Ms. Emily Long
Senior Solicitor
Environmental Defenders Office
Level 5, 263 Clarence Street
Sydney NSW
via e-mail: Emily.Long@edo.org.au

21st September 2020

Your ref: 2027843

Dear Ms. Long,

**Re: Site Specific Operating Conditions in North East NSW—Significant impact of the operations on koalas.**

I refer to the abovementioned Brief to Expert dated 13th August 2020. I further confirm that this report has been prepared in accord with requirements of Schedule 7 (Expert witness code of conduct) of the *Uniform Civil Procedures Rule 2005*, and I acknowledge my agreement to be bound by such requirements.

**1. Summary**

This report considers knowledge available to the NSW EPA for the purpose of informing both a decision to issue SSOCs for a selected series of State Forest (SF) compartments in northeastern NSW, as well as the the potential for a significant impact to occur on koalas in terms of Section 18 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) and the associated Significant Impact Guideline (SIG), taking into account the impacts of the 2019/20 bushfires. The report considers that the information before the EPA was rudimentary, nor was there any data/knowledge regarding *post*-fire habitat utilisation/occupancy rates by koalas within each of the compartments under consideration.

The two fire severity mapping (FESM and GEEBAM) layers that were available at the time the decisions were being made were discordant, yet the EPA apparently utilised the layer that maximised potential logging yield, rather than minimised it, nor was there any attempt to quantify the loss of koala browse species that would occur outside of ESAs or through other prescriptive measures. The SSOCs also enacted a condition that in effect changed the way in which koala browse species were to be retained within Compartments, and permitted the additional tree retention requirements to be satisfied with clumped rather than dispersed trees, the implications of which did not reflect knowledge about how surviving koalas would be required to use the burnt landscape.

Regardless of the absence of *post*-fire survey data that could inform on measures of koala presence/absence or habitat use by koalas within each of the compartments under consideration, as well as no data on survivorship of browse species and associated loss from

logging activities, Protocol 5 reports deemed the risk to koalas to be Low instead of High to Extreme.

Because this vital information regarding koalas was not available, it is inarguable that there will be negative impacts. Because SFs typically support koalas at lower than optimal densities/occupancy rates, the scale of impact (now known to likely average approximately 71% loss across fire grounds) will vary from Moderate to Severe. The report further argues that impacts on koalas arising from the harvesting that has been approved by SSOCs and the impacts on koalas arising from the 2019/20 fire events cannot be considered separately, both are linked.

Collectively, the considerations indicate a failure to demonstrate application of the precautionary principle in considering the potential for significant impact.

**2. Background**

*Qualifications & Experience*

I am a research scientist/specialist koala ecologist with more than 40 years of experience in koala conservation and management. I hold a Ph.D. in Science from Southern Cross University, the title of my thesis dissertation entitled '*Habitat Use by the koala (Phascolarctos cinereus) towards more effective conservation and management*'. I am a former member (Independent Scientist) of the NSW Koala Recovery Team, and a former member of the Commonwealth Government's expert working group on koala distribution and abundance leading up to the 2012 listing of the koala as a vulnerable species for purposes of the *Environment Protection and Biodiversity Conservation* (EPBC) *Act 1999*.

I have participated in many expert koala working groups focussed on matters such as Koala Likelihood and Habitat Modelling, crown and private native forestry, and koala recovery. I have authored book chapters and peer-reviewed publications of various aspects of koala ecology, conservation and management, in addition to preparing several Comprehensive Koala Plans of Management, and have undertaken many Regional/LGA-wide studies on koalas, their habitat and populations therein.

My research interests primarily focus on landscape-scale koala conservation biology, tree preferences and habitat modelling. I have been instrumental in development of hierarchical koala habitat classifications and peer-reviewed survey techniques such as the **Spot Assessment Technique** (SAT) and **Regularised Grid-based SAT** (RG-bSAT) sampling, both of which are recognised as best-practice assessment techniques by State and Federal Government assessment guidelines.

*Familiarity with areas being considered.*

The Myrtle, Bungawalbin and Doubleduke State Forests (SFs) are in the Richmond Valley Local Government Area (LGA). In 2015 I was the senior author of a tenure-blind koala habitat and population assessment study (Phillips and Weatherstone 2015) undertaken on behalf of Richmond Valley Council. Amongst other things, this work involved a shire-wide review of relevant koala studies and other literature, as well as an analyses of 767 historical koala records covering 1900–2013. Field assessments in a number of focal areas identified by Council officers were also undertaken.

The Bagawa State Forest is in the Coffs Harbour LGA. I initially surveyed this area in 2015 on behalf of Coffs Harbour Council (Biolink 2015) and again in 2018 as part of on-going validation work for the DPIE Koala Likelihood Model (see Phillips and Wallis 2016).

The Collambatti State Forest is in the Kempsey LGA. I surveyed this area in 2009 for the purpose of preparing the East Kempsey Comprehensive Koala Plan of Management (Biolink 2009) and again in 2018 as part of on-going validation work for the DPIE Koala Likelihood Model (see Phillips and Wallis 2016;).

I have not undertaken any survey work in the Styx River State Forest.

References

Biolink. (2009). *East Kempsey Comprehensive Koala Plan of Management Vol 1 – Resource Study*. Prepared for Kempsey Shire Council.

Biolink. (2015). *Aspects of koala distribution and abundance in the Coffs Harbour LGA with a focus on the Northern Management Precinct*. Final report to Coffs Harbour City Council.

Phillips. S., and Wallis, K. (2016). *Koala Likelihood Mapping - Baseline Koala Survey Analysis and Reporting*. Final Report to NSW Environment Protection Authority.

Phillips, S., and Weatherstone, C. (2015). *Koala Habitat & Population Assessment: Richmond Valley Council LGA*. Final Report to Richmond Valley Council.

**3. Background Information**

In preparing the following advice I have reviewed and/or otherwise been informed by the following documents, the majority of which (as detailed below) were provided to me as background material to the Expert Brief:

*1. General Materials*

a) Coastal Integrated Forestry Operations Approval (**CIFOA**) conditions dated November 2018 (Brief Tab 2).
b) CIFOA protocols dated 2020 (Brief Tab 3).

2. *Materials that, according to my brief, were before the EPA CEO when making the March decision*

c) Myrtle State Forest (**SF**) Site Specific Operating Conditions (**SSOCs**) for Compartments 010-012, 014-016 dated 3rd March 2020 (Brief Tab 4).
d) Fire Extent and Severity Mapping (**FESM**) for specific compartments in Myrtle (Brief Tab 6), Bagawa (Brief Tab 8) Doubleduke (Brief Tab 10) and Collombatti (Brief Tab 12) SFs, presumably prepared by and marked with the logo of the EPA.
e) Bagawa SF SSOCs dated 3rd March 2020 (Brief Tab 7).
f) Doubleduke SF SSOCs dated 3rd March 2020 (Brief Tab 9).
g) Collombatti SF SSOCs dated 3rd March 2020 (Brief Tab 11).
h) EPA Briefing Note dated 3rd March 2010 (Brief Tab 16).
i) E-mails between Forests Corporation of New South Wales (**FCNSW**) and the NSW Environmental Protection Authority (**EPA**) (Brief Tabs 17-21).
j) Two identical but undated tables outlining risks and supposed mitigation associated with the proposed SSOCs generally (Brief Tabs 22 & 32).

k) Letter from the EPA to FCNSW dated 3rd March 2020 (some sections redacted) referring to the granting of SSOCs for North Coast Burnt sites (Brief Tab 23).
l) A series of four **Protocol 5** reports relating to specific compartments in the Bungawalbin, Doubleduke and Myrtle SFs (Brief Tabs 24-27).
m) Undated scientific advice prepared by the NSW Department of Primary Industries & Environment (**DPIE**) (some sections redacted) (Brief Tab 28).

3. *Materials that, according to my brief, were before the EPA CEO when making the May decision*

a) Myrtle SF SSOCs for Compartment 13 dated 25th May 2020 (Brief Tab 5).
b) EPA Briefing note dated 25th May 2020 (Brief Tab 29).
c) Letter from the EPA to FCNSW dated 25th May 2020 referring to the granting of SSOCs for Myrtle SF Compartment MYR013 (Brief Tab 30).
d) Undated Environmental Risk Summary for Compartment 13 in Myrtle SF (with references to 6th March and 15th May) (Brief Tab 31).

*4. Materials that I independently downloaded from the EPA website while responding to the Expert Brief.*

e) Bungawalbin SF SSOCs dated 3rd March 2020.
f) Fire Extent and Severity Mapping (**FESM**) for specific compartments in Bungawalbin SF, presumably prepared by and marked with the logo of the EPA.

**4. Requirements of Expert Brief**

The Expert Brief requested advice regarding the following:

With reference to Section 18 of the EPBC Act and the Significant Impact Guideline (SIG) and taking into account the impacts of the 2019/20 bushfires, will the forestry operations that have been permitted by the SSOCs have, or are they likely to have had, a significant impact on the koala? To the extent that it is possible, please identify how and to what degree the impacts of the 2019/20 bushfires influence the likelihood and degree of significant impact.

To respond to this brief, I have been requested to assume the following:

a) That FCNSW is required to submit to the EPA a report that complies with the requirements of Protocol 5 of the CIFOA. Alternatively, the EPA is required to have before it information that satisfies all of the requirements set out in Protocol 5 (even if that information wasn't provided by FCNSW).

b) The EPA is required to have regard to the information required by Protocol 5 when deciding whether to issue an SSOC. Clause 5.3 of Protocol 5 sets out the 'Report content requirements' for Protocol 5 reports.

**5. Understanding of the forestry / koala management interface**

Prior to responding to the specific requirements of the brief, my understanding of the associated forestry/koala management interface is as follows:

**a) *Pre*-fire Prescriptions**

It is my understanding that the basis for the prescriptions afforded the koala is a spatial dataset that reflects the intersecting values of a Koala Likelihood Map (**KLM**) and a Koala Habitat Model (**KHM**) such that:

- **koala browse prescription 1** applies where the KLM and KHM both record 'high' values; and
- **koala browse prescription 2** applies where:
    - 25% or more of the harvest area has a combination of moderate values for both KLM and KHM; and/or
    - any compartments with one or more 'contemporary' koala records.

In theory, the KLM offers a chronologically dynamic, records-based approach (*i.e*. values of a fixed cell can change with the addition of survey data and/or successive generational analyses of koala records), while the KHM offers a static approach based on vegetation communities, the value of which to koalas is contingent upon information regarding koala browse species. Earlier work undertaken on behalf of the EPA by Phillips and Wallis (2016) established that the likelihood of the KLM underestimating the extent of high-quality cells was high in low nutrient soil landscapes where koalas naturally occur at low density. The accuracy of the KHM in terms of predicting high quality habitat is also limited by its inability to accommodate disturbance history, as well as an understanding of what tree species most influence habitat use by koalas. Because of these anomalies, many areas of otherwise High value koala habitat are not able to be identified.

Reference

Phillips. S., and Wallis, K. 2016. *Koala Likelihood Mapping - Baseline Koala Survey Analysis and Reporting*. Final Report to NSW Environment Protection Authority.

Following on from the above but prior to the issuing of SSOCs, it is my understanding that koalas and their habitat were managed using the aforementioned spatial data set which in turn determine the need for two prescriptive approaches to be applied. In my opinion the basis for this does not have any scientific basis that I am aware of but is otherwise detailed in Division 3, Sec 65 of the CIFOA as follows:

> *Koala browse tree retention (Upper North East Subregion and Lower North East Subregion)*
> *The following trees must be retained for the duration, and at the completion of, each forestry operation in accordance with Protocol 23: Tree retention:*
>
> *(a) a minimum of 10 koala browse trees per hectare of net harvest area where Koala Browse Prescription 1 applies;*
> *(b) a minimum of five koala browse trees per hectare of net harvest area where Koala Browse Prescription 2 applies and in any (or remaining part of a) compartment where a contemporary koala record exists but is not otherwise attributed Koala Browse Prescription 1 or 2; or*

*(c) all koala browse trees in areas where the minimum coverage of Koala browse trees set out in conditions 65.1(a) and 65.1(b) does not exist in the net harvest area before the commencement of the forestry operation.*

**b) *Post*-fire (SSOC) survey requirements**

*Post*-fire survey requirements were prescribed in Conditions 13–17 for each of the SFs as a **broad area habitat search** as described in Table 2 on page 26 of the CIFOA. A broad area habitat search imposes no specific requirements beyond what I would describe as a cursory search for koalas or evidence thereof, because the methods by which the searches are to be undertaken have not been specified.

In my opinion, following a fire event when there is an *a priori* need to establish whether or not koalas have survived within a given area, a cursory broad area habitat search for koalas is exactly the opposite of what should have been specified.

**c) *Post*-fire (SSOC) Conditions**

Condition 11 of the SSOCs for each of the SFs require all unburned or partially burned areas >0.05 ha to be identified as Ecologically Significant Areas (**ESAs**) for purposes of the approval. Category 1 ESAs were to be applied to all unburned and/or partially burned areas greater than 0.5 ha in size but less than 1 ha in size, whereas Category 2 ESAs were to be applied to all unburned and/or partially burned areas that were greater than 1 ha in size.

I note that these areas could also be included as wildlife habitat or tree retention clumps if they otherwise met standard of Protocol 22 (which if elected to be applied for koalas would mean areas where koala browse prescription 1 or 2 would otherwise apply).

Condition 28 of the SSOCs for each of the relevant compartments in the SFs specify a requirement for retention of temporary feed tree clump(s), these being defined as having a minimum patch size of 0.1 ha and a maximum of 2 ha., for the purpose of protecting and retaining, '*to the greatest extent possible*', koala browse species.

Based on my understanding of the SSOCs, any koala browse trees required to be retained for the purpose of Condition 65 of the CIFOA can be included within the temporary feed tree clumps. If correct, this approach thus effects a change from that of a variable dispersed rate of browse species retention (*i.e*. 10 or 5 trees/ha as specified by either Prescriptions 1 or Prescription 2 respectively) to that of an aggregated proportion of the burnt area of the compartment being retained in the form of temporary tree clumps.

I do not consider that the measure of retaining temporary tree clumps for koalas is a better approach than that of the variable dispersed rate. This is because it enables a change in the koala management prescriptions from that of cross-compartment retention of browse trees to a more constrained, clustered approach.

In my opinion this is not in the best interests of koalas as it does not reflect knowledge about koala density and movement patterns in the three SFs. This is because koala densities in occupied areas of these forests are relatively low (0.05–0.2 koalas $ha^{-1}$) which in turn reflect large home range areas (5–20 ha) being utilised by individual koalas and the commensurately

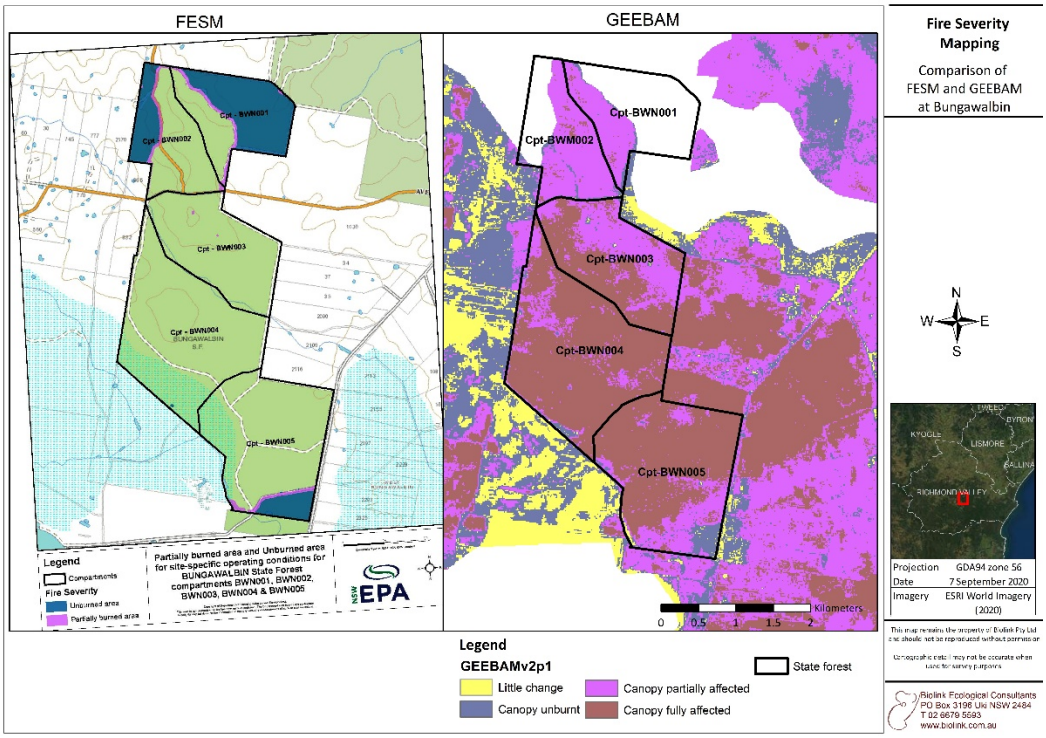
large distances (several hundred meters) that occur between preferred browse trees. Thus the already dispersed nature of the preferred browse resource cannot be met for individual koalas by a maximum 2 ha upper limit for designation of a temporary tree clump.

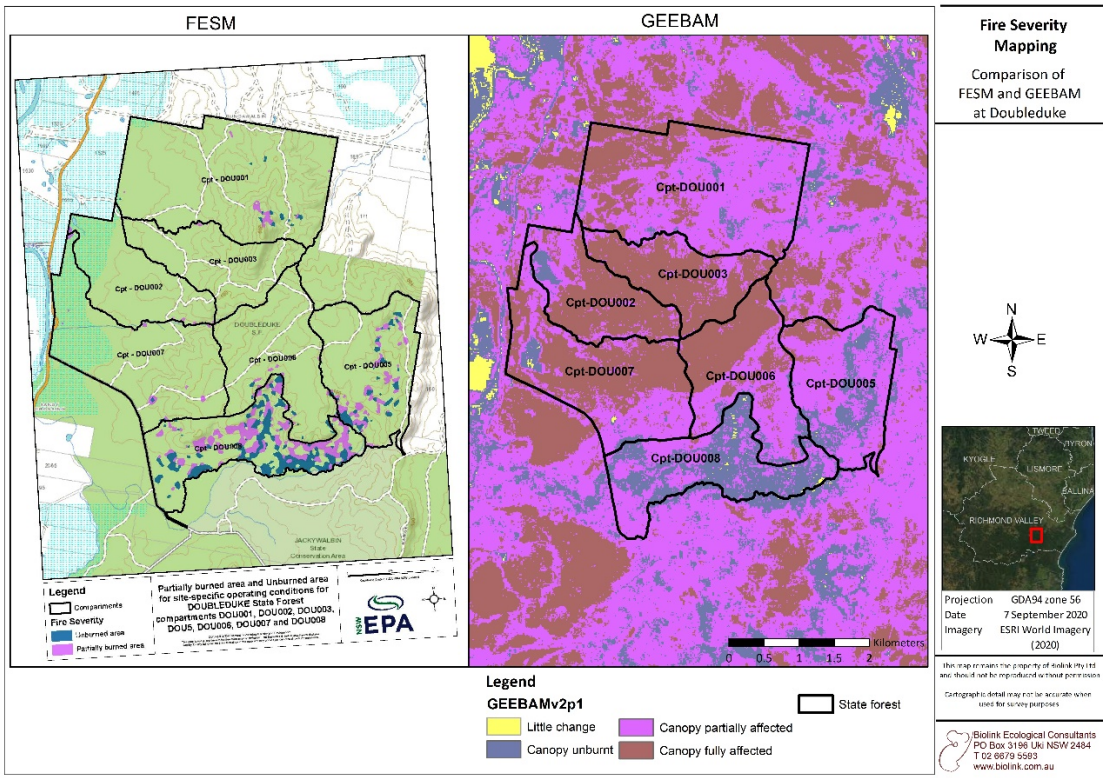
Following a fire event, individual preferred koala browse trees within burnt areas that may have survived are of increased importance for the survival of koalas *post*-fire. They provide important food and shelter for koalas because they will be required to travel further and wider to find adequate levels of food due to the reduction in food availability due to the fires.

The fact that the EPA originally wanted the dispersed browse tree approach to be retained as alluded to in the EPA Briefing note dated 3rd March, demonstrates they understood the importance of these trees to koala survival. In my opinion, to provide additional protection to koalas, any additional tree retention measures should have insisted on a dispersed tree retention approach, rather than a temporary tree clump approach.

For each of the compartments covered by the SSOCs, accurate fire-severity mapping becomes an important, if not critical, informing underlay because it informs the location of ESAs to be protected. However, with specific regard to the relative amounts of 'partially burnt' canopy as illustrated in the EPA-badged images I have examined as part of this brief (and which I presume were available and could have been available to the EPA's Chief Executive Officer [**CEO**] at the time decisions were being made), I note that the FESM layer utilised by the EPA differs substantially from that of the Google Earth Engine Burnt Area Map (**GEEBAM**) version 2 (SEED portal, January 2020).

Importantly, the FESM layer clearly implies that the greater proportions of the compartments subject to the SSOCs are burned, whereas the GEEBAM mapping implies that this is not the case. In the following figures I present comparative FESM/GEEBAM images for each of the compartments covered by the SSOCs in each of the SFs.




FESM
GEEBAM
Cpt - DOU001
Cpt - DOU003
Cpt - DOU002
Cpt - DOU007
Cpt - DOU006
Cpt - DOU005
Cpt - DOU008
Cpt-DOU001
Cpt-DOU003
Cpt-DOU002
Cpt-DOU007
Cpt-DOU006
Cpt-DOU005
Cpt-DOU008
Legend
Compartments
Fire Severity
Unburned area
Partially burned area
Partially burned area and Unburned area for site-specific operating conditions for DOUBLEDUKE State Forest compartments DOU001, DOU002, DOU003, DOU5, DOU006, DOU007 and DOU008
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Kilometers
0 0.5 1 1.5 2
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GEEBAMv2p1
Little change
Canopy unburnt
Canopy partially affected
Canopy fully affected
State forest
Fire Severity Mapping
Comparison of FESM and GEEBAM at Doubleduke
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KYOGLE
LISMORE
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RICHMOND VALLEY
Projection GDA94 zone 56
Date 7 September 2020
Imagery ESRI World Imagery (2020)
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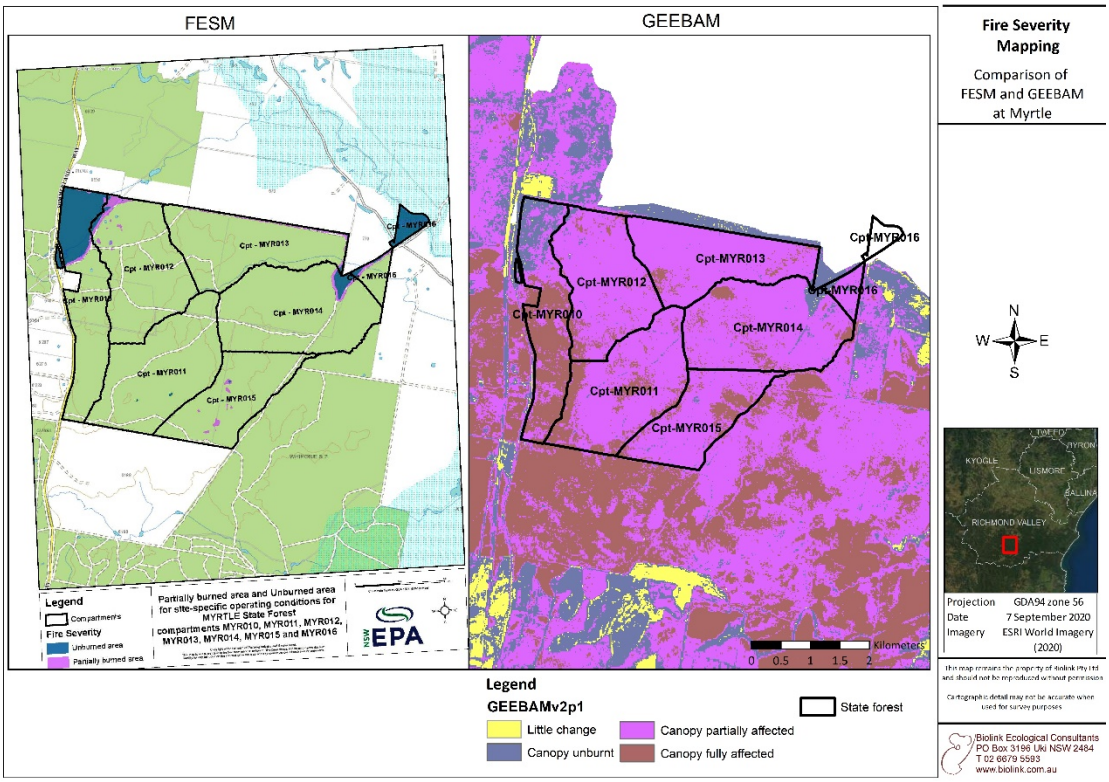
FESM
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Cpt-MYR015
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Legend
Compartments
Fire Severity
Unburned area
Partially burned area
Partially burned area and Unburned area for site-specific operating conditions for MYRTLE State Forest compartments MYR010, MYR011, MYR012, MYR013, MYR014, MYR015 and MYR016
EPA
Kilometers
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Legend
GEEBAMv2p1
Little change
Canopy unburnt
Canopy partially affected
Canopy fully affected
State forest
Fire Severity Mapping
Comparison of FESM and GEEBAM at Myrtle
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BALLINA
RICHMOND VALLEY
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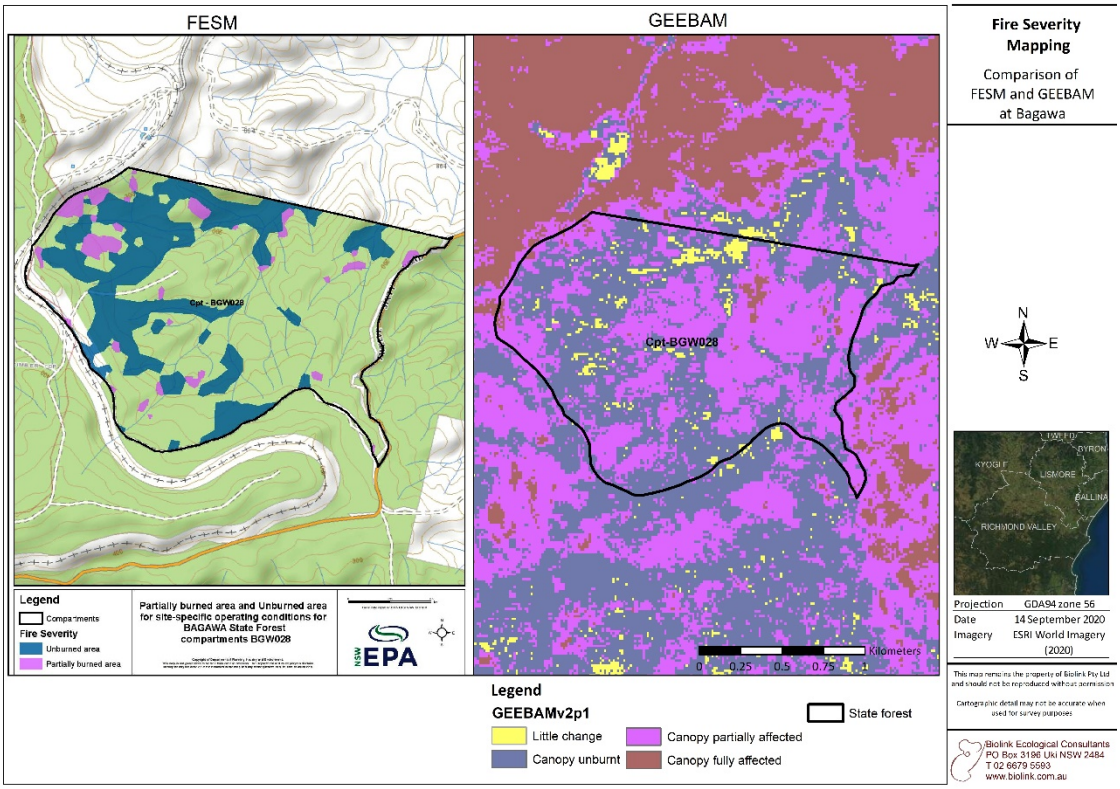
FESM
GEEBAM
Cpt - BGW028
Cpt-BGW028
Legend
Compartments
Fire Severity
Unburned area
Partially burned area
Partially burned area and Unburned area for site-specific operating conditions for BAGAWA State Forest compartments BGW028
NSW EPA
0 0.25 0.5 0.75 Kilometers
Legend
GEEBAMv2p1
State forest
Little change
Canopy partially affected
Canopy unburnt
Canopy fully affected
Fire Severity Mapping
Comparison of FESM and GEEBAM at Bagawa
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KYOGLE
LISMORE
BALLINA
RICHMOND VALLEY
Projection GDA94 zone 56
Date 14 September 2020
Imagery ESRI World Imagery (2020)
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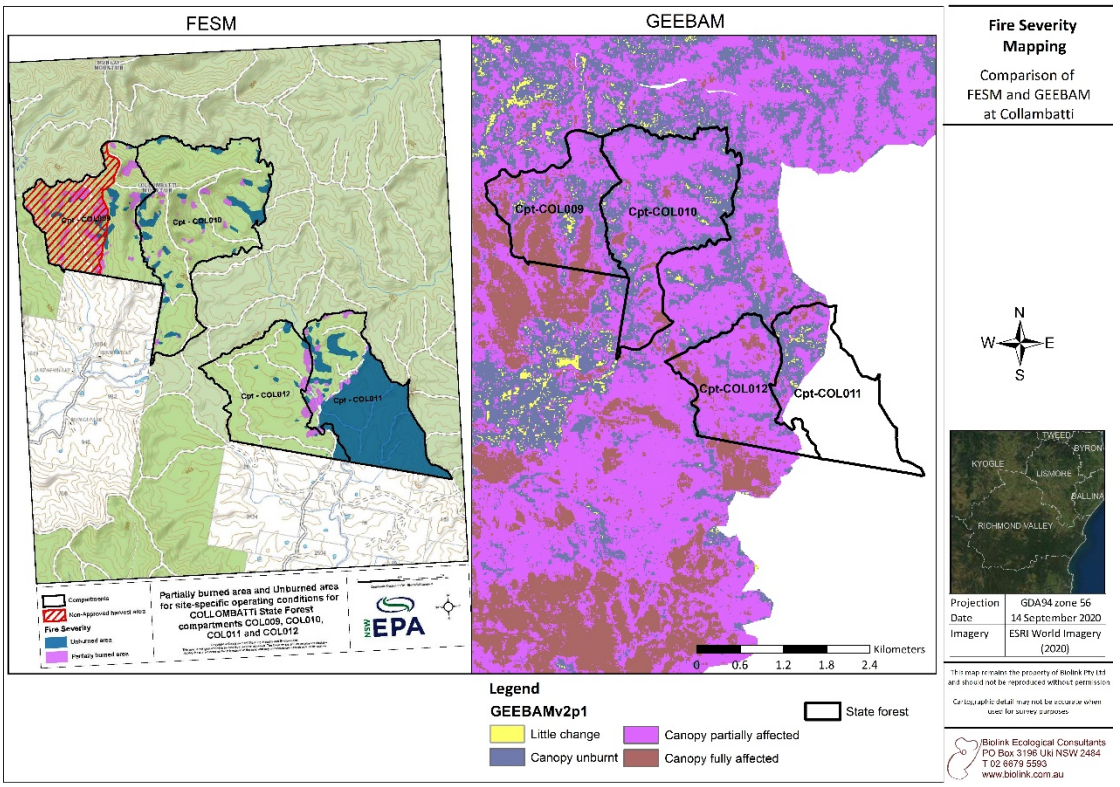
FESM
GEEBAM
Cpt - COL009
Cpt - COL010
Cpt - COL012
Cpt - COL011
Cpt-COL009
Cpt-COL010
Cpt-COL012
Cpt-COL011
Partially burned area and Unburned area for site-specific operating conditions for COLLOMBATTI State Forest compartments COL009, COL010, COL011 and COL012
NSW EPA
0 0.6 1.2 1.8 2.4 Kilometers
Legend
GEEBAMv2p1
State forest
Little change
Canopy partially affected
Canopy unburnt
Canopy fully affected
Fire Severity Mapping
Comparison of FESM and GEEBAM at Collambatti
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LISMORE
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RICHMOND VALLEY
Projection GDA94 zone 56
Date 14 September 2020
Imagery ESRI World Imagery (2020)
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The preceding images indicate that if the GEEBAM mapping layer was utilised instead of the FESM layer, the amount of partially burned canopy, and hence the requirement for ESA designations as specified by Condition 11 of the SSOCs, would have comprised a greater proportion of each compartment.

This is important because it would have reflected application of the precautionary principle by ensuring that the maximum amount of partially burned canopy had been retained in ESAs. Instead, the singular reliance on the FESM layer means that a significantly smaller area was required to be protected as ESAs.

**6. Responses to requirements of Expert Brief**

In my opinion, the absolute minimum data set that should have been before the EPA CEO prior to issuing SSOCs was that of the *post*-fire occupancy level by koalas in each of the SFs and the specific compartments under consideration. This knowledge could have been obtained quite readily using adaptive, high-resolution (*i.e*. 350 m–500 m), systematic survey techniques such as RG-bSAT, the sampling principles thereof being already outlined by CIFOA Protocol 20.

Given the absence of *pre*-fire and any *post*-fire survey data for each of the SF compartments under consideration, it is not possible for me to advise with certainty whether forestry operations permitted by the SSOCs have or will, when considered in isolation, be likely to directly have had a significant impact on koalas as defined by the EPBC Act.

Because the SSOCs enable the removal of koala browse species from areas in which koalas are known to be present, that there will be an impact is inarguable. However, because there are no *post*-fire survey data to consider and the likely extent of loss of browse species has not been quantified, the scale of impact in each of the compartments covered by the SSOCs likely ranges across a spectrum of potential outcomes, the severity of which will be influenced by the following considerations:

a) As a general rule and based on publicly available data (*e.g*. Phillips *et al*. 2013; Biolink 2019), it can be evidenced that koala occupancy rates in SFs are typically significantly lower than they are in adjoining land holdings such as national parks and private lands. In my opinion this is primarily because of historical logging practices that over time have progressively removed larger preferred koala food tree species from the landscape, the effect of which is to lower the densities of such trees and so reduce the koala carrying capacity of the associated landscape. In turn, this means that individual koalas that comprise the remaining populations in such areas must have larger home range areas as they move between food trees.

b) Surprisingly, little is known regarding the direct impact of fire on koalas, aside from estimates of significant population loss that may be as high as 100% (Lunney *et al*. 2007). What is now known (but which was not known at the time the SSOCs were issued) is that the average reduction in the extent of habitat being occupied by koalas as a consequence of the fire events in 2019/20 is approximately 71% (range 34%–100%) when standardised against *pre*-fire occupancy levels (Phillips *et al*. 2020). The issue of koalas already being at reduced densities and/or at less than optimum

occupancy rates means that such populations are less resilient to follow-on disturbances such as removal of browse trees by logging and/or subsequent fire events.

c) Because of the considerations outlined in a) and b) above, it is likely that koala populations in some SFs have already been reduced to such small numbers/occupancy rates that *post*-fire recovery would be unlikely without intervention, while other areas may have greater capacity for recovery. While such knowledge as I have described above was not available at the time the SOCCs were issued, it is my opinion that a precautionary approach would warrant the need for approximations thereto and that such approximations should have been factored into considerations accordingly. Alternatively, harvesting operations could have been delayed until such information was available.

d) It follows that if food resources for koalas are diminished by activities permitted by the SSOCs, then the capacity for koala populations to recover *post*-fire is also diminished. In addition to nutritional stress that arises from the reduction or loss of preferred browse in a *post*-fire landscape, the removal of connecting habitat enacted by the application of existing CIFOA Koala Prescriptions 1 or 2, and/or the retention of small (0.1–2 ha) temporary feed tree clumps, further negatively influences koala movement patterns. This results in increased levels of social dissolution as animals that survived the fire are required to travel more widely in search of food. Because the preceding prescriptive applications work to impede koala recovery by further diminishing the extent of available (preferred) browse species in fire-affected areas, forestry activities in burned forests have the potential to compound the fire-related impacts in areas where koalas have survived but still remain sensitive to further disturbance.

e) Following on from c) and d) above, there was no data indicating the impacts of the fire on koala browse species, or any estimate of the numbers of koala browse species that might be removed by logging.

f) In my opinion, there was an absolute imperative before the EPA to ascertain whether the koala population in a fire-affected area could absorb any further impact before allowing logging activities to occur. Again, in the absence of any knowledge about size of the original (and surviving) populations within the compartments, it follows that any negative impact would add to that having already occurred because the two are directly related (*i.e*. the SOCCs were issued on the back of an initial impact the scale of which was not known to the EPA). Hence and while the fire events that affected the compartments to which the SOCCs relate were significant in their own right, any further loss that follows on because of an activity that was directly related to those events should not be assessed in isolation.

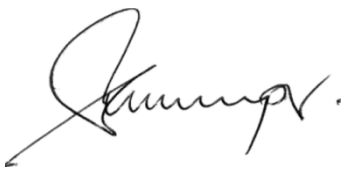
It is because of the preceding considerations that I strongly disagree with conclusions reached by the four identical Protocol 5 reports that deemed risk to threatened species such as the koala to be Low, when in my opinion the risk should have been specified as High to Extreme.

Moreover, there has been no meaningful evaluation in either the Protocol 5 reports or other material that was before the EPA at the time the decisions were made that convince me there will be no further loss of preferred browse trees, individual koalas (or populations thereof) and/or any assessment of potential consequences of allowing timber harvesting to occur as would be required by application of the precautionary principle. Consideration of the precautionary principle would dictate that if the value of the environment which is to be impacted is not known, then operations should not proceed considering a paucity of data. Information which was available at the time of the decision/s includes the fire impacts in terms of footprint/severity which clearly informed of the high sensitivity of the environment to be impacted.

Information which was available at the time that the SSOCs were issued relate to the fire footprint/severity of the 2019/20 bushfires. While the source of the FESM layer apparently relied upon by the EPA is not stated, if the graphic output is accepted without prejudice as being accurate then areas which are not mapped as 'unburnt' or 'partially burnt' are assumed to be in a higher category of fire severity.

In my opinion and despite misgivings about the accuracy of the FESM layer for reasons I have already stated above and in my response to the first brief, this is relevant to informing the sensitivity of the *post*-fire environment in the context of SIG: "*Whether or not an action is likely to have a significant impact depends upon the sensitivity, value and quality of the environment which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts*" (p 2).

The impacts of the 2019/20 bushfires, as inferred by the mapping used by EPA and from other sources, would thus be expected to trigger consideration of the sensitivity of the environment/s and whether further impacts from logging would interfere with the persistence and recovery of a threatened species in this context.



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