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North Coast Environment Council submission: whole of Government Koala Strategy; Saving Our Species draft strategy and Review of State Environment Planning Policy 44—Koala Habitat Protection

The North Coast Environment Council (NCEC) welcomes the opportunity to make a submission for the whole of Government Koala Strategy; Saving Our Species draft strategy and Review of State Environment Planning Policy 44—Koala Habitat Protection. The North Coast Environment Council (NCEC) is the peak umbrella environment group on the NSW North Coast, covering the area from the Hunter to the Queensland Border and west to the New England Highway. We have numerous community member groups associated with the NCEC, many working to conserve their local environment.

Recommendations:

1.The NCEC supports many other conservation groups in asking for an immediate moratorium on the clearing or logging of koala habitat until the whole-of government plan to protect koalas is implemented.

2. The whole of government strategy be revised to clearly and explicitly identify the need to protect existing habitat on both public and private land.

3. Remove native forest logging from public koala habitat as a matter of urgency, and ensure that the pending review of PNF strengthens protections for koalas

4. The NSW Government commit to, and establish a timeline for, the gazettal of the Great Koala National Park and other koala reserve proposals

5. The whole of government strategy should protect habitat that is important for koalas, rather than habitat that is politically convenient to reserve, so that effective koala conservation is the result

6. *The whole of Government strategy better presents the population estimate and uncertainty around the estimate and includes the need for analysis of any new population data gathered in order to inform a reassessment of both the state and federal listing of the koala.*

7. Koala habitat (i.e. vegetation types) is mapped using digital aerial photographic interpretation, and this information complemented with on-ground field surveys by ecologists to determine the locations and trends of koalas.

8. The government defines 'core' habitat as land with a resident population of koalas, as evidenced by recent sightings or signs of koala usage, and high quality habitat (that may be

currently unoccupied) with historical records of a population. 'Potential' habitat should be defined as native vegetation where known feed trees constitute at least 15% of the total number of trees in the upper or lower strata of the tree component and native vegetation with recent sightings or evidence of koala usage.

9. Exclude code-based clearing via the LLS Act from koala habitat—including paddock trees and small woodland patches used as stepping stones and shelter.

10. Declare koala habitat as an Area of Outstanding Biodiversity Value, and identify impacts on koala habitat as a 'serious and irreversible impact' for the purpose of the BC Act.

11. The Government prioritises private land conservation in areas affected by PNF where public land reserve gains can also be achieved in order to maximise efficiency and cost-effectiveness.

11. All koala habitat in public state forests should be permanently protected in the reserve network.

12. The PNF review should strengthen, not weakens, protections for koala habitat.

13. That a reserve network with high east-west and north-south connectivity of koala habitat is established east of the Great Dividing Range to ensure koalas can respond to pressures of climate change

14. Exclude koala habitat from clearing under the BC and LLS Acts and consider the development of a farm certification scheme to reward responsible farmers.

15. That the EPA

1) audit the effectiveness of PNF in protecting Koala habitat,

2) increase the assessment of PNF applications ,and

3) increase the periodic audit of landholders to ensure compliance

16. Logging should be excluded from all koala habitat on public land until

1) the effectiveness of existing prescriptions in protecting koalas is assessed,

2) the age-class distribution of forests is determined and compared to that at the signing of the RFAs, and

3) until the recommended studies in regeneration harvesting areas completed.

17. *The NSW government identifies best-practice urban development for koalas and implements this via the review of SEPP 44*

18. The Government must exclude the clearing of koala habitat, including non-feed habitat used for shelter and movement (Crowther et al. 2014), under both the BC and LLS Acts if it is to have any chance of meeting the goals of the strategy.

19. NCEC recommendation: gazette the GKNP, and complement the GKNP network with targeted private land investment in the order of hundreds of millions of dollars to acquire priority habitat on private land.

20. Ensure that the objectives of the koala research plan will seek to deliver on ground outcomes for the conservation of the species, address contradictory policy signals and include environment groups in the development of the plan.

21. *The Koala Research plan focus on the root causes of why koalas are coming into care (i.e. land clearing, urban development, infrastructure development and native forest logging) rather than rely on carers to pick up the pieces resulting from government policy.*

22. Targeted genetics- based research be undertaken to help characterize koala populations and to help determine appropriate koala management units throughout the state

23. The information needs for the "broader community" to participate in koala conservation and land management are fully assessed with the community before information programs are commenced

24. The Government make a genuine attempt to consult with and listen to environment and wildlife groups engaged in koala conservation.

25. The Whole of Government Koala Strategy recognise the link between land cover change and climate change and propose mechanisms by which the historical impact of land cover change can be reversed.

26. That the NSW government end native forest logging on public land and reverse land clearing legislation to maximise the contribution of the land sector to climate change mitigation efforts

Recommendations in SEPP submission (Attachment 2)

1.Ensure that KPoM's are prepared for all land tenures over recognised Koala populations

2. 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.

3. Ensure that koala habitat currently identified under CKPoMs is not rendered unprotected as a result of the amended definitions.

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

5. 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 apply the SEPP to all land tenures and enforce the SEPP and guidelines, rather than voluntary compliance.

6. 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.

7. 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.

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

9. 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.

10. Ensure that local government is resourced to undertake the necessary revised koala habitat mapping.

11. 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. We caution against developing guidelines that have a lower standard or which are less enforceable than CKPoMs as this will act as a disincentive to create a CKPoM.

Introduction

The North Coast Environment Council (NCEC) has operated for forty years as the peak umbrella environment group on the NSW North Coast, covering the area from the Hunter River north to the Queensland Border and west to the New England Highway. There are numerous community groups and individual members associated with the NCEC who are working diligently to conserve their local and regional environment.

The NCEC and member groups have monitored the decline in Koala populations on the North Coast over the last 40 years and have support a range of remedial koala conservation programs from land conservation and rehabilitation to animal care activities.

The NCEC works closely with other conservation groups and shares information and often adopts common positions and statements. In this case this submission shares a number of positions with other key groups.

This submission makes a total of 37 recommendations targeted at a range of agencies . It is requested that all the recommendations are included as policies or actions in either of the revised whole of Government Koala Strategy; the Saving Our Species strategy and Review of State Environment Planning Policy 44—Koala Habitat Protection. Some recommendations are directed at more than one of the planning documents.

In 2012 the NCEC Joined with local environmental groups to commission a report by experienced ecologist David Scotts titled: *Conserving Koala Populations on the Mid North Coast – preliminary mapping of populations as a basis for further survey and research and planning* ". That project has been extended to other parts of the North coast (NPA unpublished) and on the entire Tablelands and Western Slopes regions (2) providing almost state-wide coverage of this important work. Whilst undertaken in close collaboration with OEH the Government has appeared to ignore this work.

Since 2014 The NCEC and member groups have supported a proposal to create the Great Koala National Park in the Coffs Harbour hinterland that followed from the Scotts report (see appendix 1). This campaign, as well as our opposition to native forest logging on public land and efforts to prevent a return to broad-scale land clearing, interact with SEPP 44 and are very relevant to koala conservation.

The NCEC welcomes the opportunity to comment on the Government Koala Strategy; Saving Our Species draft strategy and the Explanation of Intended Effect State Environment Planning Policy No. 44—Koala Habitat Protection (EIE). A submission on the Explanation of intended effect: State Environment and Planning Policy 44 (Koala Habitat Protection) (SEPP 44), prepared in December 2016 but not sent is still relevant and included in this submission as attachment 2.

The Chief Scientists report includes recommendations that are clearly self-evident, recommendations that support current departmental and institutional programs or research. Amongst the self-evident recommendations are those for closer cooperation between agencies and between agencies and the community.

It is disappointing that the report relies on a “desktop survey” to assess the concerns of interest groups and stakeholders regarding threats to koalas and their conservation. Excluding direct community input from the preparation of the Chief Scientist’s report is not a good starting point for an attempt to develop a radically restructured approach that is recognised by the Chief Scientist as needed to turn around the decline of koalas.

Throughout the report there also seems to be an ignorance or lack of recognition or acceptance of the role of the community environment groups in koala conservation. Community environment groups have been strongly involved and influential in the setting aside of koala habitat in reserves on the North and South coast. In recent years, in close consultation with OEH staff, community environment groups have been responsible for the preliminary mapping and assessment of koala populations, initially on the mid north coast (1), then throughout most of the area of NSW currently occupied by koalas (2, NPA unpublished)

The NCEC also accepts that the Saving our Species (SOS) Action Toolbox is thorough and covers many threats to koalas—all of which are worthy of addressing. New protected areas must be a key part of the strategy as protecting existing habitat is cheaper and more effective than having to restore it later[1]. However, the SOS Action Toolbox does not explicitly recognise the need for new koala reserves. Without dealing effectively with the large issues like completing an comprehensive, adequate and representative reserve system, land clearing, logging and coastal development, the SOS is little more than tinkering.

The NCEC specifically requests that the Government actively addresses all threats to koalas, but particularly focusses, as a priority, on the need to protect remaining koala habitat on both public and private land.

The NCEC believes current government policy settings undermine the stated intent (**to halt and reverse declines in koala populations**) of this consultation. If these settings are not changed then the goal of protecting koalas will be extremely unlikely to be achieved. Particular areas of concern surround policies that are driving, or will soon drive, habitat loss including identified by a broad coalition of environmental groups and relevant to the North Coast are :

1. The repeal of the *Native Vegetation Act 2003* and the introduction of sweeping self-assessable code-based clearing;

2. The on-going intensification of native forest logging and government’s efforts to reduce industry responsibility for environmental protections via the new Integrated Forestry Operations Approval Remake;

3. Continued urban and agricultural (such as Blueberry farming) expansion in coastal areas;

4. Large infrastructure projects such as the Pacific Highway;

5. Ineffective regulation of Private Native Forestry (PNF) and uncertainty as to the government’s intentions in regards the review of PNF as recommended in the Review of Biodiversity Legislation;

6. The Government’s apparent abandonment of the National Parks Establishment Plan and a reluctance to create National Parks;

7. Changes to the management of and increased ease of disposal of Crown Land via the new *Crown Land Management Act* 2016 and;

8. Ineffectiveness of local and state government in implementing SEPP 44.

The issue of habitat loss and reluctance of the NSW Government to permanently protect habitat is key to the problems facing koalas. Unfortunately, the NCEC believes the Chief Scientist's report fails to pay adequate attention to the major policy settings surrounding habitat destruction. The report devotes little attention to the recent changes in land clearing legislation, and no effort was made to assess what impact on koalas may result from the proposed changes.

The Chief Scientist's report therefore does not offer the maximum opportunity to protect koalas. This is hugely disappointing and, unless the whole of government strategy that results from the report addresses significant shortcomings, the strategy will be a missed opportunity for the NSW government to genuinely protect the world's favourite animal.

NCEC Recommendation: The NCEC supports many other conservation groups in asking for an immediate moratorium on the clearing or logging of koala habitat until the whole-of government plan to protect koalas is implemented.

Habitat is important for koalas and current policy settings are diametrically opposed to the protection of habitat, the interaction between land cover and climate change and the contribution of native vegetation clearing to carbon emissions.

Habitat, land clearing and reservations

Although section 3.4 begins to address the importance of protecting koala habitat, **there is no explicit recommendation to protect koala habitat in the Chief Scientist's report**. Neither the identified 'key areas' of a whole of government koala strategy or the identified 'desired outcomes' on page v include the protection of koala habitat. Although we recognise that there are multiple threats besides habitat loss acting on koalas, including dog attack, vehicle strike and disease, we contend that these are often a consequence of habitat loss or fragmentation. The protection of habitat is therefore the vital first step in dealing with the flow-on threats. In fact, 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 (McAlpine et al. 2015).

NCEC recommendation: the whole of government strategy be revised to clearly and explicitly identify the need to protect existing habitat on both public and private land

Koalas select mature forest age-classes with lower levels of disturbance from logging and fire (NSW Environment Protection Authority 2016)(4) and larger feed trees (Moore and Foley 2005)(5)—likely because larger trees are perceived as larger food patches (Moore and Foley 2005). 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 (Smith 2004) (6). The belated, but welcome, gazettal of the Murrah Flora Reserves is a tacit admission that intense native forest logging and koala habitat conservation are inherently at odds.

NCEC recommendation: remove native forest logging from public koala habitat as a matter of urgency, and ensure that the pending review of PNF strengthens protections for koalas

Environment groups, including NPA and the Western Woodlands Alliance, have identified multiple reserve priorities for koalas. The Western Woodlands Alliance has focussed on areas west of the Great Dividing Range and ensuring connectivity between these areas and with eastern NSW (Paull and Hughes 2016 (2)). NPA has identified several reserve proposals for koalas between Port Stephens and the Queensland border (Love and Sweeney 2015) (7). The largest of these is the Great Koala National Park (GKNP) which would add 175,000 hectares of state forest to an existing 140,000ha of National Park to

protect an estimated 4,500 koalas, including two of the most important metapopulations in NSW (Scotts 2013 (1)). The proposed reserve closely matches the areas that the NSW Office of Environment and Heritage (OEH) identified, with a high degree of confidence, as being most likely to contain koalas (NSW Office of Environment and Heritage 2014). The GKNP is particularly important NCECause the Coffs Harbour population is described as stable to slowly declining, meaning that decisive action to protect habitat has a strong chance of recovering koala numbers. The most likely explanation for this population remaining relatively stable despite urban expansion and intensifying native forest logging is that Bongil Bongil National Park is acting as a source of koalas (Lunney et al. 2016) (8). This highlights the value in removing threats from high quality koala habitat (Bongil Bongil was once part of Pine Creek state forest and subject to logging). Because we know that even small changes in population structure can trigger population declines (Lunney et al. 2002)(9), it is vital that koala habitat is protected now to reduce threats.

NCEC recommendation; The NSW Government commit to, and establish a timeline for, the gazettal of the Great Koala National Park and other koala reserve proposals

Comments on individual recommendations in the report are provided below:

Recommendation 1.

"***That Government adopt a whole-of-government strategy for NSW with the objective of stabilising then starting to increase koala numbers"***

This recommendation is strongly supported. Currently different Ministers have responsibility for issues that affect koalas. For example, the Planning Minister administers SEPP 44, which covers private land, while the Primary Industry Minister and the Environment Minister are responsible for native forest logging and the Environment Minister for creating protected areas. This has meant that land-use decisions have not been in the best interests of koalas. There has been no process or mechanism to encourage collaboration between portfolios or agencies.

Rather than based on taking actions necessary to manage and mitigate priority threats to key koala populations the current arrangements direct different actions to different land tenures and different land parcels (eg private land portions , forestry compartments and individual conservation reserves.)

Despite supporting a whole of government approach, we question as to whether this is indeed such a proposal. Although the Chief Scientist cites the necessity of a cross-tenure approach to 'conservation management' and 'threat mitigation' (Recommendation 7) she later qualifies this by stating that only uneconomic state forest land should be considered for transfer to the Office of Environment and Heritage (OEH) (pg. 32). Koalas prefer more fertile forests due to the production of more nutritious leaves (Moore and Foley 2005, Lunney et al. 2016), which are also favoured for logging due to higher growth rates. This in effect excludes forestry land from being considered for reservation, meaning that one of the largest managers of public land in the state is excused from having to protect koalas.

NCEC recommendation: the whole of government strategy should protect habitat that is important for koalas, rather than habitat that is politically convenient to reserve, so that effective koala conservation is the result

We support the goal of stabilising and increasing koala population numbers. However, it is our view that the strategy will struggle to be effective under current policy settings in regards land clearing and forestry on public and private land, which means that the goal is almost certainly unachievable. We draw attention to recent research that classed temperate forests in south-east Australia (i.e. koala habitat) as a 'crisis ecoregion'. Crisis ecoregions are those that have lost over 10% of their extent since 1993 and where habitat loss is greatly

outstripping protection (Watson et al. 2016) (10). This illustrates clearly the tensions between policies that potentially increase (land clearing) or maintain (forestry) habitat destruction and the goal of increasing koala populations.

Recommendation 2.

"The Government initiate a program to improve data on the number, location and occurrence of koalas in NSW, including trends over time , taking advantage of new sensor and communications technologies and data analytics within 12 months of receipt of this report."

This recommendation is strongly supported by NCEC and the application should cover all land tenures. Despite the short timeframe it is important that the community has an opportunity to input to and review methodology for all assessments. The program should take account of the preliminary Koala mapping assessment program initiated by Community environment groups now covering most of NSW as discussed earlier in this submission.

The program initiated by Community environment groups included delineation of koala meta-populations, regional populations and sub-populations. Potential koala geographical barriers were delineated and for each population category, land area and tenure assessment were provided as well as estimates of population size, ,conservation status, density ,threats and confidence of estimates was provided .

The program proposed above should include participation by Community environment groups to the fullest practical extent.

NCEC support the goal of increasing knowledge on koalas in NSW. In fact, the population estimate of 36,000 koalas in NSW (Adams-Hosking et al. 2016) (11) quoted in the Chief Scientist's report highlights the need for better data. We are sceptical of the figure—although we recognise the figure was accompanied by information that the uncertainty around the estimate was high (70-100%) and that the trends of the populations broadly match other estimates (McAlpine et al. 2015, Adams-Hosking et al. 2016).

Our scepticism stems from three areas: first, accounts from koala carers across the NSW north coast imply that local populations have declined and, in some cases, largely disappeared. Secondly Australian Koala Foundation (AKF), that conducts independent field research on koalas (the 36,000 estimate is based on expert opinion, not field data), estimates a population of 8,610-11,250 based on the area of existing habitat available (derived from AKF mapping). Finally, the 36,000 figure is significantly greater than the 21,000 estimated by the federal government in 2010 at the time of the EPBC assessment, and greater even than the 31,400 estimated in 1990 (Department of Environment 2014). The Chief Scientist's report does not adequately explain the discrepancies between the latest estimate and those previous estimates, and appears to select the most optimistic figure where a range and/or recognition of uncertainty may have been more appropriate.

NCEC recommendation: the whole of government strategy better presents the population estimate and uncertainty around the estimate and includes the need for analysis of any new population data gathered in order to inform a reassessment of both the state and federal listing of the koala.

Recommendation 3

"The government publish a state-wide predictive koala habitat map within three years of receipt of this report, with immediate priority given to improving coverage on the north coast."

This recommendation is strongly supported by NCEC, including the prioritising of the north coast for mapping with reservations identified below.

As with the proposals under recommendation 2 , it is also important that the community has an opportunity to input to and review methology for developing a state-wide predictive koala habitat map.

We are nevertheless sceptical with what we understand to be the favoured approaches to produce a predictive koala habitat map.

Segmentation modelling

Habitat mapping is based on vegetation mapping, and NSW does not currently possess a high quality vegetation map. Recent efforts to model native vegetation, rather than use accurate techniques such as digital aerial photographic interpretation (Maguire et al. 2012) (13) have used segmentation modelling. This maps resulting from this technique have been shown to be seriously flawed (Hunter 2016, (14) Hunter and Lechner 2016 (15) Roff et al. 2016 (16)). We therefore have little confidence that a predictive habitat map based on segmentation modelling would accurately reflect koala habitat.

EPA mapping pilot

The NSW Environmental Protection Authority (EPA) recently undertook a koala habitat mapping pilot project (NSW Environment Protection Authority 2016 (4)) with the goals of identifying a mapping methodology for koala habitat, trialling different mapping methods, producing management-scale mapping and determining how the mapping could be used in the regulation of forestry operations. The pilot found that mapping could only be used to distinguish suitable and unsuitable habitat based on floristic composition and that it didn't predict the occurrence of koalas. Although identifying habitat is useful in order to protect koala habitat (unoccupied habitat must also be protected in order to allow population recovery), the lack of ability to predict koala occurrence means a map alone is insufficient to protect koalas. The EPA finding, that koala occurrence was only weakly correlated with habitat type, is due to the influence of disturbance history (logging and/or fire) and socio-biology on koala distributions.

NCEC recommendation: koala habitat (i.e. vegetation types) is mapped using digital aerial photographic interpretation, and this information complemented with on-ground field surveys by ecologists to determine the locations and trends of koalas.

Recommendation 4.

"The Government improve outcomes for koalas through changes to the planning system"

The NCEC members have had considerable experience with SEPP 44. The limited results from SEPP 44 reflect its limitations from being a planning driven process rather than an approach grounded in the science and the ecology of the species. Improvements in the planning system are crucial in order to reduce the impact of urban development on koala habitat. We note that there is a process underway to review SEPP 44, though as stated in NCECs submission in late 2016 (Appendix 1) much of the detail required to assess what changes will result from the review are contained in 'guidelines' that have not yet been released to the public.

Ineffectiveness of SEPP 44 to date

However SEPP 44 has, to this point, been ineffective with only four local governments having developed and adopted Comprehensive Koala Plans of Management (CKPoMs) in

the 22 years since the introduction of SEPP 44. This highlights the importance of state government leadership in ensuring koala habitat protection in the absence of leadership from local governments.

Proposed Local Planning Direction

However, there are also issues of concern and outstanding questions in the changes to SEPP 44. For example, core koala habitat identified under SEPP 44 should currently be incorporated into an environmental protection zone or have special provision to control development under Clause 15. However this requirement is to be removed and instead put into a Local Planning Direction (LPD) that will direct councils as to how they must protect koala habitat. It is unclear from the Explanation whether the requirements will be the same as at present.

Environmental zoning

Further, we are concerned both about how koala habitat is to be protected by zoning, and the interaction between the new environmental zoning approach on the north coast and the revised SEPP. The LPD, effective since 14th April 2016, 'Application of E2 and E3 Zones and Environmental Overlays in Far North Coast LEPs' has implications for the revised SEPP: this change to zoning meant that land could only be zoned environmental if conservation had been the primary function of that land for the prior two years. For example, any land over which a Private Native Forestry (PNF) Property Vegetation Plan was granted prior to April 2014 would likely be ineligible for environmental zoning on the grounds that forestry was the primary land use. In northern NSW, this accounts for approximately 390,000ha. This in effect removed the ability of local government to zone private land into an environmental protection zone—as supposedly required under SEPP 44.

It is unclear how the proposed koala habitat LPD will interact with the LPD on E2 and E3 zones, but there is nothing to suggest that it will replace or have legal authority over the LPD on E2 and E3. If that is the case then the revised SEPP essentially confers little extra protection for koalas as the north coast councils are those with the most extensive koala habitat and largest koala populations. Should the LPD on E2 and E3 zones be extended statewide, then the confounding effect on local governments would also be manifested on koala populations elsewhere.

Implications of changes to definitions of koala habitat

The proposed changes to the current koala habitat definitions ('core' and 'potential') have scope to strengthen the SEPP by ensuring that all identified tree species are considered habitat, and that non-listed species are deemed habitat if a koala is present. However, it is not possible to assess whether these changes to the definition will result in more protection to habitat as the definitions that will identify the plant communities have not been released. For example, what proportion of trees in a plant community will need to be a listed species for that community to be considered koala habitat? Which plant communities will therefore be defined as koala habitat? How will landholders or local governments identify the location of these plant communities? How will current CKPoMs be amended to include the new definitions and what will happen to identified core and potential koala habitat in the meantime?

SEPP 44 interacts with Private Native Forestry (PNF) via the identification of core and potential koala habitat on private land and appropriate zoning of that land determining whether PNF can take place. Since 2007 2515 PNF Property Vegetation Plans (PVPs) for PNF covering 342,000 hectares of land have been approved in northern NSW. It is not possible to say what proportion of these licences have resulted in felling as this information is not readily available from the EPA.

In February 2015 in the Coffs Harbour LGA alone, 185 PNF licenses had been issued since 2007. Taking a conservative property size estimate of 40ha, this equates to 7,400ha, 6% of the LGA or 13% of all private land. In November 2015, NPA undertook an analysis of the number of PNF PVPs within 10km of the boundary of NPAs proposed Great Koala National Park. There were 725 covering an area of 65,292ha.

The current Code of Practice for PNF[1] states that 'Forest operations are not permitted within any area identified as 'core koala habitat' within the meaning of State Environmental Planning Policy No. 44 – Koala Habitat Protection.' It is beyond reasonable doubt that the lack of action in developing CKPoMs has resulted in PNF approvals having been granted where they should not have been, and the inclusion of the word 'core' immediately raises a question mark as to what happens when the definition of core koala habitat is removed as proposed.

NCEC recommendation: the government defines 'core' habitat as land with a resident population of koalas, as evidenced by recent sightings or signs of koala usage, and high quality habitat (that may be currently unoccupied) with historical records of a population. 'Potential' habitat should be defined as native vegetation where known feed trees constitute at least 15% of the total number of trees in the upper or lower strata of the tree component and native vegetation with recent sightings or evidence of koala usage.

Interaction between SEPP 44 and the LLS Act

The interaction between the proposed changes to the SEPP and the recently introduced *Local Land Services Amendment Act* (LLS Act) are not clear. The breadth of the codes under the LLS Act do not inspire confidence that koala habitat will be adequately protected, and WWF estimated that up to 2.2 million hectares of koala habitat could be cleared under the equity code alone (Eco Logical Australia 2016) (17). This does not count the areas of woodland and clumps of paddock trees that will be at risk through the efficiency codes[2] and which are also very important for koalas (Crowther et al. 2014) (18). The Environment Minister Speakman responded to WWFs concerns by stating that core koala habitat would be protected*[3] and the Government has flagged that core koala habitat will be excluded from application of the Codes, through provisions in the Regulations*[4]. However the new SEPP proposes to change or remove the definition of core koala habitat so it is unclear the exact extent of koala habitat that would be excluded from the codes. We would argue that all koala habitat (not just core koala habitat) be excluded from application of the codes—this is critical to achieve the goal of recovering koala populations, rather than slowing declines.

NCEC recommendation: exclude code-based clearing via the LLS Act from koala habitat—including paddock trees and small woodland patches used as stepping stones and shelter.

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1 http://www.epa.nsw.gov.au/resources/pnf/130563PNFcdNth.pdf

2 Paddock trees: pest paradises or bastions of biodiversity? https://d3n8a8pro7vhmx.cloudfront.net/natureorg/pages/144/attachments/original/1465507046/FACT_SHEET_-_Paddock_Trees_.pdf?1465507046

3 *Sydney Morning Herald 13th October 2016. http://www.smh.com.au/environment/conservation/prime-koala-habitat-threatened-under-land-clearing-proposal-wwf-20161013-gs1d9v.html

4 *The Government's FAQ's on the land management website says that "*There will be some special categories of land on which no clearing under any codes will be permitted, including coastal and Ramsar wetlands, littoral rainforest, core koala habitat, critically endangered ecological communities, old growth forests and high conservation value grasslands. This will be agreed jointly by the Minister for Primary Industries and the Minister for the Environment and will be detailed in the Regulations. Individual codes will also be able to specify additional land that cannot be cleared under the code*". https://www.landmanagement.nsw.gov.au/land-management-and-regulatory-maps/#faqs

Recommendation 5

"The Government improve outcomes for koalas through the Biodiversity Conservation Bill (now Act) and regulations."

The weakening of land clearing controls by the current government is a real obstacle to the protection of Koala habitat on private land. WWF estimated (17) as much as 2.2 million hectares of koala habitat could be at risk from the Equity Code that allows the clearing of 625ha in any three year period. This does not count the millions of paddock trees and clumps of trees that are important refuge habitat and stepping stones for koalas that are now at risk from 'efficiency' codes. The NSW government must commit to protecting koala habitat from being cleared to ensure that the Strategy is not undermined before it begins.

The government should make koala habitat exempt from code-based clearing under the new legislation

An immediate moratorium is required on clearing or logging of koala habitat: the Nature Conservation Council of NSW has recently written to the Environment Minister asking for a moratorium on logging in koala habitat pending an investigation into the impacts of logging on koalas. However, given the potential impact of land clearing under the new legislation, the government must commit to no clearing or logging in koala habitat pending the development of the whole of government strategy.

Land clearing

A moratorium on clearing or logging of koala habitat is required pending the development of the plan. We note that the Chief Scientist's report does not mention the LLS Act and the potential for clearing under the LLS Act, via self-assessable codes, to impact koala habitat. As contained in our response to Recommendation 4, the breadth of the clearing codes mean that serious impacts to koala habitat are likely to occur. We repeat our recommendation to exclude code-based clearing via the LLS Act from koala habitat—including paddock trees and small woodland patches used as stepping stones and shelter.

Further, there is scope to protect koala habitat via the BC Act. For example, impacts on koala habitat should be identified as 'serious and irreversible impacts' and excluded from offsetting under the new biodiversity offsetting scheme, including for major projects. Koala habitat could also be identified as an Area of Outstanding Biodiversity Value under the BC Act, and protected for further clearing that way.

NCEC recommendation: declare koala habitat as an Area of Outstanding Biodiversity Value, and identify impacts on koala habitat as a 'serious and irreversible impact' for the purpose of the BC Act.

Private land conservation

There are opportunities for positive outcomes to accrue from the government's focus on private land conservation via the BC Act. For example, stewardship payments could be targeted at areas of important koala habitat in lieu of issuing Private Native Forestry (PNF) licenses, or existing PNF licenses in important koala habitat could be 'bought out' in return for a conservation covenant. This approach would work best by protecting habitat on private land alongside the establishment of new protected areas on public land, rather than as a replacement for protecting public land.

NCEC recommendation: the government prioritises private land conservation in areas affected by PNF where public land reserve gains can also be achieved in order to maximise efficiency and cost-effectiveness.

Recommendation 6

"The government investigate models for guiding and incentivising collaborative best practice for new development and ongoing land use in areas of known koala populations across tenures, industries and land users."

We agree that there is need to urgently improve the way in which existing activities impact upon koala habitat and are conducted in areas with koala populations.

With the creation of the Murrah Flora Reserves in far south NSW the government indicated it is aware that industrial logging is not compatible with koala conservation. The NSW EPA recently found that koala activity was strongly correlated with the size of their feed trees and the maturity of forests in northern NSW (7). With the end of the Regional Forest Agreements drawing near, the NSW government must commit to protecting koalas on public land by removing logging from all koala habitat.

NCEC recommendation. All koala habitat in public state forests should be permanently protected in the reserve network.

The NSW government has committed to reviewing Private Native Forestry (PNF) regulations. While NCEC does not oppose properly regulated PNF, we have serious concerns about the number of current active PNF licences, the ability of the EPA to audit PNF compliance and reports of PNF being used a vehicle for 'clearance by stealth' on the north coast. Appropriate management of koala habitat on private land is key to complementing protected areas and the review of PNF should include strong protection for koala habitat.

NCEC recommendation The PNF review should strengthen, not weakens, protections for koala habitat.

Koalas are one of the global flagship species most vulnerable to climate change (9). Increasing CO^2 levels makes their *Eucalyptus* food plants less palatable, and extremes of temperature are a major threat[7]. Academics predict that the range of koalas, and their feed trees, will shift eastwards in coming decades in response to climate change (9). In order to deal with this shift, it is vital that the NSW government urgently protects habitat in the east of the species range, and works to link these protected areas to western populations to ensure koalas have vegetated corridors through which to move.

It is essential for koala conservation that a reserve network with high east-west and north-south connectivity of koala habitat is established east of the Great Dividing Range to ensure koalas can respond to pressures of climate change This could be achieved by purchasing private land, by changing the tenure of public land or through voluntary conservation means via support for organisations such as the Great Eastern Ranges Initiative.

NCEC recommendation. that a reserve network with high east-west and north-south connectivity of koala habitat is established east of the Great Dividing Range to ensure koalas can respond to pressures of climate change

Land clearing and farm certification

If the government accepts this recommendation it will be necessary to exclude koala habitat from clearing under the BC and LLS Acts. The government could consider a certification scheme for landholders that manage their land in such a way as to maintain or improve koala habitat. Farm certifications schemes exist in the USA to encourage predator-friendly farming(Johnson and Wallach 2016) (20) and certification schemes have been recommended by the Wentworth Group of Concerned Scientists as a way to reward farmers who manage their land to maintain 'natural capital'(Wentworth Group of Concerned

Scientists 2015) (21). The Australian Koala Foundation has implemented a koala-friendly farming certification scheme in Queensland that could be considered for NSW*[5].

NCEC recommendation: exclude koala habitat from clearing under the BC and LLS Acts and consider the development of a farm certification scheme to reward responsible farmers.

Private native forestry

The government committed as part of the Review of Biodiversity Legislation to review regulations around PNF.

If the government is to ensure that best-practice outcomes happen in the context of PNF, it will be necessary to audit the effectiveness of PNF in protecting koala habitat to this point and to increase the ability of the EPA to assess the accuracy of PNF applications (currently applications are self-assessed by the landholder and subject to a desktop review by the EPA) and to periodically audit landholders to ensure compliance.

NCEC recommendations. That EPA

1) audit the effectiveness of PNF in protecting Koala habitat,

2) increase the assessment of PNF applications ,and

3) increase the periodic audit of landholders to ensure compliance.

Native forest logging

The NSW State of the Environment Report 2015 showed that native forest logging is now responsible for the largest loss of canopy on an annual basis in NSW, and the trend is rising (NSW Environment Protection Authority 2015).(22) This indicates that logging is intensifying over time, and as a consequence the public forest estate is likely to be getting younger. This corroborates the EPA view, expressed in the Chief Scientists report, that logging under 'regeneration harvesting' intensified in 2007 (pg 17). Both the EPA (NSW Environment Protection Authority 2016) and independent scientists (Moore and Foley 2005) have found that koalas prefer larger trees for feeding, and the EPA also found that they prefer mature forest age-classes and less disturbance from logging.

The current intensifying trend in industrial native forest logging cannot therefore be assessed as best-practice from a koala conservation perspective, a view shared (Smith 2004) (6) by an expert scientist (Andrew Smith) that sat on the EPA's panel for the mapping pilot. Incredibly, the EPA does not possess data on the age-class distribution of public native forests managed for timber production, despite this being a key indicator as to the industry conforming to the principles of Ecologically Sustainable Forest Management. A further consequence of native forest logging is the promotion of bell-miner associated dieback (BMAD). BMAD is a complicated chain of ecological events, triggered by a removal of canopy, that results in the death or dieback of canopy species (Wardell-Johnson et al. 2006) (23). BMAD is a key threatening process in NSW (NSW Scientific Committee 2008), and currently affects areas of koala habitat in north coast forests.

Far from seeking to improve outcomes from logging operations for koalas, the NCEC is of the view that the development of a new Integrated Forestry Operations Approval, that will remove the need to conduct pre-harvest surveys for koalas, will not result in best practice. Instead, it is viewed as an attempt to lower the cost of logging operations by decreasing the necessity of on-ground surveys. As the EPA mapping pilot showed, simply identifying koala habitat will not accurately identify koala occurrence.

5*https://www.savethekoala.com/sites/default/files/docs/conserve/ecolabel.pdf

NCEC recommendation: logging should be excluded from all koala habitat on public land until

1) the effectiveness of existing prescriptions in protecting koalas is assessed,

2) the age-class distribution of forests is determined and compared to that at the signing of the RFAs, and

3) until the recommended studies in regeneration harvesting areas completed.

Urban development

In regards best practice urban development, we draw the government's attention to Koala Beach*[6] on the NSW north coast. This development occurred in conjunction with AKF and involved the development occurring around the koala population, rather than the koala population having to adapt to a development that didn't consider their needs. Cats and dogs are not permitted in the development. Koala Beach offers an example of how development can occur within the range of koala populations while as far as possible maintaining the habitat features that koalas require and minimising other threats such as dog attack and vehicle strike. We would support the government in guiding developers to adopt these development standards in koala habitat, but would also contest that they should also occur where other threatened forest species (e.g. gliders) occur. We note that the industry is likely to resist calls to increase development standards to that of Koala Beach, as it means 'sacrificing' some valuable land. The NSW government therefore needs to show leadership to improve development standards.

NCEC ***recommendation: the NSW government identifies best-practice urban development for koalas and implements this via the review of SEPP 44***

Recommendation 7

"That Government agencies identify priority areas of land across tenures to target for koala conservation management and threat mitigation"

This recommendation is as close as the whole of government strategy comes to recommending the secure protection of koala habitat in reserves (see section entitled 'habitat'), though it is not explicitly stated.

Private land conservation shouldn't replace formal reserve creation

We support a cross-tenure landscape approach, but do not believe that a focus on private land management can replace the creation of new protected areas. This is because much koala habitat on the coastal lowlands is likely to be expensive to acquire as it is high value either for agriculture or urban expansion and therefore the amount of habitat likely to be protected is low (see next section). Rather private land conservation should occur as a complementary mechanism to the creation of new protected areas—either by a tenure change on public land or acquisition of private land. The Great Eastern Ranges Initiative is an example of a successful private land conservation project that has generated much goodwill among landholders.

Policy settings undermine efforts

We note that the NSW government recently announced that $10 million would be made available to purchase important koala habitat. While this is welcome investment, it will not be anywhere near sufficient to make a meaningful contribution to koala conservation. In fact,

6*https://www.savethekoala.com/our-work/koala-beach-housing-development

this sum would only purchase 6000ha of land on 2015 prices*[7], which are likely to be a conservative estimate in more fertile parts of the state. To put this in perspective, 10 properties applying the equity code could clear this in a single year. Much greater investment (in the order of hundreds of millions of dollars) is needed to procure large areas of well-connected koala habitat, and reservations should also target important parcels of public land as this is a cost-effective means of protecting habitat. For example the Great Koala National Park would remove a key threat, logging, from 175,000ha of koala habitat for no purchase of land to protect two of the most important koala metapopulations in NSW containing an estimated 4,500 koalas. Targeting private land acquisition around the boundaries of the GKNP would in turn be a means of improving boundary configuration, enhancing connectivity and increasing the area of koala habitat protected.

The Chief Scientist's report recognises that remnant habitat is an important predictor of koala use of planted (i.e. restored) habitat, and states that connecting remnant paddock trees by planting food and shelter trees could increase habitat area and connectivity in the landscape. Unfortunately, current government policy is diametrically opposed to achieving this outcome. The LLS act, via the 'efficiency codes', is set to dramatically increase the number of instances in which code-based clearing of individual trees and groups of trees can occur while the equity code is likely to result in the rapid contraction of available koala habitat unless it is appropriately excluded from application of the Codes (see our comments above). As the Chief Scientist's report notes, configuration of habitat is an important determinant of koala activity (McAlpine et al. 2006, Moore et al. 2010) and therefore current policy settings that are set to reduce the total area of habitat, increase fragmentation and decrease connectivity will work against efforts to protect koalas.

NCEC recommendation: the government must exclude the clearing of koala habitat, including non-feed habitat used for shelter and movement (Crowther et al. 2014), under both the BC and LLS Acts if it is to have any chance of meeting the goals of the strategy.

New protected areas must be a key part of the strategy as protecting existing habitat is cheaper and more effective than having to restore it later[1]. However, the SOS Action Toolbox does not explicitly recognise the need for new koala reserves. The Nature Conservation Council recently wrote to Minister Speakman urging him to make sure the SOS strategy is accompanied by new reservations in all of the SOS koala management areas.

We are also urging the NSW government to implement the 'Blueprint for a comprehensive reserve system for koalas (*Phascolarctos cinereus*) on the North Coast of New South Wales (8). This Blueprint and further recent studies (NPA unpublished) studies have suggested several new protected areas, estimated to include up to 9,450 koalas, created from public land and therefore readily achievable, known to be important for koalas including:

- The Great Koala National Park (GKNP) in the Coffs Harbour- Bellingen – Nambucca area would see 175,000ha of state forests added to existing conservation land. The area is estimated to contain up to 4,500 koalas, and has been repeatedly identified by the EPA, DPI and scientists as an important area for koalas. More details on the Great Koala National Park proposal are included as Appendix 1 to this report

- A proposal in the western Border Ranges, subject to the agreement of the Native Title holders, covering 32,234 ha over 13 state forests including Beaury, Richmond Range, Mt Lindesay, Unumgar and Yabbra that helps link seven existing World Heritage properties and a recognised biodiversity hotspot. The proposal is estimated to contain 1000 koalas.

7*https://www.ruralbank.com.au/assets/responsive/pdf/publications/farm-land-values-2015.pdf

- Sandy Creek National Park comprising Carwong and part of Royal Camp state forests near Casino in far north NSW. The 2,100ha proposal is estimated to contain 50-200 koalas.

- Tweed Coastal Range National Park to protect 2550ha of habitat for the endangered Tweed koala population of approximately 140 animals.

- Port Macquarie to Camden Haven National Park: this proposal would add 1,855ha of state forest and crown land to existing reserves to protect approximately 2000 koalas.

- Bulga—Comboyne—Landsdown—Taree National Park: this proposal would ensure connectivity between western koala populations in the Tapin Tops area and those at Mount Goonook and Landsdowne by adding 40,650ha of state forests to existing reserves and would protect approximately 500-1000 koalas.

- Bowman National Park, north west of Gloucester, would add 15,750ha of Bowman and Barrington state forests to the protected area network to protect between 50-200 koalas.

- Extensions to Wallingat National Park, adjacent to Wallis Lake would add almost 4000ha of state forests (Wallingat and Bachelor) to the 6500ha Wallingat National Park to protect 200-500 koalas. This proposal would also greatly enhance connectivity between Booti Booti and Myall Lakes National Parks.

- Wang Wauk National Park, adjacent to Buladelah, would consist of 33,700ha of Wang Wauk and Buladelah state forests and protect between 250-700 koalas. This proposal would link to Wallingat National Park.

the NSW government recently announced that $10 million would be made available to purchase important koala habitat. While this sounds like a lot of money and is welcome investment, it will only purchase approximately 6000ha of land on 2015 prices. To put this in perspective, 10 properties applying the equity code could clear this in a single year. Much more investment is needed, and reservations should also target important parcels of public land as this is a cost-effective means of protecting habitat. For example the GKNP would remove a key threat, logging, from 175,000ha of koala habitat for no purchase of land to protect two of the most important koala meta-populations in NSW.

The government must urgently protects koala habitat on public land as the most cost-effective strategy and private land investment made to complement this.

NCEC recommendation: gazette the GKNP, and complement the GKNP network with targeted private land investment in the order of hundreds of millions of dollars to acquire priority habitat on private land.

Recommendation 8

"The Government through the Office of Environment and Heritage , convene two symposia within 12 months of receiving this report: one for scientists active in koala research and land managers to develop a koala research plan: and one focused on koala rehabilitation to identify actions to optimise the delivery of and support for the network of koala rehabilitation groups and carers."

Community environment groups fit none of the categories in this recommendation and will therefore be excluded from consultation. The NSW government should commit to also consulting environment and community groups.

Consultation on koala conservation should encompass the entire community and not exclude the non-government environment and community sectors.

We are not optimistic about the outcomes from symposia. We note that there has been much research conducted on koalas (with the exception of research analysing the impact of logging on koalas) and that the policy and conservation challenges are well known (McAlpine et al. 2015). We also question the inclusion of 'land managers' in a symposium to develop a koala research plan: a research plan should target the outstanding research questions that must be answered to ensure koala conservation and should be free of influence from self-motivated 'land managers'. We also note that non-governmental conservation organisations (who do not have a financial motivation unlike some 'land managers') will also be able to add value to the development of a research plan given their on-ground experience. It is disappointing that the Chief Scientist chose not to recommend the involvement of NGOs in the development of the research plan.

NCEC recommendation: ensure that the objectives of the koala research plan will seek to deliver on ground outcomes for the conservation of the species, address contradictory policy signals and include environment groups in the development of the plan.

There may be some benefit in a symposium of carers to share knowledge on best-practice rehabilitation of koalas. Key to ensuring optimised delivery and support of carers will be financial and logistic support from government. We note that, following the relaxation of land clearing laws in Queensland, the number of wild animals requiring rescue has dramatically increased*[8]. On the Gold Coast, carers have reported a 30% rise in the number of koalas requiring treatment as a result of urban sprawl*[9].

NCEC recommendation: The Koala Research plan focus on the root causes of why koalas are coming into care (i.e. land clearing, urban development, infrastructure development and native forest logging) rather than rely on carers to pick up the pieces resulting from government policy.

Recommendation 9.

"The Government establish the Australian museum as a preferred repository for koala genetic samples in NSW, and all data and metadata associated with these samples should be deposited into the SEED Environmental Data portal (extended if necessary to include flora and fauna)

The program for collection of genetic information should not be restricted to injured and deceased Koalas and should be applied more broadly with clear objectives to improve conservation and population management. Scotts (1), in 2013 recommend for the Upper Mid North coast of NSW that: " *Targeted genetics- based research be funded to help characterize koala populations and to help determine appropriate koala management units in this region" (p39)*

NCEC Recommendation. Targeted genetics- based research be undertaken to help characterize koala populations and to help determine appropriate koala management units throughout the state

Recommendation 10

8*http://www.abc.net.au/news/2016-04-05/spike-in-native-animal-injuries-land-clearing-habitat/7301942

9*http://www.abc.net.au/news/2016-12-09/influx-of-injured-koalas-a-strain-on-currumbin-hospital/8108018

" The Government facilitate the exchange of information among land managers , local government, the research community and the broader community"

Agreed and goes without saying. The fact that it has to be said in this report highlights to poor standard of koala management currently in place.

NCEC welcomes that that, unlike under Recommendation 8, the entire community is recognised in this recommendation. There are opportunities to improve the flow of information, and we support the proposals to better educate the public on koala conservation and land management.

NCEC recommendation. The information needs for the "broader community" to participate in koala conservation and land management are fully assessed with the community before information programs are commenced

Climate Change

Besides influencing regional climate change, land clearing and native forest logging also drive national carbon emissions (Keith et al. 2014, Keith et al. 2015, Macintosh et al. 2015, Bulinski et al. 2016) and therefore threaten koalas via increasing heat stress, extreme temperatures and drought. In fact, land-based carbon has been the primary focus of the federal Direct Action policy that has seen $1.3 billion of public funds spent on reducing emissions via paying farmers to keep trees in the ground (Clean Energy Regulator 2016), while Queensland and NSW have removed land clearing legislation. In NSW, land-based carbon will be crucial in achieving the government's goal of 'net zero emissions by 2050'.

Climate modelling has 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 (Adams-Hosking et al. 2011, Adams-Hosking et al. 2012, Adams-Hosking et al. 2014, Santika et al. 2015).

NCEC recommendation:

1)the Whole of Government Koala Strategy recognise the link between land cover change and climate change and propose mechanisms by which the historical impact of land cover change can be reversed.

2) ***That the NSW government end native forest logging on public land and reverse land clearing legislation to maximise the contribution of the land sector to climate change mitigation efforts***

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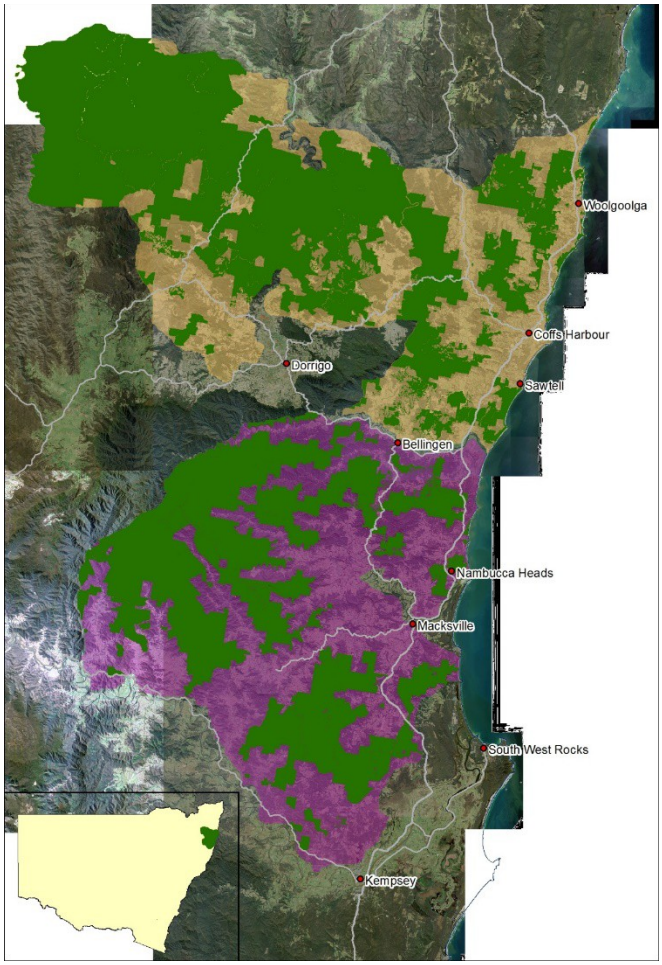
Appendix 1. (extracted from Scotts (1))
The Great Koala National Park

Despite the global status of the koala as the second-most recognised animal in the world to the giant panda, the recent alarming population declines and ongoing threats, no nationally recognised reserve has yet been set aside in Australia to ensure the protection of the koala in the wild. By contrast, in China, reserves covering one million hectares of the panda's bamboo forest habitat have been established and are World Heritage listed[8]. Like the panda, koalas have highly specific food requirements[9,10] and eat exclusively low-nutrient leaves. This is likely a contributing factor to the vulnerability of koalas to human-driven land-use change.

The proposed Great Koala National Park (GKNP) is centred on two koala metapopulations on the Mid North Coast of New South Wales: the Coffs Harbour—Guy Fawkes metapopulation and the Bellinger—Nambucca—Macleay metapopulation (Figure 1). The metapopulations were identified by Scotts (2013)[11] based on a qualitative representation of likely habitat for koalas in the region. The proposed GKNP covers approximately 315,000 ha of public land and includes the all existing conservation reserves and state forests (no private land is identified in the proposal) within the defined metapopulation areas (Figure 2). Approximately 175,000 ha of State Forest would be added to the conservation estate (140,000 ha) to comprise the GKNP. The estimated koala population is up to 4,550 individuals making this by some distance the most important reserve koala reserve proposal in NSW.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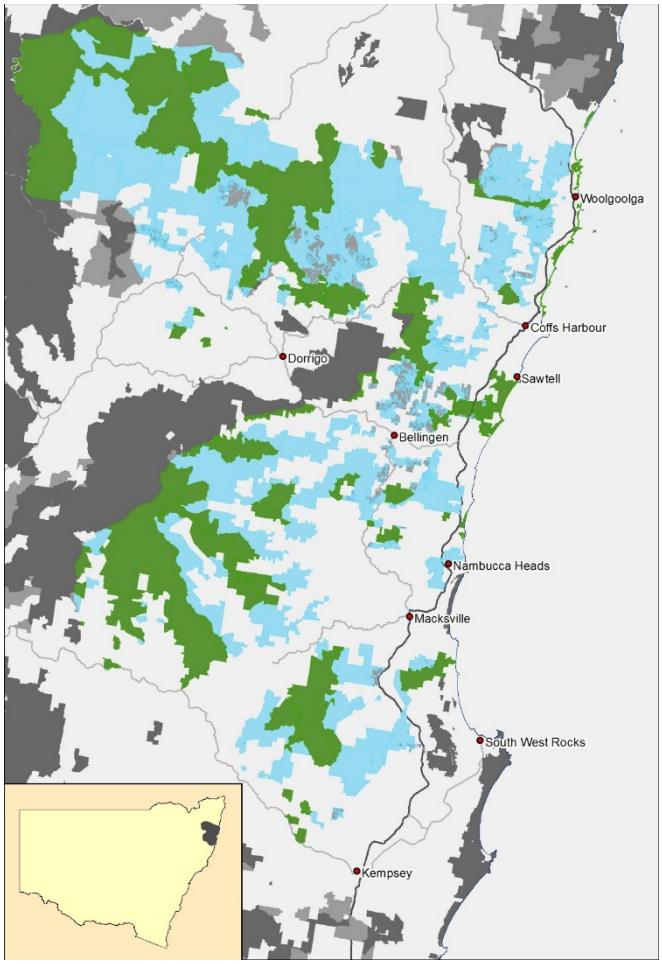
Nambucca Heads
Macksville
South West Rocks
Kempsey



The GKNP also includes outstanding examples of other conservation features including extensive rainforests, World Heritage listed forests (the Gondwana Rainforests of Australia)[12] and other forests assessed for World Heritage listing[13]. The proposal includes extensive areas of eucalypt forests from a region recognized as having the most diverse tall eucalypt forests in the world. The eucalypt forests were accepted by the federal and NSW governments in the North East NSW Regional Forest Agreement 1999[14], for assessment for potential World Heritage listing.

The koala metapopulations within the GKNP proposal, and the regional koala populations identified within them are described below. This information is summarised from Scotts (2013).

The Coffs Harbour—Guy Fawkes metapopulation

The Coffs Harbour—Guy Fawkes metapopulation includes the coastal plains and foothill forests of the Coffs Harbour and Bellingen LGAs extending inland to include the hinterland forests bounded to the north by the non-preferred sandstone-based forests and woodlands and to the south by the clearing associated with the Dorrigo plateau and unsuitable rainforest habitats. To the west it is bounded by the by rugged and lower fertility forests and woodlands of the Guy Fawkes valley. This metapopulation is comprised of three regional koala populations. Two of these three regional populations are comprised of two or more subpopulations. This is described below in the text and summarised in Table 1. These populations may further extend into the Guy Fawkes Wilderness Area. The regional populations comprising the Coffs Harbour—Guy Fawkes metapopulation are:

The Coffs Harbour—North Bellinger regional population
Includes the coastal plains and foothills forests of the Coffs Harbour and north-east Bellingen areas. Regional population boundaries are formed by sandstone-based habitats in the north, rainforest habitats to the southwest and cleared river valleys to the west and south that act as likely barriers to koala movement. This regional population supports the greatest koala numbers (>1000 individuals) and highest population densities in the region. However significant threats exist that are associated with the close proximity of human centres and infrastructure. This is the most important koala regional population on the Mid-North Coast and perhaps one of the most important in the nation.

The Coffs Harbour Hinterland regional population
This regional population is bounded to the north by non-preferred sandstone-based forests and woodlands, to the south by clearing associated with the eastern Dorrigo Plateau and non-preferred rainforest habitats, to the west by the rugged, steep gorges associated with the Nymboida River and to the east by clearing associated with the Orara Valley. This appears to be a critical koala regional population supporting in the order of 500 – 1000 individuals centred upon hinterland public forests, particularly state forests, but also including important private forests on the eastern Dorrigo Plateau. Some protected koala habitat is found on NPWS reserves.

The Chaelundi—Clouds Creek—West Dorrigo regional population
This regional population is bounded to south by clearing associated with the eastern Dorrigo Plateau and also non-preferred rainforest habitats, to the east by the rugged, steep gorges associated with the Nymboida River and to the west by rugged and lower fertility forests and woodlands of the Guy Fawkes River valley. To the north of the mapped regional population koala records NCECome scarce (e.g. Marara, Dalmorton State Forests) and habitats may be less suitable. The Boyd River may also present a barrier or, at a minimum, a filter to koala movement.

This appears to be a critical koala regional population supporting in the order of 500 – 1000 individuals. The mapped area includes hinterland, escarpment and gorge public forests and some tracts of private forest west of Dorrigo. Some reasonably extensive potential koala habitats occur on NPWS reserves. Past surveys for koalas in this area have been largely restricted to state forests and koala records are widespread on that tenure. Two subpopulations (Table 3) have been identified within the Chaelundi—Clouds Creek regional population which are considered critically important in the context of long term koala conservation.

Table *1*: Regional populations and sub populations that comprise the Coffs Harbour—Guy Fawkes metapopulation. The estimated population size of each subpopulation is included, along with status (stable, S, or declining, D) density (high, H, moderate, M, or low, L) and threat status (high, H, moderate, M, or low, L), an estimate of confidence in the assessment is included as is further information on the nature of the threats.

Regional population	Subpopulation	Subpop size	Status	Density	Threat	Confidence	Threat information and other comments
Coffs Harbour—North Bellinger	Bongil Bongil—Pine Creek	500-1000	S	H	L-M	Well known	Includes Bongil Bongil—Pine Creek core; logging, fire, vehicle strike
Coffs Harbour—	North Bellingen	50-500	D	M	M	Largely	Logging

North Bellinger	—Gleniffer					unknown	
Coffs Harbour—North Bellinger	Bonville	50-500	D	M	H	Well known	Targeted and increasing urban and rural residential development
Coffs Harbour—North Bellinger	Coffs Harbour—Toormina—Korora	<50	D	M	H	Well known	Habitat fragmentation, dogs, vehicle strike
Coffs Harbour—North Bellinger	Orara West—Boambee	50-500	D	M	M	Well known	Logging, fire
Coffs Harbour—North Bellinger	Coffs northern beaches	<50	D	L	H	Well known	Highway upgrade, urban and rural residential development, dogs
Coffs Harbour—North Bellinger	Lower Bucca—Orara East	<50	D	L	H	Well known	Logging, fire
Coffs Harbour—North Bellinger	Red Rock—Wedding Bells—Conglomerate	<50	D	L	M	Unknown	Logging, fire
Coffs Harbour Hinterland	Coffs Harbour Hinterland	500-1000	S	M	M	Largely unknown	Predominantly state forest. Can't distinguish subpopulations
Chaelundi—Clouds creek—West Dorrigo	Chaelundi—Clouds Creek	50-500	S	M	M	Largely unknown	Predominantly state forest & National Park
Chaelundi—Clouds creek—West Dorrigo	West Dorrigo	<50	D	L	M	Largely unknown	Fragmented and sparse population

The Bellinger—Nambucca—Macleay metapopulation

The Bellinger—Nambucca—Macleay metapopulation extends from the southern Bellingen LGA through the Nambucca LGA to the north of the Kempsey LGA and is comprised of a single regional koala population:

The South Bellinger—Nambucca—North Macleay regional population

Northern and southern boundaries of the regional population are formed by geographic barriers associated with the lower reaches of the Bellinger River (north) and Macleay River (south) including extensive clearing and urban and agricultural development. The north-western boundary is mapped but remains ill-defined with little knowledge relating to koala occurrence. Overall the South Bellinger—Nambucca—North Macleay regional koala population remains poorly understood. It may be comprised of an extensive, but likely sparse, population with a rough estimate between 130 – 1,550 individuals. The metapopulation is considered nationally important but a targeted program of koala habitat mapping and population characterisation is needed to further inform its relative conservation status. The three koala subpopulations identified within this regional population are shown in Table 2.

Table *2*: Sub populations that comprise the South Bellinger—Nambucca—North Macleay regional population, itself part of the Bellinger—Nambucca—Macleay metapopulation. The estimated population size of each subpopulation is included, along with status (stable, S, or declining, D) density (high, H, moderate, M, or low, L) and threat status (high, H, moderate, M, or low, L). An estimate of confidence in the assessment is included as is further information on the nature of the threats.

Regional population	**Subpopulation**	**Subpop size**	**Status**	**Density**	**Threat**	**Confidence**	**Threat information and other comments**
South Bellinger—Nambucca—North Macleay	Southern Coastal	<50	D	L	H	Largely unknown	Urban and rural-residential development, dogs, road strike
South Bellinger—Nambucca—North Macleay	Southern Hinterland	50-500	S	L	M	Unknown	Stable but sparse; logging & fire
South Bellinger—Nambucca—North Macleay	Scotts Head – Ngambaa - Willawarrin	50-500	D	L	M	Largely unknown	Overall declined particularly on private lands; State Forests are potential strongholds but also declined; fire, logging

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Appendix 2.

Submission to the Explanation of Intended Effect State Environment Planning Policy No. 44—Koala Habitat Protection.

North Coast Environment Council

Prepared December 2016

Introduction.

The North Coast Environment Council (NCEC) has operated for forty years as the peak umbrella environment group on the NSW North Coast, covering the area from the Hunter River north to the Queensland Border and west to the New England Highway. There are numerous community groups and individual members associated with the NCEC who are working diligently to conserve their local and regional environment.

The NCEC and member groups have monitored the decline in Koala populations on the North Coast over the last 40 years and have support a range of remedial koala conservation programs from land conservation and rehabilitation to animal care activities.

Since 2014 The NCEC and member groups have supported a proposal to create the Great Koala National Park in the Coffs Harbour hinterland. This campaign, as well as our opposition to native forest logging on public land and efforts to prevent a return to broad-scale land clearing, interact with SEPP 44 and are very relevant to koala conservation. The NCEC works closely with other conservation groups and shares information and often adopts common positions and statements. In this case this submission shares a number of positions with other key groups.

The NCEC welcomes the opportunity to comment on the Explanation of Intended Effect State Environment Planning Policy No. 44—Koala Habitat Protection (EIE). We hope that DoPE will adopt our recommendations into the SEPP as we believe there have been serious weaknesses in Koala conservation over many years and there are areas that could be strengthened and clarified.

The NCEC is concerned the proposed revision of SEPP44 is not accompanied by a published review of the effectiveness of the application of the policy over the last twenty years. The lack of any published review of SEPP 44 to date substantially limits the extent the NCEC can assess whether the revision will increase its effectiveness.

Furthermore, without seeing the wording of the guidelines the NCEC cannot be sure as to the final application of the SEPP and therefore as to whether the revision increases its effectiveness.

The NCEC believes the intent of the proposed amendment to SEPP 44 is too narrow and its role in the NSW koala conservation planning process is conflicted by the recent release of the Chief Scientists report and call for submissions on that report up until the 3rd March 2017.

As an example of the conflicted planning, a reason stated by the Department for the review of SEPP 44 is :

- "Updating the SEPP 44 to align with the 2008 Koala recovery Plan

  (*Source- Review of SEPP 44 – Koala Habitat Protection, Frequently Asked Questions , November 2016)*

The purpose of preparation and release for comment of the Chief Scientist's report is to prepare a "Koala Management Strategy" for NSW which will effectively replace the 2008 Koala Recovery Plan.

In fact, Recommendation 4, (p36) of the Chief Scientist's report recommends:

> " *That the Government improve outcomes for koalas through changes to the planning system."*

Under this recommendation the Chief Scientist's report goes on to say:

> *"In addition to the current review of SEPP 44, 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."*

The first recommendation from the Chief Scientists report;

> *"That Government adopt a whole-of-government koala strategy for NSW with the objective of stabilising and then starting to increase koala numbers*."

provides a strong statement of direction for integration of SEPP 44 into a whole of government approach towards koala conservation.

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, population based planning process across all land tenures.

The following comments on the EIE are made in the context that SEPP 44 should be more fully reviewed and incorporated into a whole of Government approach to koala conservation as recommended by the Chief Scientist.

1.Aim of the SEPP

As stated above, 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, population based planning process across all land tenures.

Without amendment, the current SEPP 44 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

The requirement to replace the preparation of individual plans of management for areas not covered by comprehensive plan of management with standardised requirements set out in updated guidelines should be withdrawn as it will lead to lowering assessment and protection of Koala habitat.

2. Application of the SEPP

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 landuse controls applying to private land than applying to adjoining State Forests.

Recommendation: Ensure that KPoM's are prepared for all land tenures over recognised Koala populations

3. Definitions

The proposed changes to the current koala habitat definitions ('core' and 'potential') have scope to strengthen the SEPP by ensuring that all identified tree species are considered habitat, and that non-listed species are deemed habitat if a koala is present. However, it is not possible to assess whether these changes to the definition will result in more protection to habitat as the definitions that will identify the plant communities have not been released. For example, what proportion of trees in a plant community will need to be a listed species for that community to be considered koala habitat? Which plant communities will therefore be defined as koala habitat? How will landholders or local governments identify the location of these plant communities? How will current CKPoMs be amended to include the new definitions and what will happen to identified core and potential koala habitat in the meantime?

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.

4. The development assessment process

The requirement to replace the preparation of individual plans of management for areas not covered by comprehensive plan of management with standardised requirements set out in updated guidelines should not be adopted as it will lead to lowering assessment and protection of Koala habitat.

The NCEC cannot accept the removal of a requirement for a comprehensive plan of management to be replaced by guidelines unless the guidelines and their means of implementation and enforcement are presented and available for comment.

5. Guidelines

As with the development assessment process without seeing the guidelines it is difficult to accurately assess how effective the SEPP can be, and the strength of the guidelines will be determined by the language and intent of the SEPP. Key questions that are outstanding are will the guidelines (and the SEPP) be enforceable by the Minister?

Recommendation: 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 apply the SEPP to all land tenures and 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.

6.Zoning

Currently, core koala habitat identified under SEPP 44 should be incorporated into an environmental protection zone or have special provision to control development under Clause 15. However this requirement is to be removed and instead put into a Local Planning Direction (LPD) that will direct councils as to how they must protect koala habitat. It is unclear from the Explanation whether the requirements will be the same as at present.

Further, the NCEC concerned both about how koala habitat is to be protected by zoning, and the interaction between the new environmental zoning approach on the north coast and the revised SEPP. The LPD, effective since 14th April 2016, 'Application of E2 and E3 Zones and Environmental Overlays in Far North Coast LEPs' has implications for the revised SEPP. This change to zoning meant that land could only be zoned environmental if conservation had been the primary function of that land for the prior two years. For example, any land over which a Private Native Forestry Property Vegetation Plan was granted prior to April 2014 would likely be ineligible for environmental zoning on the grounds that forestry was the primary land use. In northern NSW, this accounts for approximately 390,000ha (see section on PNF). This in effect removed the ability of local government to zone private land into an environmental protection zone—as supposedly required under SEPP 44.

It is unclear how the proposed koala habitat LPD will interact with the LPD on E2 and E3 zones, but there is nothing to suggest that it will replace or have legal authority over the LPD on E2 and E3. If that is the case then the revised SEPP essentially confers little extra protection for koalas as the north coast councils are those with the most extensive koala habitat and largest koala populations. Should the LPD on E2 and E3 zones be extended statewide, then the confounding effect on local governments would also be manifested on koala populations elsewhere.

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.

7.List of tree species and local governments

The NCEC strongly supports the amended tree species list means SEPP 44 could potentially be applied more broadly.. We also support the intent to treat non-listed tree species as koala habitat if a koala is present. The latter element is important as koalas are known to use non-feed species for shelter, and large shelter trees are very important as refuges in times of heat stress. For example, koalas are known to use *Eucalyptus pilularis* (Blackbutt), on the north coast. However we note that the changed tree species list, and therefore changed definition to koala habitat, will require local government to revise existing CKPoMs and re-map koala habitat.

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

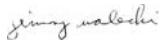
8.Koala habitat and occupancy assessments

The NCEC supports undertaking a habitat suitability and koala occupancy assessment *prior* to a DA being submitted. However, we have concerns about the fate of unoccupied koala habitat: given the huge declines in koala populations throughout NSW, most suitable habitat will be unoccupied. But if we are to have any chance of recovering koala populations (and therefore to meet the aims of the SEPP), it is vital that this unoccupied habitat be protected as if koalas were present. The Explanation does not clarify what happens if an assessment identifies unoccupied koala habitat, but suggests that a DA could still be submitted and that either a CKPoM or the guidelines will determine the local government response.

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. We caution against developing guidelines that have a lower standard or which are less enforceable than CKPoMs as this will act as a disincentive to create a CKPoM.

Thank you again for the opportunity for the North Coast Environment Council to make a submission to the whole of Government Koala Strategy; Saving Our Species draft strategy and Review of State Environment Planning Policy 44—Koala Habitat Protection.appreciate your consideration to the issues raised in our submission.

Respectfully yours,



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