

Is Logging Really Benign For Koalas as DPI Forestry Claim?

Dailan Pugh, North East Forest Alliance, March 2019.

The one survey relied upon by the timber industry to justify the ongoing logging of Koala habitat was undertaken by the forestry unit of the Department of Primary Industries, who are not independent and whose data do not justify their subjective conclusions.

There are far more robust studies that shows that Koalas are declining on State Forests and that this will be exasperated by the increased logging intensity, reduced retention of mature trees and reduced exclusions allowed by the new logging rules.

The DPI-Forestry¹ survey used acoustic recorders to record male Koala calls for a week during the breeding season at 171 sites in modelled medium-high quality Koala habitat throughout northern NSW, recording one or more calls at 106 sites.

The biggest failing of the DPI-Forestry assessment is that it is based on extrapolation from just the calls of male Koalas somewhere within 300m (or more²) of the recorder, with no indication of whether other Koalas were present or whether it was just a transient male searching for a mate.

Forestry's current rules for identifying a high use Koala tree is that it has to have more than 20 Koala scats (faecal pellet) under it, and a Koala High Use Area has to have an additional 3 out of 10 trees searched with scats under them.

The only ground-truthing reported³ for Koala occupancy in the DPI-Forestry study were searches of 40 trees at each of 65 sites for Koala scats, with no scats found at 54 sites and just 1-2 scats found at 11 sites.

Koalas were recorded calling at 19 of the 65 ground-truthed sites, with no scats found at 16 sites and only single scats found at 3 sites. This indicates either a very low usage by Koalas or that the calling Koalas were outside the sampled area.

Half the sites recorded only 1-3 calls over 7 nights in the breeding season, which does not indicate the presence of a breeding colony anywhere nearby.

It is particularly significant that any Koalas calling could have been hundreds of metres away or transient. Given that measurements of habitat variables were made within 50m of the recorders it means the variables measured (i.e. tree species, tree cover, stand structure, logging intensity) and used in analyses are not necessarily indicative of where Koalas live.

Both DPI-Forestry and the industry conveniently ignore other more robust research that has found Koalas prefer the larger trees targeted by loggers and that their populations are declining on State Forests.

A 2016 EPA study⁴ found that higher Koala activity was positively correlated with trees and forest structure of a more mature size class, and areas of least disturbance, concluding that once high quality Koala habitat in Clouds Creek and Maria River State Forests had been degraded and now have declining Koala populations.

A 2004 study⁵ by Dr. Andrew Smith of Pine Creek State Forest found that Koalas preferred structurally complex, uneven-aged forests with some mature and oldgrowth elements and a large basal area, concluding that modern high intensity harvesting practices that remove a high proportion

of stand basal area and leave only small diameter stems (<50 cm diameter) are incompatible with koala conservation.

A 2013 Biolink⁶ study for Port Macquarie-Hastings Council found that State Forests had less than half the number of active Koala sites than nearby National Parks and concluded that logging had decimated the once substantive local Koala populations.

Whatever its shortcomings, the DPI-Forestry survey⁷ is based on past logging regimes where they attribute the persistence of Koalas near their sites to half the surrounding area being excluded from logging, including in riparian buffers, old growth and rainforest exclusion areas and Koala High Use Areas, as well as the retention of mature trees, habitat trees, recruitment trees and feed trees for other species in logged areas.

The NSW Government's new logging rules have doubled logging intensity, zoned 140,000 ha of coastal forests for clearfelling, removed the need to retain mature trees (including recruitment and most eucalypt feed trees), reduced the buffers on headwater streams and is intending to open up protected oldgrowth forest for logging. This will significantly increase impacts on Koalas.

Specifically for Koalas they are removing the need to look before they log and protect Koala High Use Areas, despite DPI-Forestry finding that Koala High Use Areas have 3 times the Koala call rate of recently logged forests.

In their submission to the new logging rules, the Office of Environment and Heritage⁸ complained in 2018 that the new Koala feed tree retention rates are less than half the number and of a smaller size than proposed by the Expert Fauna Panel, concluding that the increased logging intensity proposed under the new rules is expected to impact Koalas through diminished feed and shelter tree resources.

It is ironic that DPI-Forestry refer to a Forestry Corporation radio-tracking study² in the early 1990s near Eden NSW to justify their claim that koala home ranges can comprise a mosaic of regrowth and unlogged habitat, as that population was extinct a few years later⁹.

Now history is repeating itself as the Forestry Corporation use dodgy science to deny impacts while introducing an Eden-style alternate coupe clearfelling regime into 140,000 ha of what they identify as the best Koala habitat on the north coast.

ANNOTATED BIOGRAPHY

1. Law BS, Brassil T, Gonsalves L, Roe P, Truskinger A, McConville A (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(10): e0205075. <https://doi.org/10.1371/journal.pone.0205075>

2. Jurkis, V. and Potter, M. (1997) Koala Surveys, Ecology and Conservation at Eden. Forest Research and Development Division State Forests of New South Wales Sydney. <https://www.dpi.nsw.gov.au/content/research/areas/resources-research/forest-resources/pubs/Koala-Surveys,-Ecology-and-Conservation-at-Eden.pdf>

Their bellows carry over considerable distances at night especially under still and humid conditions (Mitchell 1990). Bellows may be audible over 2 km (pers. obs. of the authors).

3. Law, B. Caccamo, G. Wimmer, J. Truskinger, A. McConville, A. Brassil, T. Stanton, M. Gonsalves, L (2017) A predictive habitat model for Koalas *Phascolarctos cinereus* in north-east New

South Wales: Assessment and field validation. NSW Department of Industry—Lands and Forestry. <https://www.epa.nsw.gov.au/~media/EPA/Corporate%20Site/resources/forestagreements/predictive-habitat-model-koala.ashx>.

4. EPA (2016) Koala Habitat Mapping Pilot: NSW state forest Report. Environment Protection Authority. <http://www.epa.nsw.gov.au/publications/forestagreements/koala-habitat-mapping-pilot-160038.htm>

Areas of higher activity positively correlated with greater abundance and diversity of local koala feed trees, trees and forest structure of a more mature size class, and areas of least disturbance.

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The structural component of a forest comprises trees of different size classes, and both size and structural diversity of forests correlates with higher koala occupancy (Lunney et al. 1996; Phillips' 2013; Smith 2004). This study found koala activity correlated with larger tree size classes and mapped mature forest components of the pilot areas. Smith (2004) found forest structure to be a key predictor of koala scat density after food tree species diversity and abundance, where scat abundance was greatest under trees with a diameter at breast height (dbh) of 40–80 centimetres. Phillips' (2013) reports similar preferencing for trees >30 centimetres in low fertility areas.

5. Smith, A.P., 2004. Koala conservation and habitat requirements in a timber production forest in north-east New South Wales. *Conservation of Australia's Forest Fauna*, pp.591-611. <https://publications.rzsnsw.org.au/doi/abs/10.7882/FS.2004.033>

Koalas preferred structurally complex, uneven-aged forests with some mature and oldgrowth elements, a large basal area, and mixed species associations dominated by tallowwood, grey gum and forest oak. Koalas were least abundant in plantations and structurally uniform, blackbutt dominated regrowth native forests with a low tree species diversity. Trees of 40-80 cm dbh and stands with more than three koala food tree species per survey plot (50 by 50 m) were preferred. Historical timber harvesting practices involving low intensity harvesting of large diameter stems were successful in maintaining koala populations. Modern, high intensity harvesting practices including extensive gap clearfelling and Australian group selection that remove a high proportion of stand basal area and leave only small diameter stems (<50 cm dbh) are incompatible with koala conservation.

6. Biolink (2013) Port Macquarie-Hastings Koala Habitat & Population Assessment. Unpublished report prepared for Port Macquarie-Hastings Council. From their systematic survey Biolink found that State Forests had less than half the number of active sites as National Parks, commenting:

... koala activity was recorded less commonly from areas of State Forest where field data and other knowledge strongly points to cumulative impacts of logging over time resulting in significantly lower size classes of preferred food tree species which in turn results in a lower koala carrying capacity.

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It is significant that koala activity was least commonly recorded from State Forests generally; these being areas wherein both the historical record and local knowledge can attest to the presence of once substantive local populations. However, data arising from this survey supports an assertion that the long-term logging of tree species preferred by koalas is having an effect on koala carrying capacity in these forests, ...

7. Law BS, Brassil T, Gonsalves L, Roe P, Truskinger A, McConville A (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(10): e0205075.

<https://doi.org/10.1371/journal.pone.0205075>

Resilience of koalas to recent, heavy harvesting 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. Over the last 20 years exclusions averaged ~ 40% of the State forest area in the region [7]. In our study, about 50% of the 1 km area surrounding our recent, heavy harvest sites received this treatment in the last 10 years. The remainder comprised temporary off-set zones, but also permanent riparian buffers, old growth and rainforest exclusion areas and habitat protection for owls. In addition, large trees (40–80 cm dbh) provide important shelter and browse for koalas [31, 32]. Within the harvest area, scattered habitat trees, recruit/seed trees and feed trees for other species assist in providing a scattered uneven age structure, even where harvesting is heavy [7].

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Koala high-use areas supported nearly three times the bellow rate (3.1 bellows night⁻¹) as other treatments

8. OEH (2018) Submission to the NSW Environmental Protection Agency on the Draft Coastal Integrated Forestry Operations Approval remake. NSW Office of Environment and Heritage Conservation and Regional Delivery Division, North East Branch. Obtained under a GI(PA) request.

Koalas are selective both in their choice of food tree species and in their choice of individual trees. The scientific basis for proposed tree retention rates in the Draft Coastal IFOA is not clear, and the rates are less than half those originally proposed by the Expert Fauna Panel.

While Koalas will use small trees, research has shown that they selectively prefer larger trees. In our experience, the proposed minimum tree retention size of 20cm dbh will be inadequate to support koala populations and should be increased to a minimum of 30cm dbh. Many Koala food trees are also desired timber species, so there is a high likelihood that larger trees will be favoured for harvesting, leaving small retained trees subject to the elevated mortality rates experienced in exposed, intensively-logged coupes.

Koalas require large areas of connected habitat for long-term viability. The increased logging intensity proposed under the draft Coastal IFOA is expected to impact Koalas through diminished feed and shelter tree resources. Animals will need to spend more time traversing the ground as they move between suitable trees that remain, which is likely to increase koala mortality.

9. Stalenberg, Eleanor & Lunney, Daniel & Santika, Truly & R Rhodes, Jonathan. (2014). Extinction in Eden: Identifying the role of climate change in the decline of the koala in south-eastern NSW. CSIRO Wildlife Research. 41. 22. 10.1071/WR13054.

https://www.researchgate.net/publication/269392065_Extinction_in_Eden_Identifying_the_role_of_climate_change_in_the_decline_of_the_koala_in_south-eastern_NSW

... Jurskis and Potter (1997) on the basis of their koala radio-tracking study in Tantawangalo State Forest ... concluded that young regrowth trees are used by koalas and that the regrowth forest after logging is likely to increase rather than decrease koala populations. That conclusion proved to be both premature and ill-judged. Our study, including the detailed field surveys by Chris Allen, has shown that the population of koalas in Tantawangalo has since disappeared. It was necessary to follow this population for a much longer time to confirm their optimistic prediction or establish what other factors were playing out.