Submission No 155

INQUIRY INTO KOALA POPULATIONS AND HABITAT IN NEW SOUTH WALES

Organisation: Stand Up For Nature Alliance

Date Received: 2 August 2019

Submission to Inquiry into koala populations and habitat in New South Wales by the Planning and Environment Committee of the Upper House of the NSW Parliament

Submission by Stand Up For Nature Alliance

Stand Up For Nature is an alliance of conservation groups dedicated to improving protection for nature in NSW. Member organisations of the Alliance are the NSW Nature Conservation Council, National Parks Association of NSW, Humane Society International, International Fund for Animal Welfare, Total Environment Centre, Wilderness Society, WIRES, WWF-Australia, Colong Foundation, National Trust, North East Forest Alliance and North Coast Environment Council.

Introduction

Ensuring the survival of koalas, as well as the over 1000 other species threatened with extinction in NSW, is an issue which must be beyond politics. It requires visionary leadership and lasting change. The Stand Up For Nature Alliance encourages the committee to work together to develop a cross-party consensus on genuine solutions to protect the future of our koalas.

Koala populations in NSW are in crisis. Since 1990, the population has declined by between 20% and 50%, to be in the range of 15,000 to 25,000 animals. Local extinctions have already occurred and current trends suggest koalas could be extinct in NSW within 30 years. It is clear that urgent action is needed to ensure future generations can see these iconic species in the wild.

Recently, the NSW Government recognised that koala populations are in steep decline and developed a strategy to begin to address this. Unfortunately, this strategy, and current government policy, fails to address the number one threat to koala populations - habitat loss and fragmentation.

Koalas cannot be saved unless we ensure their remaining habitat is protected and restored, but right now the opposite is occurring. Areas of core koala habitat in NSW, called 'koala hubs', have been

mapped by the Office of Environment and Heritage. These represent only a fraction of known habitat, but they are still being cleared for logging, agriculture and infrastructure at an increasing pace. We also have historically low rates of strategic additions to our National Parks network under the current government.

Ensuring our remaining koalas survive and their populations rebuild will require:

a. strong laws to protect their habitat, including ending major deforestation on private and leasehold land for agriculture, native forest logging, urban development, infrastructure, mining and gas,

b. including more koala habitat in national parks and other protected areas, and

c. investing in large scale revegetation of over-cleared landscapes, especially in modelled climate refuge and corridor areas.

The NSW Parliament faces a choice: continue with business as usual and oversee the rapid decline and possible extinction of one of our most iconic Australian mammals, or make urgent and major changes to protect vital habitat and restore our native forests. We urge the NSW Government, this committee and all Members of Parliament to work together to save koalas for future generations.

Key Recommendations

We urge the Committee to adopt the following key recommendations to save koalas from extinction in the wild in NSW:

1. **Prevent habitat loss and fragmentation from agriculture, forestry, industry and urban development**

   1.1. Immediately prohibit the clearing of koala habitat, including legislative prohibitions on the destruction and degradation of mature forest and woodlands, and regrowth vegetation, known to be or highly likely to be needed or used by koalas.

   1.2. Complete Koala Plans of Management and comprehensive and precise koala habitat modelling state-wide.

   1.3. Amend relevant legislation to include a broader definition of koala habitat, which includes lands that support feed trees, shelter trees, dispersal corridors and climate refugia.

2. **Invest in large-scale restoration of koala habitat**

   2.1. Enhance funding to support restoration and expansion of koala habitat, including to build resilience to climate change, across land tenures and to ensure connectivity between existing habitat.

   2.2. Reforest over-cleared landscapes with a focus on expanding koala habitat corridors and dispersal routes and modelled climate refugia.

3. Prevent habitat loss from forestry

3.1. Phase out native forest logging on public land and transition timber sourcing to plantations established on long cleared land of low biodiversity importance.

3.2. Ensure private native forestry is subject to assessment and approval before licenses are granted, that logging is genuinely selective and avoids known koala tree species.

3.3. End all exemptions from the need for application, assessment and approval via 'self-assessable codes'.

3.4. Reject the Government's proposal to open up thousands of hectares of old growth forests to logging on the NSW North Coast.

3.5. Rule out burning our native forests for electricity, including as exports.

4. Safeguard koala habitat in national parks and other protected areas

4.1. Establish the Great Koala National Park on the mid north coast and Georges River Koala National Park in South-West Sydney

4.2. Establish new National Parks and other protected areas, including private and Indigenous protected areas, to protect and connect koala populations and habitat across NSW, strategically choosing areas to also maximise representation of all NSW wildlife and native plants and ecosystems.

Status of koalas in NSW

Koalas are listed as vulnerable to extinction under NSW and federal laws. This means that they face a high risk of extinction in the medium-term future. Local extinctions have already occurred, and koalas are projected to become extinct in the wild in NSW within 30 years (by as early as 2050) on current trends.

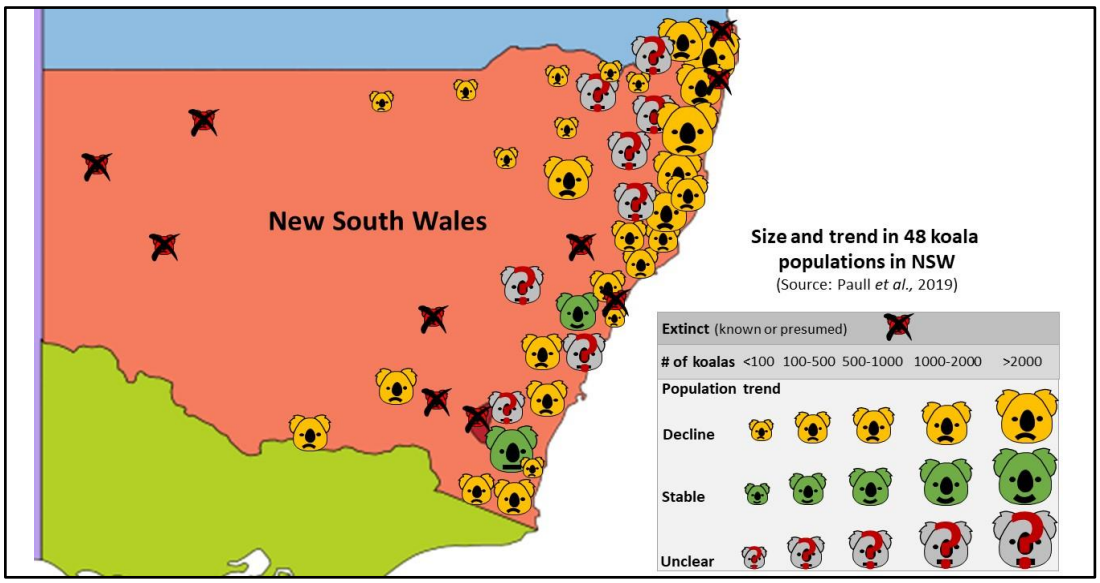
The NSW koala population is currently estimated by koala experts to be in the range of 15,000 to 25,000 animals[1], much lower than the figure of 36,000 adopted in the recent NSW Koala Strategy. This represents a decline of between 20.4% and 52.3% since 1990.[2]

[1] Paull, D., Pugh, D., Sweeney, O., Taylor, M.,Woosnam, O. and Hawes, W. 2019. *Koala habitat conservation plan. An action plan for legislative change and the identification of priority koala habitat necessary to protect and enhance koala habitat and populations in New South Wales and Queensland*. Report prepared for WWF-Australia and partner conservation organisations.. Published by WWF-Australia, Sydney.

[2] Calculated based upon a population of 31,400 in 1990. This figure is consistent with the population estimate contained in the *Advice to the Minister for Sustainability, Environment, Water, Population and Communities from the Threatened Species Scientific Committee (the Committee) on Amendment to the list of Threatened Species under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* in relation to koalas. The listing advice is available for download at http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=85104. Viewed 9 December 2018.

Thirty seven metapopulations of koalas were identified in NSW in the *Koala Habitat Conservation Plan* developed by independent experts for environment organisations. Of these, 25 metapopulations are in decline, two are apparently stable, and 11 other metapopulations show a presence in recent surveys but with insufficient baseline data to determine trends.[3] It is likely that koalas have already disappeared from large areas of their former range in western NSW, 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 western and some coastal areas may already be functionally extinct. Remaining areas of potential koala habitat within their current range are often fragmented and reduced in size.

Figure 1. Map showing the location, approximate abundance and trend of 48 koala meta- and local-populations in NSW.[4]



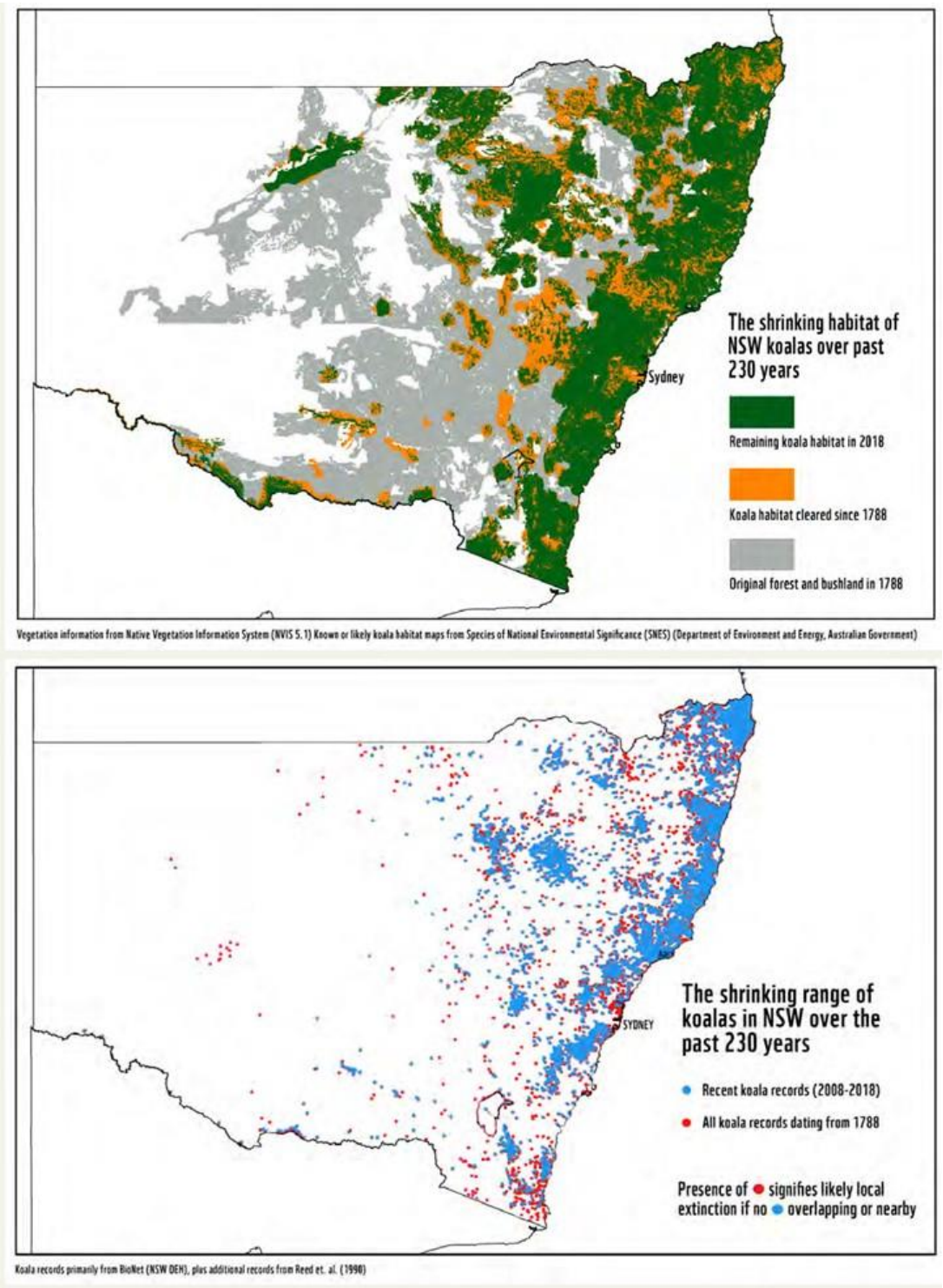
If *best-case* average projected future koala population declines in NSW from Adams-Hosking *et al.* (2016) are applied (-28% over 15 years), koalas could become extinct in NSW by 2070, assuming current population declines continue. If the *worst-case* average projected future declines are projected forward (-55% over 15 years), extinction could occur within as little as 20 years.[5]

[3] Paull et al., 2019

[4] This map is based primarily upon data for 37 metapopulations provided in the Koala Habitat Conservation Plan (see Table 2 in Paull et al., 2019), plus publicly available information regarding known or presumed population extinctions, including functional extinction.

[5] Adams-Hosking *et al.*, 2016. *Use of expert knowledge to elicit population trends for the koala (Phascolarctos cinereus).* *Diversity and Distributions*, vol. 22, no. 3, pp. 249-262.

Figure 2. Loss of forest and woodland habitat in NSW since 1750 known or likely to have provided habitat for koalas, and reduction in range of koalas shown by reduced number of sightings of wild koalas.[6]



[6] Pre-1750 and 2017 extant distribution of forests and bushland that contain koala habitat in NSW is based upon spatial vegetation layers contained in the Native Vegetation Information System version 5.1 provided by the Federal Department of the Environment and Energy. Change in koala range is based upon koala records held in the NSW BioNet repository managed by the NSW Office of Environment and Heritage. (Figure from the *Koala Habitat Conservation Plan* (Paull *et al*., 2019), see Figure 1).

Key threats to koalas in NSW

Habitat loss and fragmentation

Habitat loss is the biggest threat to koalas and land clearing is listed as a key threatening process for koalas under NSW and Commonwealth environment laws. Reduced and fragmented habitat, with the accompanying loss of food trees, shelter and refuges, is both a direct driver of population decline and also exacerbates the impact of other threats such as dog attack, vehicle strike, disease and other impacts associated with high levels of human interaction. The protection of habitat from loss and fragmentation is therefore the vital first step in dealing with the flow-on threats.

The main drivers of ongoing koala habitat loss and fragmentation in NSW are:

- Native forest clearfell logging on public and private lands,
- Clearing of native forests for agriculture, and
- Clearing for urban development, infrastructure and other major projects such as mining.

Land-clearing was proven to be the number one cause of stress in koalas in a recently published study by Dr Edward Narayan at Western Sydney University. The research, published in Nature publication Scientific Reports in April 2019[7], found that koalas living in areas with land clearance showed significant chronic stress, indicated by high levels of the stress hormone cortisol found in faecal samples. Long-term stress caused by environmental trauma can lead to significant physical and psychological changes in koalas. These changes can result in increased signs of koala stress syndrome, increased risk of infection, suppressed reproduction, growth and development and high mortality rates. This research makes it evident that koalas living in areas of past or on-going habitat alteration will be most stressed and most vulnerable to extinction.

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%.

This clearing is being facilitated by weak and permissive laws and inadequate policies which do not provide sufficient protection for koalas and habitats. This is despite a 2015 review of koala conservation stated that the protection of existing habitat should be the priority for koala conservation, as habitat restoration is both difficult and expensive.[8]

Clearing for urban development, infrastructure and other major projects such as mining is particularly problematic as it leaves a legacy of fragmented patches of habitats in a hostile landscape

[7] https://www.nature.com/articles/s41598-019-42448-8

[8] McAlpine et al. 2015. Conserving koalas: A review of the contrasting regional trends, outlooks and policy challenges. Biological Conservation 192.

of roads, cars, dogs, powerlines and fencing. This results in permanently higher mortalities for koalas in such developed landscapes.

Protecting forest and woodland habitat must be the priority for any Government serious about reversing the decline in koalas, as well as many other threatened or at-risk native forest species in NSW. The Government has yet to demonstrate why developers -- whether agricultural, urban or industrial-- need to develop koala forests when there is already so much long-cleared land already available.

Climate Change

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 through overheating and dehydration, or indirectly by degrading the eucalypt forests they live in. As leaf-eating animals, koalas 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.

Koalas were identified by the International Union for the Conservation of Nature in 2009 as being at risk from climate change. The IUCN noted that:

- *Increasing atmospheric CO2 levels will reduce the nutritional quality of Eucalyptus leaves, causing nutrient shortages in the species that forage on them. As a result, Koalas may no longer be able to meet their nutritional demands, resulting in malnutrition and starvation.*

- *Increasing frequency and intensity of droughts can force Koalas to descend from trees in search of water or new habitats. This makes them particularly vulnerable to wild and domestic predators, as well as to road traffic, often resulting in death.*

- *Koala populations are reported to be declining probably due to malnutrition, the sexually-transmitted disease chlamydia, and habitat destruction.*

- *Koalas have very limited capability to adapt to rapid, human-induced climate change, making them very vulnerable to its negative impacts.*[9]

Broad assessments of climate resilience for 37 koala metapopulations in NSW were assessed by Paull *et al*., and are shown in Table 1. Climate modelling has also indicated a likely easterly shift in the range of koalas. Therefore protecting remaining habitat in eastern NSW and undertaking large-scale revegetation programs to link eastern and western populations is key to ensuring koalas can persist in the face of climate change.[10]

[9] IUCN, 2009. *Koalas and Climate Change: Hungry for CO2 cuts*. Fact sheet produced by the International Union for the Conservation of Nature, Gland, Switzerland. Available for download at https://cmsdata.iucn.org/downloads/fact_sheet_red_list_koala_v2.pdf Downloaded 31 July 2019.

[10] Adams-Hosking et al. 2011. Modelling climate-change-induced shifts in the distribution of the koala. Wildlife Research 38. Adams-Hosking et al. 2012. Modelling changes in the distribution of the critical food resources of a specialist folivore in response to climate change. Diversity and Distributions 18. Adams-Hosking et al. 2014. Prioritizing regions to conserve a specialist folivore: considering probability of occurrence, food resources, and climate change. Conservation Letters 8. Santika

Increasing and extreme temperatures, lower rainfall, and drought has already dramatically affected koala populations in southern NSW[11], on the Liverpool Plains[12] and in the Pilliga Forest[13]. Land clearing is one of the major drivers of regional climate change, having been shown to result in changed (reduced) rainfall patterns, higher temperatures and increasing periods of drought[14]. A report entitled '*Clearing our Rainfall Away*' was produced by Dailan Pugh, OAM, in February 2017. The report explores in detail the mechanisms behind land cover change and climate change[15].

However, the placement of artificial water sources in trees on the Liverpool Plains to provide koalas with freshwater to drink has been shown to be a cost-effective mitigation measure to enable koalas to avoid heat stress and dehydration, and the need to climb down onto the ground where they are at greater risk of being attacked by dogs and being hit by vehicles.[16] The water sources, formerly named 'Blinky Drinkers', were built by Gunnedah farmer Rob Frend and their physiological benefits researched by Dr Vallentina Mella from Sydney University. Provision of artificial water sources has the potential to reduce mortality amongst koalas, and other wildlife, during increasingly severe and frequent dry periods.

et al. 2015. Assessing spatio-temporal priorities for species' recovery in broad-scale dynamic landscapes. Journal of Applied Ecology 52.

[11] Lunney *et al.*, 2014. Extinction in Eden: identifying the role of climate change in the decline of the koala in south-eastern NSW. Wildlife Research 41.

[12] Lunney et. al. 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. Eds. Lunney, D and Hutchings, P.

[13] Lunney *et al.* 2017. The remaining koalas (Phascolarctos cinereus) of the Pilliga forests, north-west New South Wales: refugial persistence or a population on the road to extinction? Pacific Conservation Biology 23.

[14] McAlpine *et al.* 2007. Modeling the impact of historical land cover change on Australia's regional climate. Geophysical Research Letters 34; McAlpine et al. 2009. An Australian continent under stress: A conceptual overview of processes, feedbacks and risks associated with interaction between increased land use pressures and a changing climate. Global Change Biology 15.

[15] Pugh 2017. Clearing our Rainfall Away.

[16] Arlington, K., 2017. *Researchers investigate koalas' need for drinking water as climate change bites*. Sydney Morning Herald, 3 March 2017. Available for viewing at https://www.smh.com.au/national/nsw/researchers-investigate-koalas-need-for-drinking-water-as-climate-change-bites-20170302-gup55b.html Viewed 31 July 2019.

Table 1. Assessment of koala meta-populations in NSW. From *Koala Habitat Conservation Plan* (see Table 2 in Paull *et al.*, 2019).

#	Bioregion	Meta-population	Pop. size	Population Trend	Representation in Reserves	Exposure to Land use change	Climate Change exposure	Additional Reservation Potential	Future Resilience^
1	DRP	Darling/Culgoa	<100	decline	poor	high	high	low	low
2	DRP	Lightning Ridge	<100	decline	poor	high	high	low	low
3	BBS	Moree	<100	decline	poor	high	high	low	low
7	BBS	Pilliga	<100	decline	moderate	low	high	high	moderate
8	BBS	Gunnedah	>1000	decline	poor	high	moderate	high	moderate
4	Nand	Nth Nandewar	<100	decline	poor	high	moderate	moderate	moderate
5	Nand	Inverell	500-1000	more	poor	high	moderate	low	Low-moderate
6	Nand	Kaputar	<100	decline	poor	high	moderate	high	moderate
13	NET	Tenterfield	500-1000	more	moderate	moderate	low	moderate	moderate
12	NET	Emmaville	<100	decline	poor	high	low	low	Low-moderate
11	NET	Guy Fawkes	500-1000	more	poor	moderate	low	moderate	moderate
10	NET	Armidale	500-1000	more	poor	high	low	low	Low-moderate
9	NET	Nowendoc	500-1000	more	moderate	moderate	low	moderate	moderate
26	SEH	Central Tablelands	500-1000	more	poor	high	low	low	Low - moderate
28	SEH	Taralga	500-1000	decline	high	moderate	low	low	Moderate - high
30	SEH	Sandy Point	500-1000	decline	moderate	moderate	low	low	moderate
31	SEH	Yass-Queanbeyan	100 - 500	more	moderate	high	moderate	moderate	Low-moderate
33	SEH	Monaro	>1000	stable	moderate	low	low	moderate	high
36	SEH	Alps	100-500	stable	poor	low	low	low	Moderate - high
32	SSW	Murrumbidgee	100-500	decline	poor	moderate	high	moderate	Low - moderate
37	Riv	Murray	100-500	decline	moderate	moderate	moderate	moderate	moderate
35	SEC	Southern Range	100-500	decline	moderate	moderate	low	high	Moderate - high
34	SEC	Bermagui	<100	decline	moderate	moderate	low	moderate	moderate
29	SB	MacArthur	500-1000	more	poor	high	low	high	moderate
27	SB	Patonga	<100	decline	poor	high	low	low	Low - moderate
25	SB	Blue Mountains	100-500	decline	high	moderate	low	low	Moderate - high
24	SB	Yengo	100-500	decline	high	low	low	low	high
23	SB	Port Stephens	100-500	decline	moderate	high	low	low	Low - moderate
21	NNC	Manning-Karuah	100-500	decline	poor	moderate	low	high	moderate
22	NNC	Barrington	100-500	decline	moderate	moderate	low	high	high
20	NNC	Hastings Manning	>1000	decline	moderate	high	low	high	moderate
19	NNC	MacLeay-Hastings	500-1000	decline	low	high	low	high	moderate
18	NNC	Bellinger-Nambucca-MacLeay	>1000	decline	moderate	high	low	high	moderate
17	NNC	Coffs-Guy Fawkes	>2000	decline	moderate	high	low	high	moderate - high
16	SEQ	Clarence Richmond	>1000	decline	low	high	low	high	moderate
15	SEQ	Far North east	>2000	decline	low	high	low	high	moderate - high
14	SEQ	Yabra-Toonumbar-Richmond Range	>1000	decline	moderate	moderate	low	high	high

The impacts on koalas and koala habitat from the Coastal Integrated Forestry Operations Approvals and Regional Forest Agreements

The new Coastal Integrated Forestry Operations Approval (CIFOA) is a retrograde step for koala protection. The underlying problem is the government's 'twin commitment' to no reduction in wood supply and no erosion of environmental values. The Natural Resources Commission (NRC) stated in their advice to government that "the commitments around wood supply and environmental values are not mutually achievable"[17]. Yet the government is persisting with maintaining wood supply, rather than intervening to reduce supply commitments, and is therefore breaking the environmental commitment. It is troubling that the NSW government is choosing to maintain timber supply at all costs - even the future of koalas.

It is the twin commitment that has resulted in the formalisation of 'regeneration logging' in the new 'Intensive Harvesting Zone' in north-east NSW[18] - a technique that effectively clearfells large swathes (up to 45ha at a time) of forest. A very similar technique (alternative couple logging) has long been applied in the Eden area of NSW and, alongside land clearing and regional climate change, is cited as one of the drivers of koala declines[19]. The Intensive Harvesting Zone contains approximately one-third of all koala hubs in state forests in north-east NSW. Knowingly implementing intensive logging techniques that have been shown to impact koalas in southern NSW in an area known to be of such great significance to koalas will see us repeat the mistakes of the past.

It is concerning that in developing the CIFOA the NRC chose to accept Forestry Corporation's koala tree retention rates on the north coast (including in the Intensive Harvesting Zone) rather than the Environmental Protection Authority's (EPA) recommendation of a higher retention rate[20]. This was done to minimise impacts on timber production. Accepting industry settings over those of the agency tasked with protecting the environment clearly indicates that the CIFOA will negatively impact koalas. In the best quality habitat, koalas will only be left 10 trees of <= 20cm diameter per hectare. In moderate and lower quality, retention drops to 5 trees per hectare. To a koala, the 45-hectare regeneration coupes will resemble seas of destroyed habitat with a smattering of small trees. We contend that, in light of the evidence as to the response of koalas to intensive logging[21], regeneration logging will rapidly render these areas useless for koalas (and other forest species).

There is ample evidence - including from the EPA's Koala Habitat Mapping Pilot - that koalas prefer larger trees and mature forest age classes. Therefore the progressive shift to young forests dominated by smaller-diameter trees that is a result of decades of logging is rendering some formerly high quality koala habitat less and less amenable.

[17] See pg. 2 of the NRC's Advice On Coastal Integrated Forestry Operations Approval Remake.

[18] Quotes from a member of the Government-appointed Threatened Species Expert Panel include: "*I find it extremely frustrating to try and contribute to a solution when the underlying driver of the wood supply agreements fundamentally restricts any chance of a balanced approach and I can see the environment being the inevitable loser in the equation" and "the intensive harvesting zones are being formally introduced to prop up an unsustainable wood supply arrangement at the expense of the environment".*

[19] Lunney et. al. 2014. http://dx.doi.org/10.1071/WR13054

[20] See Table 6 pg. 41 of the NRC's Advice On Coastal Integrated Forestry Operations Approval Remake.

[21] Smith 2004. Koala conservation and habitat requirements in a timber production forest in north-east New South Wales. *In* The Conservation of Australia's Forest Fauna. Ed. Lunney, D.

Koalas are listed as 'vulnerable' under the federal *Environment Protection and Biodiversity Conservation (EPBC) Act.* The key legal function of a Regional Forest Agreement (RFA) is to accredit the states' logging activities as upholding protection for federally listed species. This has also been termed an 'exemption' because it effectively exempts the logging industry from its responsibilities under federal law, and it has been shown to reduce protections for species[22]. The degree to which the RFAs have become a rubber stamp for logging - rather than a genuine effort to implement Ecologically Sustainable Forest Management - is evident by the federal government's signing of new RFAs in full knowledge of NSW's new CIFOA and its impact on koalas, and ongoing koala declines. The RFAs have thus lost any credibility they once had in regard to environmental protection.

Koalas select mature forest age-classes with lower levels of disturbance from logging and fire[23] and larger feed trees—likely because larger trees are perceived as larger food patches[24]. Therefore activities, like intensive native forest logging on public land, that result in smaller-diameter trees and remove a high proportion of basal area are not compatible with koala conservation[25]. The belated, but welcome, gazettal of the Murrah Flora Reserves is an admission that intense native forest logging and koala conservation are inherently at odds.

Koala habitats are also 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.

For the long term health of koala populations and other species threatened with extinction, we recommend that industrialised logging in public native forests should end and the industry and communities be provided with support to transition entirely to plantations, with some genuinely selective logging on private land providing timber for high-value cabinet making.

Recommendation: Abandon the 'twin commitment' and reduce wood supply agreements to protect koala habitat.

Recommendation: Exclude logging from all mapped koala hubs.

Recommendation: Abandon the Intensive Harvesting Zone and outlaw regeneration logging.

Recommendation: Amend the koala prescription in the CIFOA to ensure higher retention rates for koala feed trees in line with recommendations from the Office of Environment and Heritage.

Recommendation: Work with stakeholders to develop a plan to phase out native forest logging on public land and transition to plantations established on long cleared land of low biodiversity importance for wood needs.

[22] Feehily et. al. 2013. One Stop Chop: How Regional Forest Agreements streamline environmental destruction. Lawyers for Forests, Melbourne.

[23] NSW Environment Protection Authority 2016. Koala Habitat Mapping Pilot. NSW State Forests..

[24] Moore and Foley 2005. Tree use by koalas in a chemically complex landscape. Nature 435.

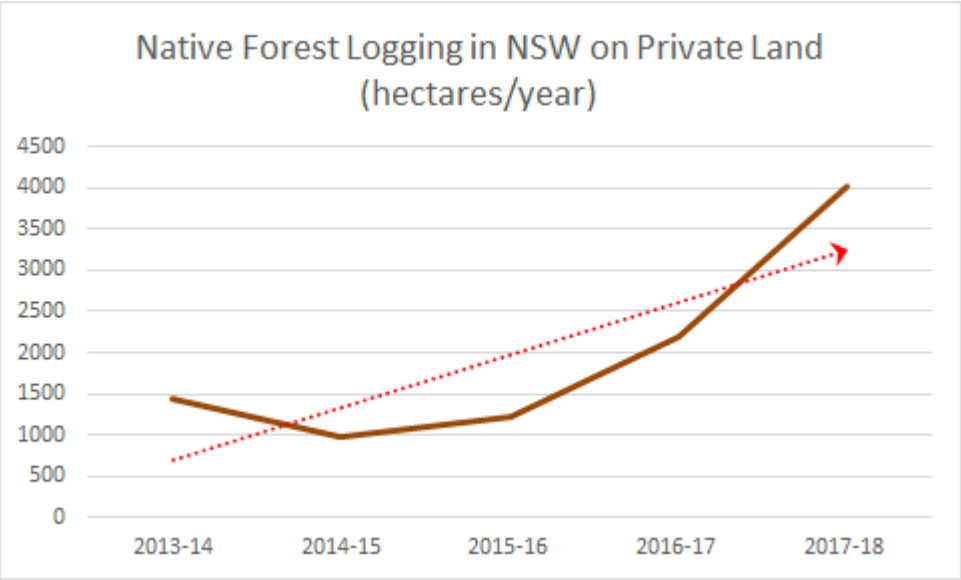
[25] Smith 2004. Koala conservation and habitat requirements in a timber production forest in north-east New South Wales. *In.* The Conservation of Australia's Forest Fauna. Ed. Lunney, D.

Recommendation: End woodchipping in southern NSW and restore forests to allow koala populations to recover.

The impacts on koalas and koala habitat from the Private Native Forestry Code of Practice

We are concerned that the ongoing remake of the Private Native Forestry (PNF) code of practice will dilute environmental protections and move towards a self-assessment model, as per land clearing regulations. This is worrying because industry has stated that it wants to 'facilitate' PNF and, if public land is any guide, the overwhelming imperative will be timber extraction. Anything but very low-impact, selective logging will negatively impact koalas and, given most koala habitat is on private land, PNF has the potential to be a timebomb for koalas if not very carefully managed.

Figure 3: Native Forest Logging in NSW on Private Land 2013/14 - 2017/18[26]



The number of active PNF approvals on the north coast, and the significant increase in native forest logging on private land in recent years support this view (See Figures 3 and 4). This is compounded by the lack of EPA oversight because there are no requirements to notify EPA when logging starts and ends, meaning regulation is hampered.

Recommendation: Retain PNF Property Vegetation Plans, and improve them via Local Land Services site visits and improved koala surveys

Recommendation: Exclude PNF from koala hubs and core koala habitat

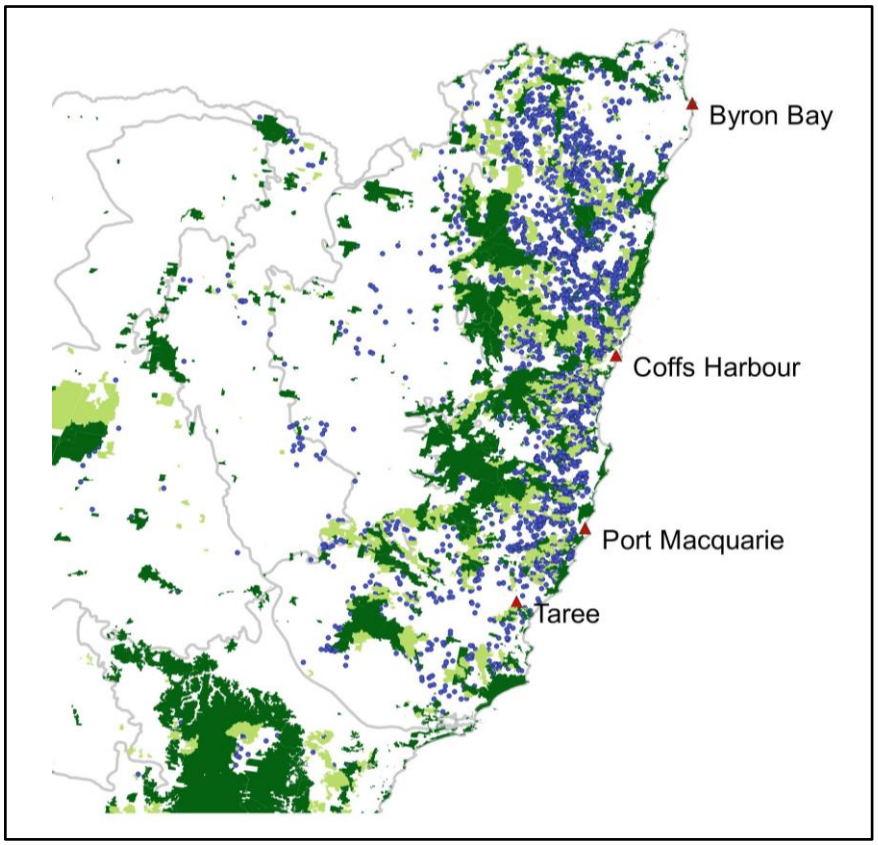
Recommendation: Ensure PNF is highly selective in non-core habitat

Recommendation: Ensure EPA notification of commencement and termination of logging operations

[26] See tab 6 'Forestry' in spreadsheet *nsw-woody-vegetation-change-data-spreadsheet-2017-18* available for download at https://www.environment.nsw.gov.au/vegetation/reports.htm.

Recommendation: Prioritise protection of koala habitat on private land via the Biodiversity Conservation Trust with suggested initial funding of an additional $200 million

Figure 4: Active PNF approvals (blue dots) in north-east NSW[27]



The impacts on koalas and koala habitat from the old growth forest remapping and rezoning program

The value of old growth forests to koalas

Old-growth forest is vital habitat for threatened species such as koalas, gliders, quolls and large forest owls. It is increasingly rare in the landscape as human activities (logging and land clearing) convert it to younger forest. These forests have been part of the nationally agreed, RFA-accredited, Comprehensive, Adequate and Representative (CAR) reserve system for at least 20 years and for this reason have been off limits to logging. They have also been granted state significant heritage protection for their historical significance, including to Aboriginal people, aesthetic significance, research potential, rarity and valuable habitat.

Old-growth forests contain abundant features that are important for wildlife, particularly large tree hollows that are used by big animals like gliders and cockatoos, and large volumes of dead standing and fallen timber. Big fallen logs are used by many animals, including quolls. It takes about 120 years for a eucalypt to develop hollows, and large hollows only form in the largest trees that may be several hundred years old. Forests of this age also provide the most reliable water supplies and

[27] Based on data obtained from the EPA's website in 2016

store large amounts of carbon[28]. The largest trees store disproportionately large amounts of carbon[29], and the volume of carbon stored in large trees continues to rise as they age[30].

Today's old-growth was already old when Captain Cook arrived in Australia. Over 200 years of logging and land clearing, except in the most inaccessible areas, means that there are limited areas of old-growth forest left in NSW. The remaining areas of old-growth will take centuries to replace and must be protected.

Logging areas of forest that have been long unlogged, regardless of definition, will negatively impact koalas because of the species' preference for mature forest age classes[31]. A recent study led by the Department of Primary Industries used song meters to detect koala occupancy forests in north-east NSW[32]. The authors concluded "resilience of koalas to recent, heavy harvesting[33] is most likely explained by the landscape mosaic of forest types and disturbance history in north-east NSW; especially the level of harvest exclusion in the landscape". Therefore, removal of protections for harvest exclusions can be reasonably expected to increase pressure on koalas and further drive declines.

Why are old growth forests under threat?

In November 2016, as part of the remake of the logging rules in NSW (the divisive Coastal Integrated Forestry Operations Approvals or CIFOA), the Natural Resource Commission (NRC) were engaged to examine the impact of the rules and found "there would be an estimated shortfall of 7,600 to 8,600 cubic metres of high quality timber per year, as a result of mapping threatened ecological communities and koala protections".[34]

In order to ensure no reduction in logging, the Government then asked the NRC to find out if 'remapping and rezoning' old-growth forest and rainforest in north-east NSW (currently protected from logging) would free up more logs. Following the Government's request, the NRC undertook a pilot of 13 sites in north east NSW which found that "the reassessment reduced the extent of old-growth forest by 78 percent, and rainforest by 35 percent". The report found that if the results of the pilot are found to apply more broadly to currently mapped areas of old-growth forest then an extra 212,400 cubic metres of wood could be logged in the region. This is based on initially remapping and rezoning 14,600 hectares of protected old-growth.

Following this advice, the Government asked the NRC to develop an old-growth assessment method by November 2019 to guide remapping and rezoning. Rainforest remapping was not included in the Government's request.

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[28] Plant Biosystems 2010. Old-growth forests, carbon and climate change: Functions and management for tall open-forests in two hotspots of temperate Australia. https://doi.org/10.1080/11263500903560751

[29] Plant Biosystems 2012. Pre-logging carbon accounts in old-growth forests, via allometry: An example of mixed-forest in Tasmania, Australia. https://doi.org/10.1080/11263504.2011.638332

[30] Nature 2014. Rate of tree carbon accumulation increases continuously with tree size. https://www.nature.com/articles/nature12914

[31] NSW Environment Protection Authority 2016. Koala Habitat Mapping Pilot. NSW State Forests.

[32] Law et. al. 2018. Passive acoustics and sound recognition provide new insights on status and resilience of an iconic endangered marsupial (koala Phascolarctos cinereus) to timber harvesting. PLOS ONE 13.

[33] 'Resilience' refers to the detection of koala bellows, rather than thriving populations. Song meters were not placed so as to sample exclusively regeneration logging, rather their detection radius covered a range of forest disturbance histories.

[34] https://www.nrc.nsw.gov.au/_literature_240609/Supplementary%20advice

The Government, via a Department of Primary Industries budget bid, has committed $2 million to the remapping and rezoning project on public land. This is despite the NRC's recommendation that the full costs of remapping should be borne by Forestry Corporation and not the taxpayer.

The underlying driver of the remapping and rezoning is to open up more areas of native forest for logging. This is not about identifying new areas of old-growth that are not currently protected. Never in the 20 years since the areas of old-growth were reserved has any agency expressed concern that significant areas of old-growth are unprotected. This context, the experience of remapping in private native forestry and the outcomes from NRC's pilot program, demonstrate that the remapping process will inevitably end up decreasing protection for high conservation value forest.

The NSW Government made a firm commitment that there would be no erosion of environmental values under the new CIFOA, but this commitment is being undermined by opening up protected areas of high conservation value forest to logging.

<u>The timber supply impacts are not verified and probably do not exist</u>

This process is being undertaken by the Natural Resources Commission (NRC) so that the Forestry Corporation of NSW (FCNSW) can access and sell logs that have previously been off limits in order to meet a theoretical and small log supply shortfall. The Government have stated that before any rezoning can occur a shortfall in wood supply would need to be verified using an approved method. We do not accept that any such shortfall exists, and the evidence shows this.

In documents released under the *Government Information (Public Access) Act 2009* (GIPA), the NRC has provided advice to government that the wood supply impact figures that the process is based upon "represent the worst case scenario, and may never be realised".

This lack of confidence is backed up by the fact that the NRC have stated that their shortfall projection was based on new mapping of Threatened Ecological Communities (TECs) and new prescriptions to protect koalas contained in the Coastal Integrated Forestry Operations Approvals (CIFOA). We do not believe that this is credible, and other Government agencies have confirmed our view in private. This is based on three things:

- TECs have always been off-limits for logging, and therefore this timber has never been available. Forestry Corporation's claim that the mapping has reduced timber availability suggests they were not respecting the protected status of TECs.

- The new koala prescriptions require a maximum retention of 5-10 trees of 20cm in diameter per hectare in modelled habitat. Such low numbers of small trees cannot be deemed to have a significant impact on high-quality log production.

- The NRC has excluded plantations from their identification of yield shortfalls. Once these are included it is likely they have over-estimated potential shortfalls.

Therefore, the remapping process risks entrenching an outcome that is, at best, not necessary and, at worst, based on a false premise that is being manipulated to create a timber windfall.

The cost of remapping is a subsidy to logging which exceeds the value of the extra wood supply

The EPA has estimated the full cost of remapping over the next four years to be $3,002,044, according to information provided under GIPA. We understand that the NSW Government has already allocated at least $2 million of public funds on this remapping process. There are three key issues with this funding:

- Firstly, the money has been taken from the $9.2 million allocation for 'world-class forest mapping and monitoring' announced in the 2018-19 budget. This is a perverse use of funds that are meant to be used for improving ecological outcomes and we urge you to ensure this money is used for its intended purpose.

- Secondly, this funding is also being provided by government despite the clear recommendation of the NRC that any remapping and rezoning should be paid for by FCNSW as the beneficiary. It is therefore an unjustifiable public subsidy to the logging industry.

- Finally, the cost of remapping exceeds the value of the extra wood supply. The value of buying back the wood supply contracts for the maximum shortfall identified by the NRC is only $1.47 million[35] – at least $0.5 million less than the value of the remapping exercise.

Recommendation: Ensure no areas of forest currently protected will be opened up to logging.

Recommendation: End the remapping and rezoning of old-growth forest and rainforest on public and private land.

The impacts on koalas and koala habitat from the 2016 land management reforms, including the Local Land Services Amendment Act 2016 and associated regulations and codes

The NSW Land Management and Biodiversity Conservation Reforms commenced in August 2017, with one of its objectives being to 'enhance biodiversity conservation'.[36] The reforms have failed to achieve this objective due to excessive destruction and degradation of forests and woodlands from a highly permissive and weakly regulatory legislative framework. Notwithstanding significant investment and solid work of the Biodiversity Conservation Trust, the reforms failed to explicitly protect koala habitat and this has had a direct impact on the extent and condition of remaining koala habitat.

The absence of objectives that require decision makers to ensure their application of native vegetation laws '*improves or maintains environmental outcomes*' and '*protect[s] native vegetation of high conservation value*', which were legislated in the repealed *Native Vegetation Act*, has eroded

[35] This costing is based on $19 per cubic metre, the price paid by the NSW government in the 2014 timber buy-back overseen by Minister Katrina Hodgkinson. It is calculated on the government buying back the maximum timber shortfall identified by the NRC of 8,600 cubic metres of timber per year over the 9 year period of Forestry Corporation's Wood Supply Agreements with cement and wood supply corporation Boral (2020-2028). The true figure is likely to be lower because all other Wood Supply Agreements (except Boral's) expire in 2023 and so committed volumes of wood could be dramatically reduced at no expense to the government.

[36] Local Land Services, NSW Government (undated). *What's new in native vegetation?* Information sheet available for download at https://www.lls.nsw.gov.au/sustainable-land-management/facts-sheets2/facts-sheets/whats-new-in-native-vegetation. Viewed 26 July 2019.

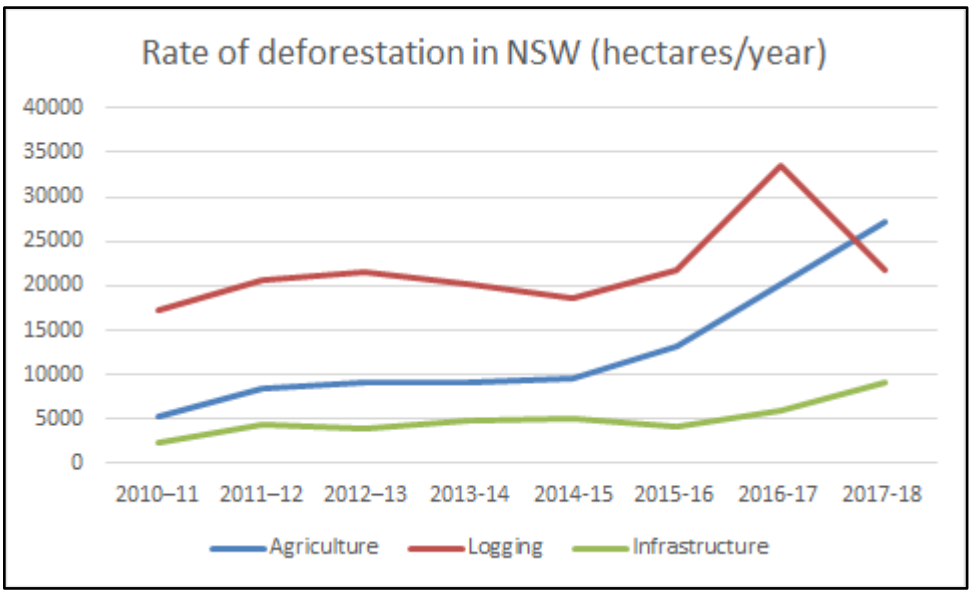
the NSW Government's ability to slow and reverse population declines of koalas. This legal threshold should be reinstated in the *Local Land Services Act* and *Biodiversity Conservation Act.*

Recommendation: Reinstate legal thresholds in the Local Land Services Act and Biodiversity Conservation Act to ensure their application improves or maintains environmental outcomes and protects native vegetation of high conservation value.

Rates of clearing in NSW

The NSW Government's *NSW Woody Vegetation Change 2017-18* report found a substantial increase in the rate of deforestation following repeal of the *Native Vegetation Act* and its replacement with the *Local Land Services Act* and *Biodiversity Conservation Act*. Combined data for agriculture, forestry and infrastructure showed an average annual rate of deforestation of 32,167 hectares from 2009/10 to 2014/15, compared to 58,000 hectares in 2017/18.[37] This represents an 80% increase in destruction of forests and woodlands attributable to the NSW Government's Land Management and Biodiversity Conservation Reforms.

Figure 5: Rates of deforestation in NSW 2010/11 -2017/18[38]



The report also identifies that more than half of destruction of forest and woodland is due to routine agricultural activities, allowable activities, exclusion and illegal clearing. In 2017/18, 58% of clearing for agricultural activities fell into this category, or 15,600 hectares of a total 26,900 hectares.[39] It is

[37] Analyses used data from Spot 5 and Sentinel 2 satellite imagery provided on the 'NSW' tab in the worksheet *nsw-woody-vegetation-change-data-spreadsheet-2017-18*, which is available for download from the 'Native Vegetation' section of NSW Government's environment agency website at https://www.environment.nsw.gov.au/vegetation/reports.htm Viewed on 29 July 2019.

[38] Analyses used data from Spot 5 and Sentinel 2 satellite imagery provided on the 'NSW' tab in the worksheet *nsw-woody-vegetation-change-data-spreadsheet-2017-18*, which is available for download from the 'Native Vegetation' section of NSW Government's environment agency website at https://www.environment.nsw.gov.au/vegetation/reports.htm Viewed on 29 July 2019.

[39] See tab '7 Other clearing 2017-18' in spreadsheet *nsw-woody-vegetation-change-data-spreadsheet-2017-18* available for download at https://www.environment.nsw.gov.au/vegetation/reports.htm.

reasonable to conclude that no environmental assessment was undertaken prior to this clearing regarding the impacts on koalas and koala habitat.

This report reinforced the conclusions reached in two analyses released previously by the NSW Nature Conservation Council and WWF-Australia. These reports analysed the scale of deforestation in four hotspots in the state since repeal of the *Native Vegetation Act* in August 2017, concluding that:

- Bulldozing of native bushland had nearly doubled in three study areas in NSW – North West, Central West and Hunter regions. Deforestation increased 2.5x in the Central West, 2.3x in the Hunter Region and 1.6x in the North West. A total of 4,679 ha of koala habitat was cleared in the study areas over the two years;[40]

- Clearing almost tripled in the Moree-Collarenebri region, and included destruction of 5,246 hectares of koala habitat;[41]

NSW Audit Office report

Recently the NSW Audit Office's *Managing native vegetation* report (June 2019) found that:

> *The clearing of native vegetation on rural land is not effectively regulated and managed because the processes in place to support the regulatory framework are weak. There is no evidence-based assurance that clearing of native vegetation is being carried out in accordance with approvals. Responses to incidents of unlawful clearing are slow, with few tangible outcomes. Enforcement action is rarely taken against landholders who unlawfully clear native vegetation. There are processes in place for approving land clearing but there is limited follow-up to ensure approvals are complied with.*[42]

The Audit Office made the following key findings that are relevant to koalas and koala habitat:

- *The decision not to release the two largest categories of the NVR map makes it harder for landholders to determine if they can clear;*

- *LLS has limited oversight of notifications for land clearing;*

- *There is limited monitoring of whether requirements of approvals are being met.* Significantly, "*Over 200,000 hectares of native vegetation has been approved for thinning or clearing under certificates since the Code commenced in August 2017 to February 2019*.";

[40] NSW Nature Conservation Council and WWF-Australia (2019). *New South Wales Deforestation Data Analysis Three Case Studies 2016-2018*. NSW Nature Conservation Council, Sydney. 21pp. Available for viewing at https://www.nature.org.au/media/373715/ncc-forest-destruction-report_v5.pdf Viewed 29 July 2019.

[41] WWF-Australia and NSW Nature Conservation Council (2018). *Bulldozing of bushland nearly triples around Moree and Collarenebri after safeguards repealed in NSW*. Available for download at https://www.wwf.org.au/news/news/2018/koala-habitat-destruction-triples-after-nsw-protection-axed#gs.spss1o Viewed 29 July 2019.

[42] Audit Office of NSW (2019). *Managing native vegetation*. Performace audit available for viewing at https://www.audit.nsw.gov.au/our-work/reports/managing-native-vegetation Viewed 29 July 2019.

- *The Code may not be responding adequately to environmental risks*. Importantly, "*There are problems with the Code regarding:...the limited ability of LLS to withhold approval for higher risk clearing proposals*.";

- *There are lengthy delays in identifying unlawful land clearing*, partly because "*OEH compares state-wide satellite imagery at 12-monthly intervals to identify changes in vegetation cover*"[43]

- *The amount of land clearing has increased…*; and

- *There is a lack of enforcement activity in response to unlawful land clearing.*

Code based clearing of koala habitat

Shockingly, only one percent of koala habitat is legally protected under the Land Management (Native Vegetation) Code 2018, according to advice provided by OEH staff to former Environment Minister Gabrielle Upton prior to introduction of the Land Management and Biodiversity Conservation reforms.[44] This is clearly unacceptable when loss of habitat is the main driver of population decline.

Koala habitat is meant to be protected as Category 2 - Sensitive Regulated land under the Native Vegetation Regulatory (NVR) map. The map is described by the Office of Environment and Heritage as "an essential part of the *Local Land Services Act 2013* (LLS Act) and guides the application of the land management codes and allowable activities." Unfortunately there are two key issues with this mapping process:

1. This map has never been released in full and we are concerned that it has been deliberately withheld from release to enable landholders to legally bulldoze habitat, including likely koala habitat.

2. Category 2 - Sensitive Regulated Land in the NVR map is overly restrictive in focus and fails to protect from bulldozing habitats known or likely to contain koala habitat. At present, only koala habitat identified through SEPP 44 is included as Category 2 - Sensitive Regulated Land. Unfortunately, SEPP 44 has been inconsistently applied with the vast majority of LGAs having failed to prepare a Comprehensive Koala Plan of Management (see Section on SEPP 44 below). This means that the majority of koala habitat is not captured and therefore not protected.

Self-assessment has directly contributed to a tripling of deforestation, illegal clearing, misidentification of threatened species habitats and ecological communities, and highly permissive codes that enable landholders to the vast majority of their property.

[43] This is an unreasonably long delay for government compliance enforcement given that environment organisations can currently use satellite imagery to detect land clearing within a matter of weeks

[44] NSW Nature Conservation Council, 2018. *Environment Minister knew 99% of koala habitat would be exposed to land clearing by contentious new laws, FIO document shows*. Available for viewing at https://www.nature.org.au/media-releases/2018/03/minister-knew-99-of-koala-habitat-would-be-exposed-to-land-clearing/ Viewed 29 July 2019.

The effect of the operation of codes, particularly the Farm Plan, Continuing Use and Equity Codes, has been a tripling of deforestation and prevention of achievement of the reform objective 'enhance biodiversity conservation' at the state level. The codes were not included in the recommendations of the Independent Biodiversity Legislation Review Panel, and their subsequent inclusion by the NSW Government was explicitly stated as being "inconsistent" to the Panel's recommendations by Panel member Professor Hugh Possingham, who subsequently resigned.[45] Professor Possingham stated in his resignation letter that:

> *Your government agreed to adopt and implement all the recommendations of our review panel. Despite that, your government has introduced components to the legislation that are not consistent with the review panel's recommendations. In particular there are a series of "codes", such as "the equity code", that will enable broad-scale clearing of 100s of hectares of native vegetation on individual farms without offsetting. These codes are not consistent with biodiversity offsetting. Codes in native vegetation legislation are normally intended to facilitate minor clearing to make farming profitable – for example clearing for fences and buildings. These should amount to the odd hectare here and there, not hundreds of hectares of clearing which leads to the degradation of soil, water and biodiversity.*

Recommendation: Release the full Native Vegetation Regulatory Map

Recommendation: Category 2 - Sensitive Regulated Land should immediately be expanded to include:

- All mature/remnant forests and woodlands known or likely to support koala habitat;
- Lands identified as supporting, or likely to be supporting, koalas, such as occupancy mapping, koala records in the NSW Government's BioNet database, and predictive mapping of known, or potential, koala habitat by federal Species of National Environmental Significance mapping; and,
- Koala habitat mapped in the NSW Government's koala habitat suitability mapping and koala hubs as well as maps of priority koala habitat areas in the *Koala Habitat Conservation Plan*, comprehensive koala plans of management, and vegetation known to provide koala habitat. Currently, only 'Core Koala habitat identified in a plan of management (Koala Habitat Protection SEPP)' is included.

Recommendation: Halt all clearing under the Equity, Continuing Use and Farm Plan codes

<u>Illegal clearing</u>

Since the Government's reforms, illegal land clearing has increased substantially. According to anecdotal evidence provided to Alliance members by former and current NSW Government agency

[45] Hugh Possingham, 30 October 2016. Letter to the NSW Premier advising of his resignation from the Independent Biodiversity Legislation Review Panel. Available for viewing at https://www.smh.com.au/cgstatic/gsgyxt/HPletter.pdf Viewied 26 July 2019.

staff, regional environmental experts, and consulting vegetation ecologists it could be contributing as much as one third of total clearing.

The NSW Woody Vegetation Change 2017-18 report states that illegal clearing is occuring, but does not disaggregate this clearing from as-of-right or otherwise unexplained clearing. In well publicised cases in 2015 and 2016, former Member for Barwon Kevin Humphries lobbied the Premier to halt legitimate compliance investigations into alleged large scale illegal land clearing in western NSW, which may have destroyed koala habitat.[46] The investigations were dropped by the NSW Office of Environment and Heritage.

OEH Senior Compliance Officer Glen Turner was murdered by farmer Ian Turnbull during a legitimate compliance visit at Croppa Creek. Turner was inspecting illegal clearing of vast areas of woodlands known to support koalas.[47]

There have been few prosecutions for illegal clearing. This is due to the highly permissive codes which enable landholders to legally clear most of their properties, a lack of rigorous compliance enforcement by LLS and OEH staff, interference by Government politicians, and dominance on environmental policy by the pro-clearing Nationals. The Alliance is aware that a handful of families and major agricultural development businesses, which benefit from strong representation by The Nationals, are alleged to have undertaken large-scale illegal deforestation, including in areas known to support koala populations.

The Biodiversity Conservation Trust

Private land conservation investments secured through the Biodiversity Conservation Trust (BCT) appear to be substantial, and are welcome. We support the BCT's work and recommend substantial increases in funding to support landholders to conserve in perpetuity koala habitat and other high conservation value ecosystems. However, the BCT's work to establish agreements with willing landholders to conserve koala habitat does not legitimise the major increases in deforestation.

Responsibility for native vegetation management

Responsibility for environmental assessment and compliance enforcement of native vegetation should rest with the Minister for the Environment. Local Land Services is conflicted as it is responsible for both facilitating and encouraging landholders to bulldoze forests and woodlands to expand agricultural production, and undertaking environmental assessment and compliance enforcement functions regarding deforestation. This institutional arrangement, in concert with the highly permissive and 'light-touch' regulatory approach, has enabled land clearing rates to jump, which was clearly the intention of the reforms.

[46] K. Brewster, 2016. *Battle for the bush: NSW Government accused of failure to act on alleged illegal land clearing*. ABC News, Sydney. Available for viewing at https://www.abc.net.au/news/2016-11-14/battle-for-the-bush/7903010. Viewed 29 July 2019.

[47] Hannam, P, 2016. *NSW koala habitat lost as land clearing continues: 'It would take the army to police these blokes'*. Sydney Morning Herald, Sydney. Available for viewing at https://www.smh.com.au/environment/conservation/nsw-koala-habitat-lost-as-land-clearing-continues-it-would-take-the-army-to-police-these-blokes-20160802-gqjjm6.html Viewed 29 July 2019.

Recommendation: Responsibility for environmental assessment and compliance enforcement of native vegetation should rest with the Minister for the Environment.

Independent Review

It is clear that the Local Land Services Act and Biodiversity Conservation ACt, and associated regulations and codes, are failing to protect koala populations and koala habitats in NSW.

We recommend the *Local Land Services Act 2013* and *Biodiversity Conservation Act 2016*, plus associated regulations and codes, and the SEPP Vegetation in Non-Rural Areas be independently reviewed and substantially strengthened at the earliest opportunity to ensure koala habitat and populations are protected.

The independent expert review should specifically evaluate current legislative frameworks in the context of the objectives of the Reforms. Part of the review should examine the legislative thresholds and those provisions demonstrated to be effective in 'enhancing biodiversity conservation' within the repealed *Native Vegetation Act 2003*, its predecessor the *Native Vegetation Conservation Act 1997* and the repealed SEPP 46 - Protection and Management of Native Vegetation.

Recommendation: The *Local Land Services Act 2013* and *Biodiversity Conservation Act 2016*, plus associated regulations and codes, and the SEPP Vegetation in Non-Rural Areas should be independently reviewed to ensure koala habitat and populations are protected.

The effectiveness of State Environmental Planning Policy 44 - Koala Habitat Protection

The aim of SEPP 44 - to protect koala habitat and to ensure a permanent free-living population over the present range and reverse the current trend of koala population - cannot be achieved without a whole of government, koala population based planning process across all land tenures.

A review of SEPP 44 has been underway since November 2016 and many of the issues with the SEPP have been canvassed through this process. Unfortunately, and for reasons which are not clear, the Government has failed to progress this review or make amendments to the SEPP. This is despite the Chief Scientist's December 2016 report into koalas explicitly recommending that "*the Government improve outcomes for koalas through changes to the planning system" and "within 12 months of receipt of this report Government should start a broader evaluation of the effectiveness of SEPP 44 as a planning tool and the Comprehensive Koala Plans of Management for protecting koalas and their habitat."*

We recommend the committee review many of the submissions to this process, but in summary SEPP 44 has a number of issues which need urgent amendment, including:

- Only six councils have approved Comprehensive Koala Plans of Management.[48] For the remainder of local government areas with koalas, koala habitat is not identified, the rules intended to protect koala habitat under SEPP 44 are not operating properly, and koalas and their habitat are at risk from urban development, agricultural clearing and private native forestry. Plans of Management must be finalised in all relevant local government areas as a matter of urgency.

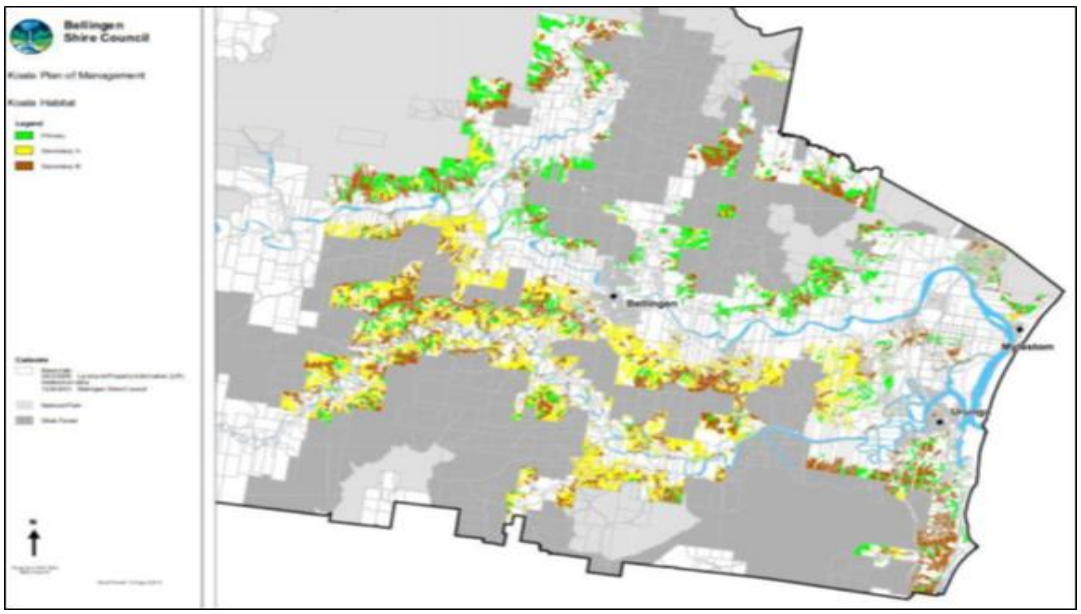
- The SEPP applies to koala populations on selective tenures (private land) which are dissected by artificial (LGA) boundaries which, in an ecological context, have no relation to those populations (see Figure 6). The application of the SEPP should be broadened to include all land tenures. The current restriction of SEPP 44 to private land only results in practice to more strict land use controls applying to private land than applying to adjoining State Forests.

- Even in Council areas where plans with mapped koala habitat exist, koala habitat may be destroyed. To illustrate, sand mining is permitted to destroy mapped koala habitat in Port Stephens LGA. Offsets do not replace destroyed koala habitat, particularly when koalas in the development areas are unable to disperse to the offset.

- the SEPP process is not participatory or inclusive, is poorly supported by governments at all levels and does not include monitoring for effectiveness.

- The current list of tree species does not reflect the full range of trees that are used by koalas and so many areas of koala habitat are not covered by the current SEPP

Figure 6: A map from the Bellingen Shire Comprehensive Koala Plan of Management showing preferred koala habitat divided into primary (green), secondary A (yellow) and secondary B (brown). Note the abrupt borders of preferred koala habitat at the boundaries of state forests (dark grey polygons)



[48] Koala Plans of Management have been finalised in Ballina, Bellingen,Coffs Harbour, Kempsey, Lismore, and Port Stephens local government areas

Recommendation: The review of SEPP 44 should recommence and be incorporated into a whole of Government approach to koala conservation as recommended by the Chief Scientist.

Recommendation: Ensure that local government is resourced to urgently undertake the necessary revised koala habitat mapping.

Recommendation: Amend the aim of the SEPP to ensure that the definition of 'range' refers to the extent of occurrence.

Recommendation: Amend the guidelines to ensure that the intention of the SEPP (to protect koala habitat to ensure a permanent free-living population over the present range and reverse the current trend of koala population decline) can be met by giving the Minister the ability to enforce the SEPP and guidelines, rather than voluntary compliance.

Recommendation: Ensure that the guidelines state that digital aerial photographic interpretation is the only mapping method that can be used in the first instance to identify koala habitat, and that an on-ground ecological assessment is necessary to confirm koala habitat and determine koala presence or absence.

Recommendation: Ensure that the guidelines on surveys make particular reference to paddock trees and that paddock trees are assessed as to the presence of koalas regardless of whether they are a listed koala tree species.

Recommendation: Ensure that the guidelines contain *requirements* to develop CKPoMs, not simply recommendations.

Recommendation: Ensure that the new LPD gives local government the authority to effectively zone koala habitat into environmental protection zones, and that the 'Application of E2 and E3 Zones and Environmental Overlays in Far North Coast LEPs' LPD does not negate the revised SEPP.

Recommendation: Include Gwydir Shire Council on the revised list of councils which are covered by the SEPP

Recommendation: Ensure that both the guidelines and CKPoMs are statutory documents that enable local governments to refuse DAs that pose an unacceptable risk to *occupied and unoccupied* koala habitat.

Recommendation: ensure that the definition of koala habitat includes all plant communities that have >= 15% of one or more listed tree species in the upper or lower strata of the tree component, as well as all vegetation that contains koalas. On-ground surveys should be used to identify plant communities.

Recommendation: ensure that koala habitat currently identified under CKPoMs is not rendered unprotected as a result of the amended definitions.

Recommendation: ensure that local government is adequately resourced to incorporate the changes into existing CKPoMs within 12 months of the changes taking effect.

The effectiveness of the NSW Koala Strategy

The NSW Koala Strategy was assessed recently assessed by environment groups as being 'ineffective, inadequate and expensive'.[49] A copy of the report produced by WWF-Australia, National Parks Association of NSW and North East Forests Alliance is included as an attachment to this report. We encourage the committee to thoroughly review this document.

The report assessed the NSW Koala Strategy '*against the Independent Review's 11 recommendations* and found:

- *two were Addressed,*
- *five were Partially Addressed,*
- *two were Poorly Addressed, and*
- *two were Not Addressed'.*

We accept that the strategy contains significant funding and some worthwhile actions, such as citizen science surveys and creation of new National Parks and koala sanctuaries. However the primary cause of the emerging koala extinction crisis – loss and fragmentation of koala habitat on private land – has been ignored by the strategy.

Recommendation: Develop a new Koala Strategy which is truly whole-of-government, based on sound science, and addresses the major threat of widespread and escalating deforestation.

The effectiveness of the Biodiversity Conservation Act 2016, including the threatened species provisions and associated regulations

When the Government introduced the new *Biodiversity Conservation Act 2016*, one of the significant changes that was made was to prevent the listing of particular threatened populations of a species. Threatened populations were groups of native plants and animals occupying a particular area that are likely to become extinct in NSW in the near future.

Listing threatened populations is important as it allows particular attention to be paid to local and regional extinction threats, even if the overall population of a species is not at risk of extinction. For example, the coastal emu population on the north coast of New South Wales is listed as critically endangered, with as few as 100 remaining, despite the status of emu populations in other parts of NSW being healthy.

This change prevented the NSW Threatened Species Scientific Committee from being able to make a final determination to list the koala population in the Port Stephens area (north of the Hunter River, east of the Pacific Highway and south of Nelson Bay/Karuah River) as an endangered population.

[49] Blanch, S., Sweeney, O., and Pugh, D. (2018). *The NSW Koala Strategy: ineffective, inadequate and expensive. An assessment of the NSW Koala Strategy against Recommendations made in the Independent Review into decline of koalas in NSW*. Report produced by WWF-Australia, National Parks Association of NSW and North East Forest Alliance. Published by WWF-Australia, Sydney. 17 pages. Available for viewing at https://www.wwf.org.au/news/news/2018/nsw-koala-strategy-ineffective-inadequate-and-expensive#gs.sdu9w0 Viewed 20 July 2019.

This is despite a preliminary determination finding that "it is facing a very high risk of extinction in New South Wales in the near future".[50]

Local and regional extinctions are the precursor to final extinction of a species. If we cannot acknowledge and manage local extinctions through the Act then we are increasing the risk that a species like the koala will not be seen in the wild in future.

Recommendation: Restore the ability of the NSW Threatened Species Scientific Committee to list particular threatened populations of species like the koala, regardless of the status of the wider species.

Key areas of koala habitat on private and public land that should be protected, including areas currently at risk of logging or clearing

Significant work has been done by conservation groups and government departments to identify key areas of koala habitat that should be protected in NSW. The *Koala Habitat Conservation Plan* by Paull *et al*., (2019), attached to this submission, identifies priority areas for protection on public and private land, by amending koala hubs mapping developed by the NSW Government. The maps identify 'Koala Habitat Priority Areas' and we recommend they are used by the committee to identify areas to protect. Figure 9 provides an example of the mapping.

We also recommend that the committee refer to the detailed submission of the National Parks Association which identifies 9 areas which should be protected by incorporation into the National Parks estate. These are:

1. A Great Koala National Park on the mid north coast
2. A Koala Park in south-west Sydney
3. New reservations around Port Macquarie
4. Greater Bulga - Comboyne - Taree additions
5. Bowman additions near Gloucester
6. Wang Wauk and Wallingat additions near Bulahdelah
7. Protections for Githabul Country in the Border Ranges
8. Additions to the Murrah Flora Reserves on the South Coast
9. Expanding the Pilliga National Park

In this submission we will outline in detail two of these proposals - a Great Koala National Park on the mid north coast and a Koala Park in south-west Sydney.

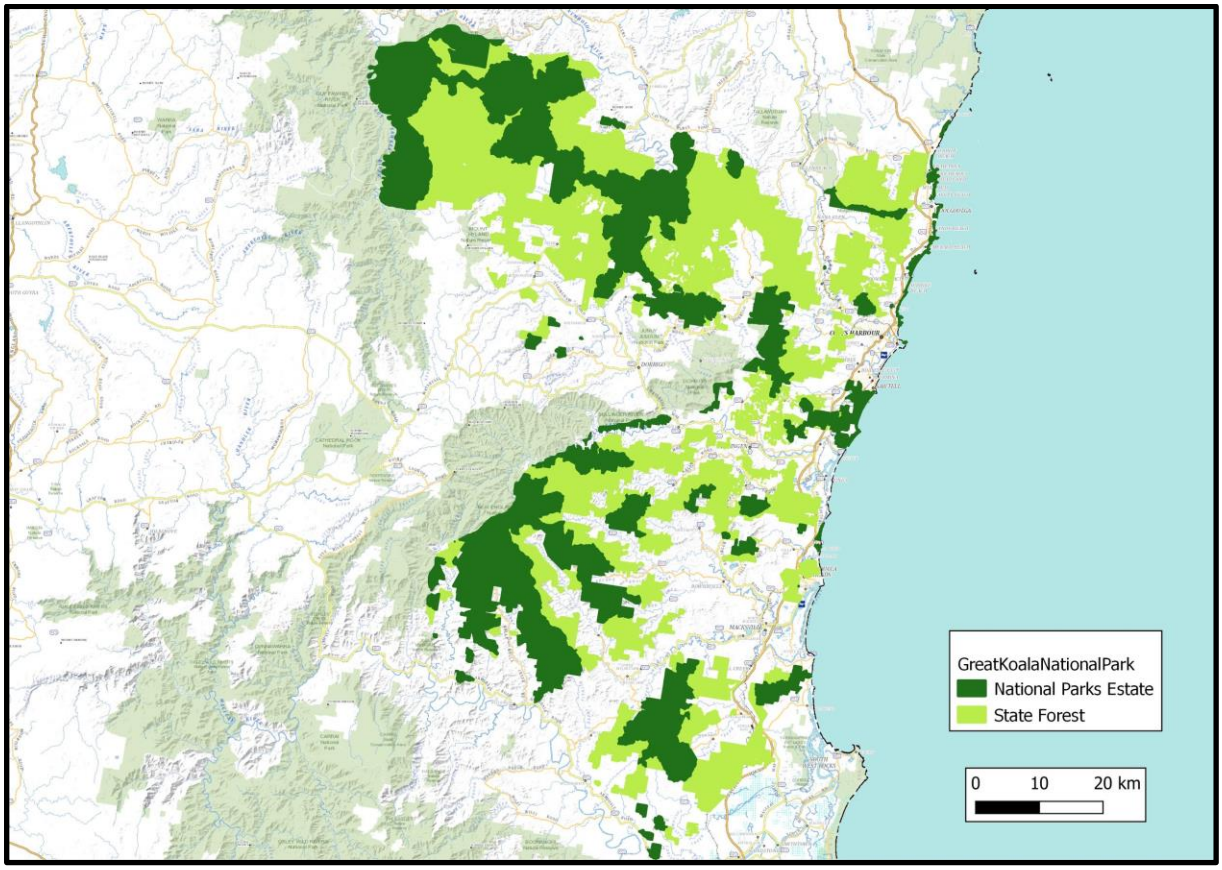
[50] https://www.environment.nsw.gov.au/resources/threatenedspecies/determinations/PDKoalaPortStephpopEP.pdf

The Great Koala National Park on the mid north coast

The Great Koala National Park (GKNP) is a visionary proposal to ensure the future of our koala populations. It is entirely made up of existing public land, making it also a cost-effective reserve option.

The proposal has been developed by conservation groups and includes all public land with the Coffs Harbour - Guy Fawkes metapopulation and the Bellinger - Nambucca - Macleay metapopulation boundaries. It would add 175,000 ha of public state forests added to existing protected areas to form a continuous 315,000 ha reserve of public land (Fig. 7). The proposed GKNP adjoins World Heritage-listed reserves, including New England and Dorrigo national parks and the Guy Fawkes National Park, to form a proposed conservation complex of half a million hectares extending from the tablelands to the Coast.

Figure 7: Map of the Great Koala National Park proposal indicating state forests (pale green) and existing national parks (dark green). The park stretches from Woolgoolga in the north to South West Rocks in the south.



The area encompassed by the proposal is a biodiversity hotspot which includes two nationally recognised koala meta-populations, estimated to contain almost 20% (about 4,500) of NSW's remaining wild koalas. It contains 56% of all koala hubs in state forests on the north coast of NSW and 44% of all koala hubs in state forests in NSW. The Great Koala National Park would both protect coastal forests on the east coast and restore a link between coastal forests and the escarpment to allow koalas to move in response to extreme weather events and climate change.

Importantly, this koala population has been one of the more stable in NSW. This is most likely due to Bongil Bongil National Park acting as a source[51] area of animals which has – so far – offset losses of koalas from land clearing and logging. Because the population has not yet dramatically declined like many others in NSW, the Great Koala National Park has an outstanding chance of making a real difference to koalas. It is no exaggeration to identify it as the most important area of public land in the state for koalas.

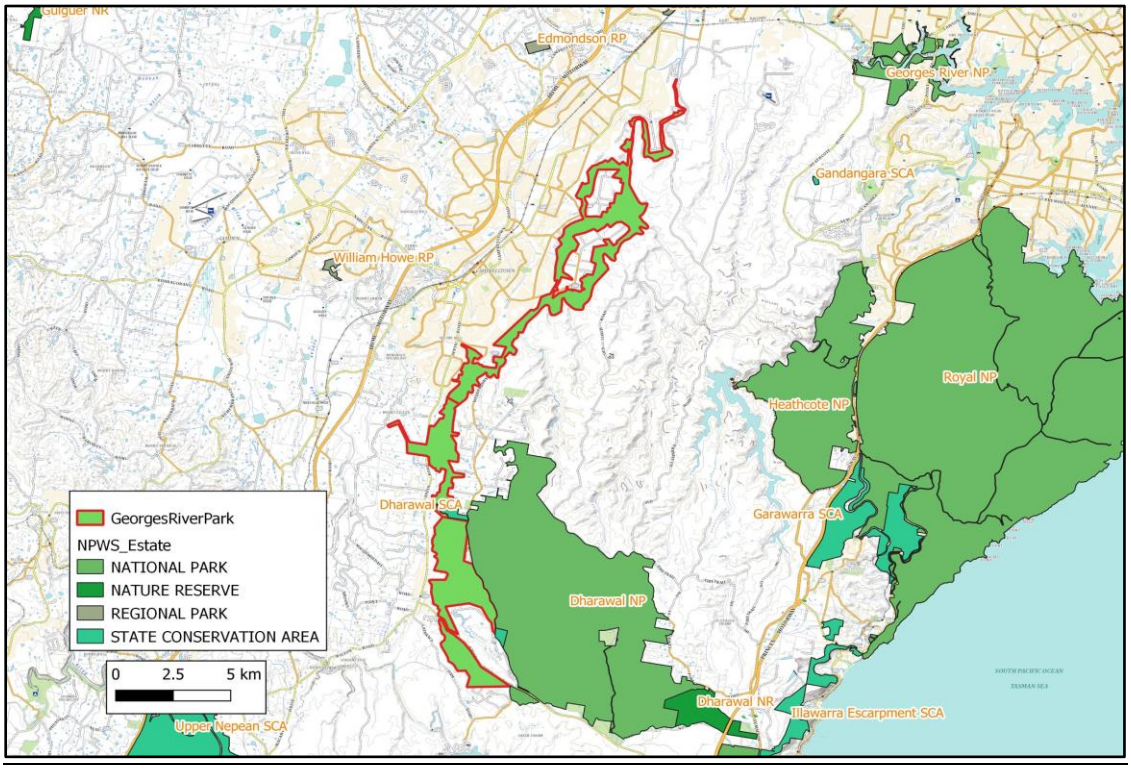
If the Great Koala National Park is not created then there will instead be widespread logging in the new 'intensive harvesting zone'. It is not clear whether the existence of Bongil Bongil could enable koalas to persist in the face of such widespread habitat destruction, but it should be considered highly uncertain.

Georges River Koala Park for south-west Sydney

The Upper Georges River Reserve proposal comprises the lands acquired under the Sydney Region Development Fund and some small Crown Reserves stretching from Appin to Glenfield along the Upper Georges River (Figure 8). The area (approximately 4,000 Ha) contains a significant population of koalas, and endangered ecological communities of Cumberland vegetation.

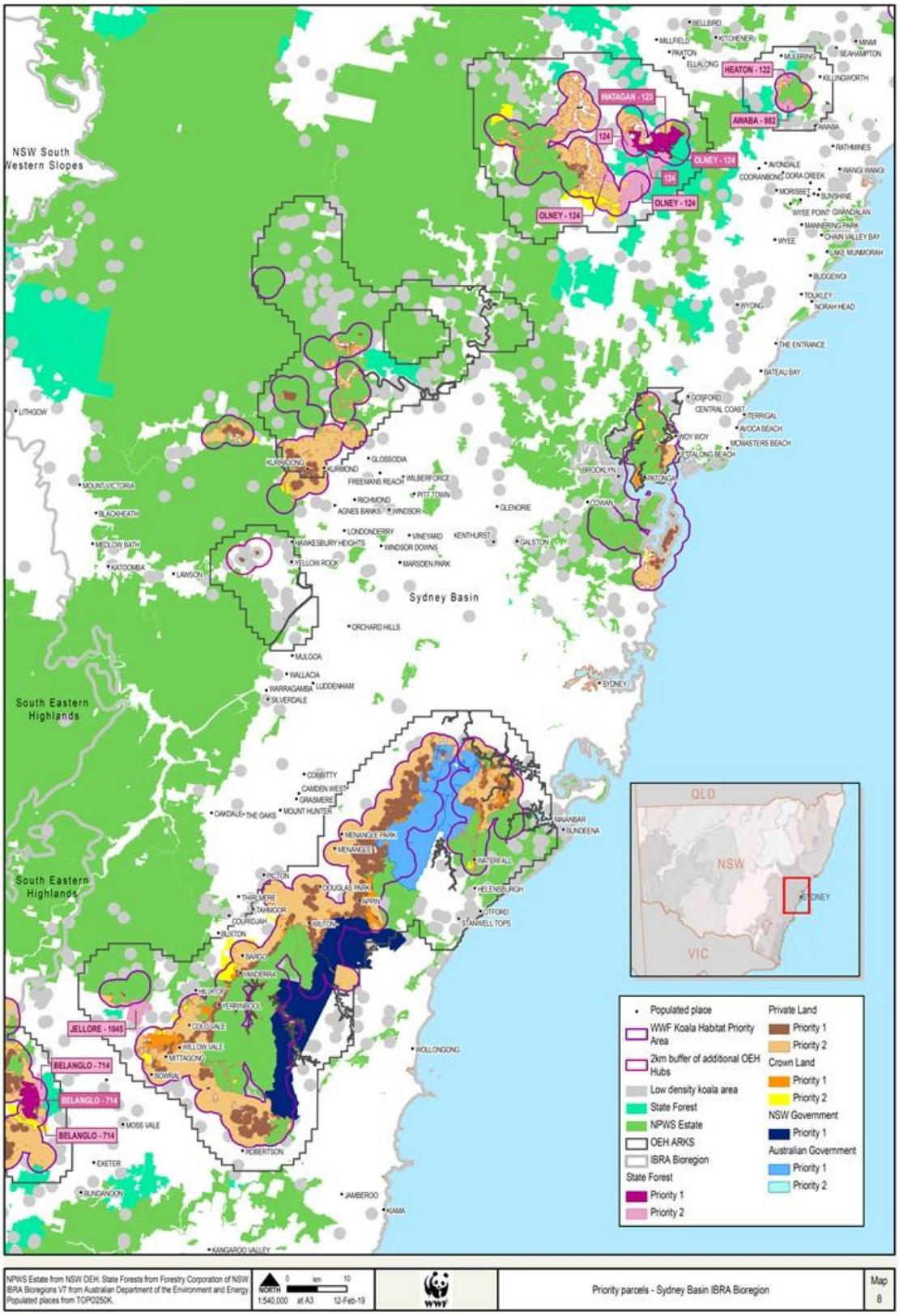
The importance of the proposal is supported by WWF's koala hubs analysis (Figure 9).

Figure 8: Map of the Upper Georges River Koala Park proposal (light green red outlined polygons). The proposal follows the Upper Georges River from Campbelltown south to approximately Appin. It forms an important link between protected areas and the Holsworthy Military Reserve.



[51]Lunney et. al. 2016. Interpreting patterns of population change in koalas from long-term datasets in Coffs Harbour on the north coast of New South Wales. Australian Mammalogy 38.

Figure 9: Koala habitat priority area map for the Sydney Basin Bioregion[52]. Note the overlap between the high priority land identified in the south of the map and the Upper Georges River Koala Park (Figure 8).



[52] The map is an example of mapping undertaken by koala experts for environment organisations in the *Koala Habitat Conservation Plan.* See note on Paull *et al.* 2019.