



REPORT

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KOALA HABITAT CONSERVATION PLAN

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WWF-Australia and partner conservation and animal welfare organisations extend our sincere thanks to David Paull and the other experts for researching and producing this plan. If koalas continue to roam and bellow across the forests and bushland of Eastern Australia come the end of the twenty-first century, those who come after us will have them to thank for helping save the koala from extinction in the wild.

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*“The things of nature do not really
belong to us; we should leave them to
our children as we received them.”*

Oscar Wilde

Foreword by WWF-Australia

The findings in this report show that koalas are declining in number. They have already been driven to extinction in many places across eastern Australia. The analyses identify koala populations in decline, and which are at risk of local and regional extinction in the next few decades. On current trends, the species faces extinction in the wild across most or all of New South Wales and Queensland this century unless threats are curtailed.

Just 230 years ago, many millions of koalas roamed the great forests and bushland of eastern Australia.

This report was prepared for WWF-Australia and leading conservation organisations by koala expert David Paull with expert input from more than 10 experts from the fields of conservation science, koala ecology, koala conservation, environmental law, assessment and management of native vegetation, forest ecology and koala nutrition.

WWF-Australia considers this plan to be the first such report produced by koala experts independent of governments and political influence that undertakes a comprehensive assessment of threats to koala habitat at the scale of the vulnerable population in eastern Australia. It proposes comprehensive legislative reforms and on-ground conservation measures to slow and reverse the decline towards extinction of the species in the wild in NSW, Queensland and the ACT.

The geographic scope of this plan is the three jurisdictions in which the vulnerable population of koalas listed under federal environmental law occur, namely New South Wales, Queensland and the Australian Capital Territory. However, due to challenges in securing access to accurate and current data and mapping regarding koala habitat and populations in Queensland, the focus is on NSW. The conservation organisations and authors hope to expand the detailed analyses conducted for koalas in NSW to Queensland, in collaboration with Queensland koala experts, in the future.

EXECUTIVE SUMMARY

This plan is the first produced by koala experts independent of governments and political influence to undertake a comprehensive assessment of threats to koala habitat at the scale of the vulnerable population in eastern Australia.

It proposes comprehensive legislative reforms and on-ground conservation actions to slow and reverse the decline towards extinction of the species in the wild in NSW, Queensland and the ACT.

Status of koalas and main threats

The main driver of the loss and fragmentation of koala habitat are the weak and permissive laws passed by state, federal and local governments which allow excessive tree-clearing and deforestation. Without the right species of eucalypts and other trees, koalas have no homes or food.

Koala populations in both New South Wales and Queensland are declining and may face extinction in a few decades.

Between 1990 and 2016, at least 9.6 million hectares of vegetation have been bulldozed in NSW and Qld, including both primary and regrowth forests.

Native forest logging of koala habitat on public lands in NSW is set to increase in scale and magnitude with the passing of the new Coastal Integrated Forestry Operations Approvals.

Private native forestry is occurring extensively, though few details are publicly available. Codes of practice have generally had a limited ability to identify important koala habitat or koala usage, with the focus on self-assessment.

Laws and policies for approving major infrastructure projects, mines and state significant development often place protection of koala habitat as a low priority, if at all. Reliance upon offsetting and translocation of koalas to other forests is largely ineffective at preventing population decline.

Urban growth and infrastructure development in NSW and Qld are contributing to significant ongoing decline of coastal populations.

Lack of protected areas that conserve significant koala habitat and major population is still a significant issue in NSW and Qld.

Actions urgently required

Laws and policies, which regulate vegetation removal in New South Wales and Queensland, require urgent and significant strengthening in order to protect koala habitat.

Native forest logging on public lands needs to end immediately with the transferral of significant areas of state forest to the reserve estate. In the interim, forestry operations on public and private lands require strengthening with better enforcement in order to protect koala habitat.



WEAK AND PERMISSIVE
LAWS PASSED BY ALL
LEVELS OF GOVERNMENT
ARE DRIVING THE LOSS OF
KOALA HABITAT IN
NSW & QLD



A NSW and Qld koala strategy should be truly whole-of-government and address the main threat of loss of koala habitat from tree-clearing and forest destruction, rather than focussing largely on the symptoms.

Expansion of the protected areas network is necessary to prevent further decline of koala populations. To assist government, WWF has identified Koala Habitat Priority Areas, which include:

More than 400,000 hectares of state forests, Crown land and other government lands by inclusion within the reserve system or provided with in perpetuity protection.

Approximately 500,000 hectares of freehold land that require in perpetuity protection or purchase or additions to the reserve system.

Key areas that require substantial increase in levels of protection in NSW include the north coast area of NSW; the inland forests of northwest NSW and the Murray Valley; and, the headwaters of the Georges and Nepean Rivers near Campbelltown in southwest Sydney.

In NSW, increased funding and technical assistance for landholders is urgently required for communities and businesses seeking to reforest koala habitat across over-cleared landscapes. This should involve a major increase in funding for the NSW Government's Biodiversity Conservation Trust, Environmental Trust and Saving Our Species program to scale-up investment in regenerating, revegetating and protecting koala habitat in perpetuity.

In Queensland, expansion of the protected areas network to conserve priority koala habitat is required across all areas of the state where koalas occur. This will include levels of commitment under the Qld Government's Land Restoration Fund.

The Australian Government should make saving the koala from extinction in the wild in eastern Australia this century a national priority. In the short-term, the Australian Government must amend or replace the federal *Environment Protection and Biodiversity Conservation Act* to enable stronger clearing triggers, stronger environmental assessment and compliance enforcement of developments that may affect koala habitat.

A new national Environment Act would underpin new independent institutions to drive policy to end major landclearing, including of koala habitat.

The Australian Government should develop an ambitious and well-funded national koala recovery plan designed to save koalas from extinction in the wild.

The Australian Environment Minister should commence the process for upgrading the status of koalas in NSW, Qld and the ACT from the current 'vulnerable' to 'endangered' in order to increase the national government's capacity to protect koala habitat.



ORPHAN KOALA JOEYS, SOUTHEAST QUEENSLAND, AUGUST 2017 © WWF-AUS / PATRICK HAMILTON

SUMMARY OF THREATS AND STATUS

Given that koala populations continue to decline to historic lows, koala populations in NSW and Queensland would likely qualify for ‘upgrading’ the current ‘vulnerable’ listing to ‘endangered’.

Current koala situation in NSW and Queensland

The analysis provided in this Koala Habitat Conservation Plan (the Plan) shows that:

- The reserve system provides insufficient coverage of existing koala populations and habitat, accounting for only 13.6% of all known records in NSW. This will not prevent the imminent loss of koala populations, given that 67.4% of records are from private freehold lands and 8% from state forests, where threat trends continue to rise. Another 10.7% are found on crown lands.
- There is no widely accepted estimate of the total population size for Eastern Australia’s vulnerable koala population. Official information on this is poor, notwithstanding the efforts over decades of an army of passionate people from community, government, Indigenous, research and consulting sectors who have studied this endearing species. There is a genuine need for better estimates of population sizes and trends. A compilation of the latest survey and estimate data presented here shows there are currently 37 to 38 metapopulations in NSW with a likely total population size of 15-28,000 animals. Southeast Queensland has a likely population size of 5,000 to 20,000 animals.
- Surveys and population models show the majority of metapopulations across NSW, Qld and the ACT are declining in abundance, with reduced ability for transfer of genetic materials between populations. Data presented here suggests 25 metapopulations are in decline in NSW, two are apparently stable, and 11 other metapopulations show a presence in recent surveys but with insufficient baseline data to determine trends.
- It is likely that koalas have already disappeared from large areas of their former range in western NSW and Queensland, suggesting habitat conditions in these areas are now inadequate to support koala populations. The pace of such local extinctions is growing, with climate change hastening declines. Many populations in coastal and western areas may already be functionally extinct. Remaining areas of potential koala habitat within their current range are often fragmented and reduced in size.
- Many existing populations are under high levels of local threat from ongoing land clearing, native forest logging, urban expansion, infrastructure development and the onset of climate change-related effects. This situation has been exacerbated by poor legislative and regulatory control over vegetation removal, poor environmental planning and increased levels of dog attack, disease and vehicle collisions.
- Given that koala populations continue to decline to historic lows, koala populations in NSW and Queensland would likely qualify for ‘upgrading’ the current ‘vulnerable’ listing to ‘endangered’.

Threat assessment

- Weak and permissive laws, particularly in NSW and Queensland, that are supposed to regulate land clearing and deforestation, are the primary driver of the current koala extinction crisis. Primarily due to habitat loss and fragmentation, these landscape-scale impacts have precipitated increased levels of disease, vehicle strike, dog and cow attacks, dehydration and other impacts associated with high levels of human interaction.
- National Carbon Accounting Scheme figures show that from 1990-2016 approximately 2,200,000 hectares of native vegetation was cleared in NSW. While it is not clear how much of this was koala habitat, koala habitat modelling estimates reveal that 8,500,000 hectares has been cleared in NSW since European settlement, or 40% of modelled pre-1750 vegetation extent (based on the federal government's Species of National Environmental Significance habitat mapping). Some of the more important koala habitats have been cleared by approximately 70 to 95%.
- Sixty-five percent of the total loss of native forests in Australia has occurred in Queensland over the past four decades. Over just the 20-year period between 1995 and 2016, 3,600,000 hectares of remnant vegetation has been cleared in Queensland, with another 2,800,000 ha of regrowth cleared during the same period. It is not clear how much of this is koala habitat, although it is likely to be a significant proportion.
- The impacts of native forest logging on public lands in NSW have increased in scale and magnitude with the passing of the new Coastal Integrated Forestry Operations Approvals (IFOA), which set up intensive harvesting zones on the north coast similar to current practice on the south coast, with poor tree retention rates and poor levels of koala habitat protection.
- Private Native Forestry has been carried out extensively in NSW, although few details are publicly available. Codes of practice have generally had a limited ability to identify important koala habitat or koala usage, with the focus on self-assessment. The River Red Gum Code of Practice had no test to trigger koala actions until 2018, following a review of the codes. Since being transferred to the portfolio of the NSW Lands Minister, there are no guidance notes regarding koalas.
- Urban development, infrastructure and other major projects such as mining are now having major impacts on koalas by affecting the viability of local populations, reducing habitat extent, and increasing fragmentation. Construction of barriers with poor regard for koala ecology and movement also kills koalas, such as from vehicle collisions. Major projects or state significant projects have generally placed environmental outcomes towards the bottom of considerations by consent authorities, while placing greater emphasis on translocation, such as upgrades to the Pacific Highway near Ballina in NSW.
- Climate change is making Australia's normally challenging weather for koalas more extreme by exacerbating droughts, heat stress and bushfires. This kills koalas, whether directly such as by overheating and dehydration, or indirectly by degrading the eucalypt forests they live in. Leaf-eating animals are susceptible to declines in foliage quality, nutrient levels and water availability. Extended drought across NSW and Queensland has already coincided with a decline in koala numbers, along with habitat losses, which reduces the resilience of populations.

- Koala habitats are being increasingly affected by logging induced dieback throughout coastal NSW. Logging opens up gaps in the forest which are colonised by lantana and other weedy vines which suppress native regeneration and help the spread of sap-sucking insects and Bell Miners. Lantana is being spread by repeated logging, and stress from climate change, at an alarming rate.
- The koala habitat conservation and restoration measures proposed in this plan would also benefit a suite of other species inhabiting forests and bushland of Eastern Australia, many of which are threatened with extinction. Species which would benefit include including marsupials (such as Greater Glider, Yellow-bellied Glider, Spotted-tail Quoll, Eastern Quoll, Long-nosed Potoroo and Brush-tailed Phascogale), many species of bats, birds, reptiles, invertebrates and plants. Adoption of these recommendations would go a long way to reversing the broadscale biodiversity decline that is characterising the forests and bushland of NSW and Queensland.

Ways to better manage koalas

- Koala conservation is best implemented through the use of local expert knowledge and community participation, but requires a commitment to ongoing funding and increasing legislative protections. The proposals associated with the proposed 315,000 hectare Great Koala National Park for the Coffs Harbour hinterland are a good example of this approach. The analysis presented here provides strong validation for these proposals.
- Koala distribution and abundance surveys should be undertaken in ways that maximise the benefit for future monitoring and use the most effective techniques, which are intensive aerial-based surveys, transect surveys and dog-based surveys.
- Any mapping of koala habitat should be verified by on-ground surveys. Caution should always be used when relying on preferred tree species lists that are not derived from local information and do not take into account tree condition.
- Forage quality needs to be considered within assessments of habitat quality. This can either be done through plot-level assessments of the proportional representation of koala food tree species, or by sampling leaves from a representative sample of every koala food tree species on site for forage quality analyses. Forage quality analyses involve lab-based assessments for total foliar nitrogen, digestible nitrogen and formylated phloroglucinol compounds and unsubstituted B-ring flavanones.
- While faecal pellet surveys have limited use for describing population densities and size, faecal pellets are useful for monitoring the genetic diversity of populations. Further investment is needed to develop non-intrusive ways to test animals for health and disease, to assist communities to build a management profile for each population.



WILDLIFE IN CARE, SOUTHEAST QUEENSLAND, APRIL 2017 © DOUG GIMESY / WWF-AUS



NATIVE FOREST LOGGING DESTROYS KOALA HABITAT IN COASTAL NSW. © SUPPLIED BY COMMUNITY GROUPS VIA NATIONAL PARKS ASSOCIATION OF NSW



LAND CLEARING IN NORTHWEST NEW SOUTH WALES, OCTOBER 2012 © WWF-AUS

RECOMMENDATIONS FOR EXPANDING PROTECTED AREAS

Priorities for Expansion of the Protected Areas System in NSW

This report has focussed on priority koala lands across NSW due to issues with data availability for large areas of Queensland, although it is anticipated that a similar Queensland analysis will follow.

- The WWF koala hubs and priority areas identified in this study do not delineate all areas of importance for koalas, but they do identify those areas known to be of importance – areas with the highest modelled density of koalas. Koala habitat within these areas requires urgent protection and enhancement to first stabilise, then grow koala populations. Priority 1 areas are of the highest importance – known to support koala populations. Priority 2 lands are also of high importance and are likely to contain important koala habitat.
- Due to increasing threats to koalas in NSW state forests, there needs to be a significant increase in levels of protection for koalas. WWF Koala Habitat Priority Areas have identified 341,776 hectares of state forests for inclusion in the reserve system, with 180,368 hectares of state forests identified as being Priority 1 and 161,408 hectares as Priority 2.
- Some 71,094 hectares of Crown land plus other NSW Government lands, and Australian Government lands, were identified as high priorities for the protection of koala populations and habitat. Some of these areas should be transferred to the reserve estate, with others retained in the public system and managed as components of a regional system of retained and protected habitat. Of that, 54,380 hectares are identified as Priority 1 areas and 16,714 hectares as Priority 2 areas. Some of these lands are leasehold.

- One million hectares of land within the WWF Koala Habitat Priority Areas occur on freehold land. Within this area, 508,265 hectares of potential koala habitat was identified using existing vegetation mapping, containing 108,802 hectares of Priority 1 areas and 399,464 hectares of Priority 2 areas. Despite the limitations of the mapping used, this provides a strong focus for private land conservation in NSW, both in terms of private land investment and for habitat restoration and connectivity.
- Most koala populations rely to varying degrees upon effective conservation outcomes on private lands. The support of farmers, graziers, Indigenous land managers and conservation land managers for the survival of koalas is crucial. Adequate funding should not be reliant on offset arrangements and a range of private covenants. Significantly increased funding must be made available by government and non-government partners to support landowners who want to grow koala habitat. The overriding aim of private land covenants should be to strengthen the system of privately-held protected lands in perpetuity, with adequate incentives. NSW and Queensland need to substantially increase the level of funding for private land conservation as a matter of urgency. Examples of solutions for supporting enhanced private land conservation include the effective NSW Biodiversity Conservation Trust which is negotiating agreements for koala habitat conservation, Queensland Nature Refuges program, Indigenous Protected Areas, sanctuaries managed by a wide range of private land conservation trusts, and the evolving Queensland Land Restoration Fund.
- A range of community-led proposals for protected areas have been developed to conserve koala populations in NSW. These include the Great Koala National Park and associated additional areas on the NSW north coast, and the proposed Two Rivers Frontier Koala National Park in the headwaters of the Georges and Nepean Rivers in southwestern Sydney.
- There is also an urgent need to protect koala habitat on public lands in western NSW, particularly on the Liverpool Plains, within Pilliga Forest, and in the Murray Valley. New private and public reserves should also be declared adjacent to National Parks that already occur on mountain ranges that are potential higher-altitude climate refuges in a drying inland, such as Mt Kaputah, the Warrumbungles and the Liverpool Range. These areas are under increasing pressure from a number of factors, including climate change and habitat decline, and require a greater level of public and private land protection.
- Protecting koala populations most at risk from habitat loss around urban growth centres, particularly in western Sydney and other regional coastal cities and towns, is a priority.



KOALA JOEY (PHASCOLARCTOS CINEREUS) AND MUM EATING EUCALYPTUS LEAF. © DANGDUMRONG / WWF

RECOMMENDATIONS FOR LEGISLATIVE & POLICY REFORM

New South Wales

- The situation for koalas in NSW has become worse with the enactment of land management and biodiversity reforms in 2016/17, namely the *Local Land Services Amendment Act 2016* and *Biodiversity Conservation Act 2016* and regulations, and State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017. These need to be urgently overhauled and significantly strengthened to prevent

the further loss and fragmentation of koala habitat. More broadly, legislative frameworks that regulate management of koala habitat that also require strengthening include in relation to planning, infrastructure development and state significant development.

- The *Biodiversity Conservation Act 2016* and the *Local Land Services Amendment Act 2016* require substantial amendment to ensure they:
 - are designed to prevent extinction and decrease levels of land clearing;
 - use a 'no net loss or better' standard for all development;
 - establish a Commissioner to provide independent advice and oversight;
 - ensure that assessment tools are based on the latest science;
 - establish environmental auditing and reporting on monitoring and biodiversity trends;
 - require comprehensive data;
 - commit to fully resourced compliance and enforcement; and,
 - establish clear targets to inform plans and assessments.

- The *Land Management (Native Vegetation) Code 2017* should be limited to only genuine low-impact activities. This action would remove the ability to clear high conservation value native vegetation under the Equity, Farm Plans and continuing use provisions. A new code would not permit self-assessed clearing of threatened ecological communities and habitat for the koala and other threatened species. This would require mapping all koala habitat as sensitive regulated land.
- Legal mechanisms are needed for effectively managing and protecting priority koala lands, requiring agreements to be on title and in perpetuity.
- Resourcing for ongoing private land conservation needs to be expanded significantly. Funding for reserve system management requires considerable and transparent increases in commitment.
- Due to the questionable scientific merits of the Biodiversity Offset Scheme in NSW, it should be overhauled to embrace the principles of ecologically sustainable development. Strategies and plans should be backed with verifiable science, and financial arrangements should not be made in lieu of land-based offsets. However, while current offset policy remains in place, offset rules need to be amended to prevent offsetting of koala habitat under the Biodiversity Conservation Act 2016, the *Biodiversity Assessment Methodology* and *Environmental Planning and Assessment Act 1979*.
- A robust NSW Koala Strategy would: prioritise the establishment of accurate koala habitat mapping and baseline population data across all metapopulations; enable the genetic and disease profiling of populations; assist the development of population-based Koala Plans of Management; identify key areas of koala linkages and habitat enhancement on private lands as priorities for investment; and develop a system of public science and monitoring for koalas.
- The State Environmental Planning Policy No 44 – Koala Habitat Protection (SEPP44) – needs to be strengthened so that it will be mandatory for councils to ensure that comprehensive koala plans of management are fully implemented within a certain time frame in all areas where koalas currently occur. The SEPP needs to be made effective across all land tenures, with legislative backing in all areas where koalas occur to protect habitat. This would include koala assessments under other codes, such as private native forestry, which need to be mandatory wherever potential koala habitat is present or mapped to occur. Assessments should include field surveys and data reviews and be undertaken by a wildlife ecologist. Size limits on assessable projects need to be removed if critical koala habitat is present. Any new Koala SEPP must take into account landscape factors such as refuge areas, rehabilitation zones and dispersal corridors. Monitoring, auditing and statutory review periods for the SEPP should be mandatory.
- In relation to Urban and Environmental-zone clearing, any new SEPP, local environment plan or development control plan provision under the NSW planning regime must include and contribute to state-wide biodiversity objectives and priorities. The aim must be to establish best-practice approaches to significant tree protection, such as by tree preservation orders. To improve public consultation, there should be minimum consultation requirements for councils and other Part 5 activities that includes consultation with experts in the required fields. The new Vegetation SEPP should be significantly strengthened.
- Only an end to all native forest logging on public lands in NSW will ensure that further loss of koala habitat can be avoided. All koala habitat in NSW state forests needs to be mapped and protected from logging, with priority compartments transferred to the reserve estate. As an interim measure, the Coastal IFOA needs to be overhauled so that: regulation is improved; wood supply is independently reviewed; the protection of currently mapped

old-growth and rainforest is maintained; increases in logging intensities are rescinded; protection is extended to all trees over one metre in diameter; protection for mature trees as recruitment hollow-bearing trees, koala food trees and nectar food trees is reinstated; and all existing protected riparian refuges enhanced with wider riparian buffers.

- Private native forestry codes in NSW need to ensure that limits on logging intensity and stream buffers are not reduced, statutory protections of koala habitat is increased and that pre-logging surveys for koalas are undertaken by independent ecologists.

Queensland

- Queensland laws have improved with the passing of the *Vegetation Management and Other Legislation Amendment Act* in May 2018, though more improvements need to be made to the *Vegetation Management Act* (VM Act) plus a number of environmental and planning laws.
- Amendments need to ensure that clearing laws cannot be overridden by planning development designations under the *Planning Act* or other decision-makers, such as the Coordinator-General. Mapping of koala habitat under the *Planning Act* needs to be extended to all local council areas as a priority.
- Limits to clearing, particularly for koala habitat, need to be legislated. This will prevent the ability of other laws, such as the *Economic Development Act 2012*, to override strong protections put in place for koalas under environment and planning laws.
- Development has generally been prioritised in South East Queensland over protection of koala habitat. A moratorium should be placed upon clearing of koala habitat until planning and development laws and regulations are amended to effectively conserve koala habitat and populations.
- Koala assessments must be undertaken using qualified wildlife ecologists to ensure they use the best available surveys and information. Expert surveys should preferably be undertaken alongside complementary approaches, such as citizen science surveys using knowledgeable community members, koala sniffing dogs, forage quality analyses and evolving hi-tech drone-mounted cameras to detect koalas in dense canopies assisted by object-recognition software algorithms.
- Remove the term ‘essential habitat’ and replace with ‘critical habitat’ and make a commitment to undertake mapping of critical koala habitat across all tenures in Queensland. Declare all critical habitat mapped on state land as critical habitat via regulations under the *Nature Conservation Act 1992* (NC Act). Remove the right to seek compensation for declaration as critical habitat.
- Amend the NC Act to create an offence when vegetation clearing of more than 2 hectares in size of critical koala habitat is ‘take’ of protected wildlife under s88 of the Act.
- Most importantly, the protection of essential (or critical) habitat under the VM Act across all areas of Queensland needs to be strengthened, especially the urban footprint by removing exemptions to vegetation clearing regulations, particularly under the *Planning Regulation 2017*; and give the State Department of Environment and Science concurrence power with respect to all development applications that may impact koala habitat.
- Pass legislation to amend the NC Act to introduce the new private protected land area Special Wildlife Reserve, which allows private landholders and conservation

groups to ensure the protection of private land that is high-value wildlife habitat to an equivalent level as national parks (in perpetuity with on-title covenant).

- Ensure the protection of climate refugia from clearing through amendments to the VM Act that require the mapping and protection from clearing of areas that are modelled to promote persistence of koalas and other wildlife in a changing climate.
- Require that cumulative environmental impacts from all proposed development impacts must be considered in development assessment through amendments to the *Environmental Protection Act 1994* (EP Act) and *Planning Act 2016*.
- A robust Queensland Koala Strategy should prioritise the establishment of accurate koala habitat mapping and baseline population data across all meta-populations; commit to legal protection of significant koala habitat across land tenures; genetic and disease profiling of populations; assist the development of population-based koala plans of management; identify key koala linkages and areas of habitat protection and enhancement on private lands as priorities for investment; a major expansion of the national parks system to effectively protect koala habitat and populations; and develop a system of public science and monitoring for koalas.
- Codes governing the management of vegetation in urban areas should be strengthened to provide uniform tree preservation rules for councils, provide protection for green spaces, and support local governments by investing in more green space and expanded urban tree canopies.
- Offset Policy in Queensland results in perhaps the poorest outcomes for biodiversity out of the three policies examined by providing such flexibility that allows proponents to settle offset liabilities through up-front financial arrangements. Such an approach is an incentive to clear bushland, and the relevant acts should be repealed and replaced by legislation that promotes verifiable outcomes consistent with ecologically sustainable development.
- Translocation policy in Queensland should be clarified to reflect the standards set out by the IUCN.

Commonwealth

- A strong national recovery plan for koalas should be produced in collaboration with jurisdictions and independent koala experts should be finalised with community input in 2019, with a commitment of significant additional federal funding.
- A new Australian Environment Act should be legislated that, inter alia, prohibits the clearing of significant koala habitat. The new law should replace the current *Environment Protection and Biodiversity Conservation Act (Cth)* and elevate environmental protection and biodiversity conservation to be the primary objective. It should contain a raft of reforms to ensure the current decline of koalas is arrested where possible, including the introduction of a wider range of triggers for Commonwealth intervention in development and a mandatory adherence to the principles of ESD. In the interim, a land clearing trigger should be legislated under the EPBC Act to enable the federal Environment Minister and environment department to protect significant koala from clearing.
- Referral guidelines should be amended to improve definitions to improve outcomes for koala, including in relation to critical habitat and significant impact.



LAND CLEARING WITH BULLDOZER, QUEENSLAND. © THE WILDERNESS SOCIETY

- A new Environment Act would not incorporate a requirement to undertake bilateral agreements between the Commonwealth and states for environmental assessments unless specific criteria were met that included adherence to ESD and international covenants. Current bilateral agreements that accredit assessment processes in place between the Commonwealth and the states should be revoked, including the current Regional Forest Agreements. This would eliminate the possibility of Commonwealth standards being compromised by weaker state protections or assessment procedures.
- Commonwealth offset policy needs to be strengthened so that it does not result in the ongoing loss of remnant vegetation and koala habitat, and state-based offset policies must meet strengthened national standards.
- The conservation of koalas and their habitat should be elevated to be a national policy priority for federal governments. This would involve seeking bipartisan political support and new ambitious policy commitments similar to initiatives led by federal governments over the past half century to save the Great Barrier Reef, restore the Murray-Darling Basin, and cease logging of rainforests.
- The Common Assessment Methodology established between federal, state and territory governments must be significantly amended or replaced to improve the capacity of jurisdictions to provide stronger state-based legal protection for koalas, including designating local populations as endangered. Federal and state governments should support and develop a nomination for World Heritage listing of major areas of tall and species-diverse eucalypt forests on the Dividing Range and foothills of Eastern Australia. This would help protect large areas of significant koala habitat and increase protection of major koala populations.
- The Australian Environment Minister should seek advice from the Threatened Species Scientific Committee on whether koalas in Qld/NSW/ACT should be listed as an endangered species under federal law, which would involve 'upgrading' the current vulnerable listing under the EPBC Act.



LANDCLEARING FIRES IN NORTHWEST NSW 2016 © WWF-AUS



ORPHAN KOALA JOEY HELD BY CLARE, *RETURN TO THE WILD* INC. MANAGER, BRISBANE, 24 AUGUST 2017. © WWF-AUS / PATRICK HAMILTON

LIST OF ABBREVIATIONS

ACRONYM	FULL NAME
AGS	Australian Group Selection
ANZECC	Australian and New Zealand Environment and Conservation Council
AOBV	Areas of Outstanding Biodiversity Value
ARKS	Areas of Regional Koala Significance (NSW)
BAM	Biodiversity Assessment Method (NSW)
BCT	Biodiversity Conservation Trust (NSW)
BMAD	Bell Miner Associated Dieback
CAM	Common Assessment Method
CAR	Comprehensiveness, Adequacy and Representativeness
CBD	Convention on Biological Diversity
CEEC	Critically Endangered Ecological Community
CKPoM	Comprehensive Koala Plan of Management
COA	Commonwealth of Australia
DBMP	Direct Benefit Management Plan (Qld)
DCP	Development Control Plan
DES	Department of Environment and Science (Qld)
DPI	Department of Primary Industries (NSW)
EDO	Environmental Defenders Office
EEC	Endangered Ecological Community
EOAM	Environmental Outcomes Assessment Methodology
ESD	Ecologically Sustainable Development
ESFM	Ecologically Sustainable Forest Management
FCNSW	Forestry Corporation of NSW
FQA	Forage Quality Analyses
GKNP	Great Koala National Park
HSI	Humane Society International
HUA	High Use Area
IBRA	Interim Biogeographic Regionalisation for Australia
ICAC	Independent Commission Against Corruption
IFOA	Integrated Forestry Operations Approvals
IKPOM	Individual Koala Plans of Management
IUCN	International Union for the Conservation of Nature
LEP	Local Environment Plan

LGA	Local Government Area
LLS	Local Land Services (NSW)
LPR	Living Planet Report
MNES	Matters of National Environmental Significance
MOU	Memorandum of Understanding
NCAS	National Carbon Accounting System
NCC	Nature Conservation Council of NSW
NEFA	North East Forest Alliance
NPA	National Parks Association of NSW
NPWS	National Parks and Wildlife Service (NSW)
NRC	Natural Resources Commission (NSW)
NRS	National Reserve System
NRSP	National Reserve System Program
NSWLEC	NSW Land and Environment Court
NVIS	Native Vegetation Information System
OAG	Offsets Assessment Guide (Commonwealth)
OEH	Office of Environment and Heritage (NSW)
PCT	Plant Community Type
PDA	Priority Development Area (Qld)
PNF	Private Native Forestry
PPA	Privately protected areas
PVA	Population Viability Analysis
PVP	Property Vegetation Plan
RFA	Regional Forest Agreement
RGBSAT	Regularised Grid-Based Spot Assessment Technique
RMS	Roads and Maritime Services (NSW)
SDAP	State Development Assessment Provision (Qld)
SEPP	State Environmental Planning Policy
SLATS	Statewide landcover and trees study
SSD	State Significant Development
SSI	State Significant Infrastructure
STS	Single Tree Selection
TP	Translocation Proposal
TSSC	Threatened Species Scientific Committee



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1. RATIONALE

“If we don’t act swiftly and decisively, we risk losing all our wild populations of koalas in southeast Queensland in just a few more years. This will mean we have witnessed the demise of our state animal, and a key indicator of the health of our regional environments.” (Rhodes et al. 2017).

There is a crisis now facing the survival of our wildlife into the future and few more so than Australia’s iconic species, the koala. The findings of the World Wide Fund for Nature’s flagship *Living Planet Report* (WWF 2018) indicated that global wildlife populations have, on average, declined by 60% in just over 40 years. The report names Eastern Australia as a deforestation hotspot, along with the Amazon and Sumatra. More than 517,000 hectares of native bushland were bulldozed over the past 17 years in Eastern Australia – an area almost twice the size of the Blue Mountains National Park.

Even more worrying is that the report found that iconic Australian animals, such as koalas, are declining at significantly faster rates than the global average, given rising levels of landclearing, habitat simplification and drought exacerbated by climate change in Eastern Australia. The best scientific advice on how to slow and even reverse this decline indicates this is not possible without a significant reduction in tree-clearing, actions to mitigate climate change effects and a major expansion of protected areas.

Other recent reports indicate that the koala may become extinct across most of its range in New South Wales as early as 2050, and highly likely by 2100, without significant reduction in rates of landclearing (WWF 2018). The listing advice of the federal Threatened Species Scientific Committee (TSSC), which formed the basis for the listing of the koala in Qld, NSW and the ACT as vulnerable to extinction in 2012, estimated a 33% decline from 31,400 to 21,000 individuals in NSW across the two decades from 1990 to 2010. A later expert estimate gave the median value somewhat higher, at 36,000 animals in 2012 (Adams-Hoskings et al. 2016), though the stated margin of error in this study makes this estimate questionable. The overriding population trend, however, is undeniable and most recent data supports the fact that there is an ongoing decline of populations in NSW.

For Queensland, the *South East Queensland Koala Population Modelling Study* (Rhodes et al. 2015) concluded that between 1996 and 2014 there was clear statistical evidence of a decline in koala population densities of around 80% in the Koala Coast and 54% in the Pine Rivers area, despite high levels of local protection.

There was also evidence that rates of decline have increased over time. The TSSC estimated there were approximately 25,000 animals in South-East Queensland, while current estimates now place this figure as low as 5,000. The size of populations across the rest of Queensland is less clear, particularly in the Wet Tropics, Central Mackay Coast, Brigalow Belt, Mitchell Downs and Upland bioregions. Anecdotal reports suggest very low current densities in these bioregions.

Populations have been displaying varying levels of decline, but some reports of population increases in NSW should be treated with caution until more robust data is available. Many more populations may be already lost or functionally extinct, particularly in the north-west areas of NSW and south-west areas of Queensland. In the ACT, there are currently no recognised indigenous populations, though an introduced population is still extant in the Tidbinbilla and Namadgi reserves.

Ongoing forest fragmentation and loss has seen an associated increase in koala mortality attributable to disease, stress and other ground-based vectors such as cars and dogs; climate change has also seen increases in fire frequency, droughts, heatwaves and decreases in foliar nutrition. As many koala declines have occurred in relatively untouched forests, climate change is thought to be a key issue for future koala conservation.

The evidence is clear. Government agencies have failed to ensure the future persistence of the koala in the wild across most of its range. Actions are needed urgently to reverse this overall trend. To this end, this Habitat Conservation Plan, using NSW as the primary example, will outline the key actions that governments need to urgently undertake to meet this objective. Central to this are:

- An overhaul of legislation, policies and strategies so that koala populations and habitat can be properly identified and protected during development processes and changes in land use;
- To identify where the expansion of the protected lands systems should occur so that koalas are given the best possible long-term protection of habitat throughout their range; and
- To identify clear priorities to guide recovery actions and increase landscape-level habitat protection and connectivity on private lands.



LAND CLEARING WITH BULLDOZER, OLIVE VALE, QUEENSLAND © THE WILDERNESS SOCIETY



LAND CLEARING STRATHMORE STATION, QUEENSLAND (SUPPLIED)



ALMOST 58,000 HECTARES OF LAND HAS BEEN CLEARED AT STRATHMORE STATION IN QUEENSLAND. (SUPPLIED)



SATELLITE FOOTAGE SHOWS EXTENT OF LAND CLEARING IN QUEENSLAND BEFORE AND AFTER