access to after-hours care is leading to poor welfare outcomes — at best — with critically injured koalas who survive long enough required to suffer for several hours whislt waiting for specialist veterinary care to become available.

*Access to appropriately trained after-hours care for koalas in NSW will improve survivability rates — and must form part of all road-mitigation strategies.*

The Minister's April announcement of $4.5 million in funding for a koala care facility in the Macarthur region is a very good first step.[49]

In addition, providing mechanisms for veterinary professionals and practices with direct investment or ability to write-off the costs of treating koalas and other wildlife will assist the volunteer wildlife rescue and sector and improve welfare outcomes for koalas.

Increasing the capacity of both the voluntary wildlife rescue and rehabilitation sector and veterinary professionals will directly improve welfare outcomes for koalas and help address the impacts of disease. Capacity can be increased through supporting the development of a government program to co-fund the establishment and ongoing operation of a network of facilities across NSW, which are either open 24/7 or able to operate after hours with on-call specialist koalas-trained veterinarians.

Government support, via co-funding and resourcing, for a network of wildlife ambulances — and the support these can provide for after-hours rescues and the transporting of sick and injured koalas to specialist facilities will also lead to improved welfare outcomes and tackling disease.

**Recommendation 31**
The NSW government provide increased financial, resourcing and procedural/policy support for the volunteer wildlife rescue and sector to lead to better welfare outcomes for koalas.

**Recommendation 32**
The NSW government co-fund specialist koala care facilities and wildlife-trained veterinary professionals to provide 24/7 and on-call services.

## Tackling disease in koalas

Reducing external pressures on koalas will support resilience in populations, as disease takes hold and spread far more rapidly by populations under stress. These pressures include ongoing and increasing destruction of habitat and fragmentation — on public and privately-held lands, the impacts of roads and climate change.

[49] NSW Government (2024). *$5 million to care for koalas in Sydney's South West*, Environment and Heritage, 28 April. https://www.environment.nsw.gov.au/news/5-million-to-care-for-koalas-in-sydneys-south-west

The protection and restoration of koala habitat and connectivity ensures koalas can safely move across their range reducing territorial stress. An increase in protected habitat reduces population density and improves access to higher nutrient trees — one means to address impacts of climate change and disease.

In consultation with veterinary professionals, the Australia Veterinary Association (AVA) and the volunteer wildlife rescue and rehabilitation sector, the development of standardised treatment protocols will lead to better outcomes for koalas. These protocols should include urogenital and ocular PCR screening for all koalas who come into care, and ideally ultrasounds as part of admission screening. In addition, ensuring that veterinary professionals and clinics treating koalas are trained in papping or reseeding the caecum with gut flora increases the survivability of post-antibiotic therapy for koalas receiving Chlamydia treatment.

Standardising microchipping will further facilitate access to records across NSW and contribute to better monitoring of disease spread and welfare outcomes for koalas. Standardised microchipping will also benefit necessary research into the efficacy of single-dose vaccines, which require ongoing government support.

**Recommendation 33**
A standardised protocol is co-designed with veterinary professionals, the Australia Veterinary Association (AVA) and the volunteer wildlife rescue and rehabilitation sector for intake screening, treatment and microchipping of koalas.

**Recommendation 34**
The NSW Government provide ongoing funding to support research into the efficacy of single-dose vaccines for koalas.

## Conclusion: change is need to ensure koalas can survive and thrive in NSW

The situation for koalas in NSW is dire. The upgrading of their status from vulnerable to endangered in 2022 (under both NSW and Commonwealth laws) reflects the very real threat of extinction by 2050, which sits in direct contrast to how they are valued by the community. The review of the Koala Strategy presents an important means to revisit current planning processes and practice, and ensure legislation increases protections for koalas. Much more needs to be done to ensure koalas can survive and thrive in NSW.

The 2019-20 Black Summer Bushfires increased awareness of the plight of koalas in NSW. Well-established key threatening processes and long-standing and dramatic population declines require broadscale outcomes-focused action to ensure the NSW Government aim of doubling koala numbers in NSW can be met.

Historical records from 1884-2021 confirm an enduring presence of koalas across the Sydney Basin, illustrating their resilience. With as few as 6,000 koalas remaining in NSW, targeted action is needed now to respond to the interlinked key threatening processes of habitat destruction and fragmentation, climate change, roads and disease.

> *As a critical first step, the NSW Government must do more to protect all remaining habitat and embark on a substantive program to support koalas through an active habitat restoration program.*

A subset of this first step is ensuring that habit is connected. As the impacts of climate change increase, so will the importance of connectivity. Koalas will increasingly move into riparian corridors, along creeks and drainage lines – emphasising importance of their protection and restoration as viable habitat.

Connectivity includes addressing the key threat of roads. Land bridges and wildlife overpasses reflecting worlds-best designs are a critical component of ensuring koalas can move safely across the range – and must become business-as-usual for all new roads, and all road upgrade projects.

Working on Country together, recognising and valuing Indigenous cultural authority and knowledge, will lead to better approaches and outcomes for koalas.

Protecting connected habitat requires changes to legislation, including for privately held land. Stronger legislation will increase community confidence in NSW Government processes, signposting to landholders that the days of widespread and non-sanctioned destruction of habitat is over.

Habitat protection sits alongside supporting the volunteer wildlife rescue and rehabilitation sector to provide appropriate care for koalas. Government co-funding the establishment and ongoing operation of a network of rescue and rehabilitation facilities across NSW to provide on-call and 24/7 access to wildlife-trained veterinary professionals will ensure that appropriate care is available.

The volunteer wildlife rescue and rehabilitation sector has two overarching aims to ensure koalas can survive and thrive in NSW: (1) reducing the likelihood and number of koalas requiring rescue and rehabilitation, and (2) ensuring that any koala requiring rescue and rehabilitation receives appropriate care.

WIRES submission outlines how this can be achieved, and that with government support, both are possible.

Yours sincerely,

Leanne Taylor CEO

**Contact**
Dr Colin Salter
Research & Policy Officer
NSW Wildlife Information Rescue and Education Service Inc. (WIRES)
programs@wires.org.au