

Joint submission to *NSW Forest Monitoring and Improvement Program* by the National Parks Association, Nature Conservation Council and North East Forest Alliance

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About us

The **National Parks Association of NSW** was formed in 1957 and six decades later has 15 branches and over 20,000 members and supporters. Our shared goal is to protect nature through community action. NPA believes that caring springs from personal connections with nature, and we deliver more than a thousand bushwalks, community events, bio-blitz surveys and bush regeneration projects each year. We are vigorous advocates for nature, contributing to park management planning, the assessment of development proposals and conducting conservation campaigns across NSW. NPA's strengths include our regional reach, deep local knowledge, evidence-based approach and relentless pursuit of a world-class reserve system for NSW.

The **Nature Conservation Council of NSW** is the state's peak environment organisation. NCC represents over 150 environment groups and thousands of supporters across NSW. Together we are dedicated to protecting and conserving the wildlife, landscapes and natural resources of NSW.

The **North East Forest Alliance**, formed in 1989, is an alliance of groups and individuals from throughout north-east NSW, with the principal aims of protecting rainforest, old-growth, wilderness and threatened species.

Our recommendations

1. Logging under the CIFOA should be suspended until monitoring and the establishment of baseline data are complete.
2. The full costs of monitoring the impacts of logging should be borne by Forestry Corporation.
3. Forest monitoring should be undertaken independently of Forestry Corporation.
4. Monitoring funds must not be used to remap forests currently protected as old-growth or rainforest.
5. Monitoring should prioritise state forests due to the degree of threat from the new CIFOA.
6. All CIFOA prescriptions should be assessed against measurable performance criteria.
7. The monitoring program must include triggers, or thresholds, beyond which logging is halted.
8. The monitoring baseline should be based on the condition of forests at the commencement of the Comprehensive Regional Assessments—not the present day.

9. Monitoring should focus on:
 - a. forest growth stage and age structure, large and hollow-bearing trees
 - b. species and habitat features most at risk from logging, as detailed in Table 1
 - c. koalas and koala habitat condition
 - d. extent and severity of Bell-miner Associated Dieback
 - e. non-timber ecosystem services - carbon stocks and water quality and quantity.

Detailed comments

Recommendation 1: Logging under the CIFOA should be suspended until monitoring and the establishment of baseline data are complete

We appreciate the opportunity to have input to the proposed monitoring program but are extremely disappointed that the monitoring is being implemented *after* the renewal of the Regional Forest Agreements (RFAs) and commencement of the Coastal Integrated Forestry Operations Approval (CIFOA).

Logging under the CIFOA should be suspended until monitoring and the establishment of baseline data has been completed. This will allow an assessment to be made of the impact of the CIFOA, the conservation status of forest species and ecosystems, and the change in growth stage of forests over the life of the previous RFAs.

The credibility of the new RFAs and CIFOA is fatally undermined by the lack of accurate data about the current condition of the forests. The 10 and 15-year reviews of RFA implementation were compromised by generalisations and inaccuracies. The report by the Threatened Species Expert Panel demonstrated that decisions around the most controversial CIFOA settings were based on opinion rather than verifiable data. There is no evidence that logging has conformed to Ecologically Sustainable Forest Management (ESFM) principles. In contrast, there is substantial evidence that many forest-dependent species have declined since the RFAs were signed in the late 1990s. The lack of compliance with ESFM, coupled with species declines and ecosystem degradation, provides sufficient grounds to apply the Precautionary Principle and suspend logging pending a thorough scientific review.

Monitoring and adaptive management are key principles of ESFM and repeatedly referenced in the RFAs, IFOAs and Forestry Corporation (FCNSW) management plans, but have not been implemented. There have been regular reductions and removal of prescriptions and protections for threatened species throughout the previous IFOAs, yet none of these were supported by monitoring to prove the effectiveness of previous prescriptions or new prescriptions. We are not aware of a single prescription that has been improved or enhanced.

The only monitoring of logging impacts on threatened species we are aware of was for five threatened plants in the north east IFOAs. In these cases monitoring was delayed, initial results not reported to the EPA for years, ongoing monitoring not undertaken, and there was no improvement in prescriptions despite significant impacts being identified. Similarly, the CIFOA has removed numerous prescriptions and significantly reduced others without any consideration of impacts, even

when the Threatened Species Expert Panel Expert Committee advised against them and significant increases in impacts were certain (i.e. reduced stream buffers, removal of recruitment trees, removal of most mature nectar feed trees).

Recommendation 2: The full costs of monitoring the impacts of logging in state forests should be borne by Forest Corporation and not taxpayers

It is unacceptable that NSW taxpayers are providing a \$11.4 million subsidy for the native forest logging industry. FCNSW is a for-profit company and is directly responsible for the negative ecological impacts of native forest logging on public land. The cost of monitoring and demonstrating compliance with the CIFOA and ESFM should be borne by FCNSW.

Recommendation 3: Forest monitoring should be undertaken independently of Forestry Corporation

Monitoring and demonstrating ESFM in production forests was the responsibility of FCNSW since the RFAs were signed in the late 1990s. FCNSW has comprehensively failed to implement appropriate monitoring programs. Future monitoring must be undertaken independently of Forestry Corporation to ensure completion and provide confidence in the impartiality of reporting.

Recommendation 4: Monitoring funds must not be used for the remapping of forests currently protected as old-growth or rainforest

We understand that between \$2 million and \$3 million has been allocated from the forest monitoring budget and Department of Planning, Industry and Environment staff time for remapping and rezoning forests currently protected as old growth. This is a perverse use of these funds and should be immediately suspended.

The reclassification of old growth is clearly designed to increase the supply of timber to Boral, effectively providing another public subsidy. There is no public interest in remapping and rezoning protected areas of old-growth forest. The program will compromise the adequacy of the CAR reserve system, damage old growth trees, species and ecosystems and reduce carbon stores.

Recommendation 5: Monitoring should prioritise state forests due to the degree of threat from the new CIFOA

Monitoring should prioritise public native forests subject to the CIFOA as this is where high levels of impact are most likely to occur. Within these forests, monitoring should prioritise the areas most at risk of impact from the new CIFOA. These include long-unlogged headwater stream buffers slated for logging; the north east 'intensive harvesting zone'; and the Eden alternative coupe area. Other priorities include key habitat features and new 'wildlife clumps' to determine the density and quality of key habitat attributes and the presence of threatened species. There is little data underpinning the clumps approach, and it is particularly uncertain whether they can sustain larger arboreal species over time.

The next priority should be private land known, or predicted to, contain threatened species or underrepresented Forest Ecosystems. Monitoring of wood volumes being extracted under Private Native Forestry must occur in order to accurately track changes over time.

We consider monitoring in protected areas, although important, to be a lower priority because of the lower risk of negative impacts to priority assets. NPWS already undertakes fauna monitoring through its 'WildCount' program and has been doing so for several years. Monitoring also takes place on NPWS land via the NSW Saving Our Species (SOS) program, and NPWS is actively supporting research into bushfire in several priority areas as well as participating in multiple conservation projects in which monitoring is a standard component.

Recommendation 6: All CIFOA prescriptions should be assessed against measurable performance criteria

At present, there are no performance criteria for the CIFOA prescriptions. These should be urgently developed so that long and short-term assessment of the impact of the prescriptions can take place.

The monitoring and management program should be underpinned by the Precautionary Principle. Current logging laws are diametrically opposed to the Precautionary Principle.

Recommendation 7: The monitoring program must develop triggers, or thresholds, beyond which logging is halted

It is essential that the monitoring program adopt an adaptive management approach and clearly define the points at which the results of monitoring are deemed unacceptable. Triggers to end or modify logging are required for impacts on threatened species as well as key habitat features such as hollow-bearing trees, water quality and carbon stores.

How rare must a species become in state forests before intervention is taken? For example, the Swift Parrot is now a critically endangered species nationally, with a 31% of extinction by 2030 (Geyle et. al. 2018). BirdLife Australia has identified the coastal forests of southern NSW (particularly those where the winter-flowering *Corymbia maculata* is a component) as a Key Biodiversity Area (KBA) critical to the species survival. No further monitoring should be required before NSW decides to stop logging the KBA and secure the food resources for swift parrots. Instead, the Eden and Southern RFAs were renewed.

There is extensive existing data and knowledge that was not been considered in the recent RFA and IFOA processes (see references in sections below). A prime example is research by Belcher (2004) on spotted-tail quolls (listed as endangered nationally and vulnerable in NSW) that showed that the species "is dependent on elements of old growth forest structure, such as tree hollows, hollow logs, $\geq 50\%$ canopy cover and complex vegetation structure" ... "*D. m. maculatus* has disappeared from clear-felled, even-age regrowth forest in Victoria (Loyn et al. 1980), suggesting that even-age regrowth forest may not develop into suitable habitat for quolls, at least within the logging cycle of 40-80 years."

Such research could have been used to assess the success of the prescriptions in conserving forest-dependent species and guide the development of new prescriptions. An objective and comprehensive monitoring program is essential to restore community confidence in the management of our public forests.

Recommendation 8: The monitoring baseline should be based on the condition of forests at the commencement of the Comprehensive Regional Assessments—not the present day. The concept of the ‘shifting baseline’ (Pauly 1995) describes successive generations perceiving the natural world they experience as normal, even though it may be dramatically different to that experienced by previous generations. This has been described as a form of amnesia (Papworth et. al. 2009).

The shifting baseline is hugely relevant to the forest monitoring program, particularly to forests subject to logging. The choice of baseline will determine the value of the information of the program. For example, were monitoring to accept the present day as the baseline, then monitoring will be describing changes from a highly degraded state in many cases. Further, it will be impossible to accurately assess the impact of the new CIFOA unless data is urgently collected before the new regime is implemented. A present-day baseline is clearly not acceptable for the monitoring program.

The monitoring program should resample the systematic flora and fauna survey plots from the Comprehensive Regional Assessments, and repeat the arboreal mammal transects and call-playback sites undertaken in the 1980s and 1990s (especially in the Coffs-Dorrigo area and south-east forests). These provide a benchmark against which changes since then can be quantified. Some of these have since been added to the reserve system and others remain as State Forest, so they should provide an indication of the effects of changes in land tenure. Account needs to be made of the degree to which such sites had been altered by logging at the time of sampling. Any other datasets and research that provide insight as to changes over time should also be incorporated into the monitoring program.

Recommendation 9: The focus of monitoring

The enormous diversity of flora and fauna in NSW forests precludes monitoring of all species and ecosystems.

a) Forest growth stage and hollow-bearing trees

Growth stage is a good proxy for many species, for carbon stores and for water yields from forests, because older forests are more valuable in all cases. The change in forest growth stage over the RFAs should be analysed and presented—particularly in FMZ 4, the General Management Zone—as this will allow inference to the value of the forests in the above areas.

Forest age structure and the density of hollow-bearing trees is vital information to infer the value of forests for forest-dependent fauna. Surveys of large (and hollow-bearing) tree density and the age structure of forests should be prioritised in state forests. Given the exceptional importance of hollow-bearing trees there needs to be monitoring of the damage they sustain during logging and the mortality of retained trees over time. Recruitment trees are vital for the succession of hollow-bearing trees, so in logging areas the abundance, health and persistence of mature trees suitable to

replace retained hollow-bearing trees (recruitment trees) needs to be monitored. Surveys could be stratified to ensure areas that have or will be subject to ‘regeneration logging’ are surveyed to determine the past and future impacts, as well as the rest of the CIFOA area that will be subject to increased logging intensity. These include the Eden RFA region and the new intensive harvesting zone. Results should be benchmarked to old-growth forests and Plant Community Type Vegetation Condition Benchmarks in order to assess the ecological condition of forests.

b) Fauna and features vulnerable to logging

Much useful information is contained in the compendium of research papers called “Conservation of Australia’s Forest Fauna” (Lunney 2004). Many of these papers suggest that forest-dependent fauna should be priorities for monitoring due to their sensitivity to disturbance and requirements for mature age forest attributes. Kavanagh et. al. (2004) developed a framework to assign species and habitat features to a category depending on their sensitivity to logging, which offers a useful model upon which to base monitoring. Plants and habitat features in particular are readily surveyable, and in many cases a single transect or plot could yield information on multiple elements.

Previous research (Braithwaite 1983, 1988) has demonstrated the importance of more fertile soil types for arboreal fauna (including, to greater or lesser extents sugar glider, feathertail glider, greater glider, yellow-bellied glider, brushtail possum, ringtail possum and pygmy possum). The monitoring program should prioritise sampling of arboreal fauna density on more fertile soil types in order to determine the current status of arboreal mammals in logged forests and to enable logging impacts to be tracked over time. These densities can be benchmarked to densities on fertile soil types in long unlogged forest to provide information on the historic impacts of logging.

Categories 4-8 contain species and features that are likely to be negatively impacted by logging, with categories 6-8 containing particularly sensitive species and features likely to be heavily impacted. Categories 4 and 5 contain species that, although impacted by, can tolerate a degree of logging, provided prescriptions are implemented to retain key habitat features such as hollow-bearing trees. Given the new CIFOA will result in increased logging intensity throughout the coastal zone, the reduction of formerly protected stream buffers, increased logging of large trees, reduction of hollow-bearing tree density and the dramatic simplification of large swathes of forests as a result of ‘regeneration’ logging, species and features in categories 4 and 5, as well as 6-8, may be expected to be at risk of decline. The types of species and habitat features and their sensitivity (categories 4-8) is presented in Table 1.

Table 1: Species or habitat features and their sensitivity to logging (increasing value signals increasing sensitivity) reproduced from Kavanagh et. al. 2004

Species or habitat features group	Logging Sensitivity Category
Plants	
Epiphytes on tree-ferns	7
Non-vascular species (e.g. bryophytes)	7
Truffle-like fungi	7
Mistletoes on eucalypts	6

Rainforest species	5
Ground ferns	5
Birds	
Large forest owls	7
Birds that feed extensively on mistletoe fruit or nectar	6
Large hollow-dependent forest birds	5
Lorikeets	5
Small forest owls (Southern Boobook)	5
Honeyeaters	4
Fruit-eating birds	4
Small to medium-sized hollow-dependent forest birds	4
Mammals	
Large hollow-dependent arboreal marsupials	7
Large carnivorous marsupials	6
Mycophagous mammals	5
Small to medium-sized arboreal mammals	5
Hollow-dependent microbats	5
Small carnivorous marsupials	4
Reptiles Frogs and Fish	
Large hollow-using reptiles (Lace Monitor)	4
Arboreal geckoes	4
Frogs that breed in forest streams	4
Other forest frogs	4
Fish inhabiting forest streams	4
Habitat features	
Large aerial space below canopy	7
Old understorey	7
Large old living trees	6
Abundant tall tree-ferns	6
Large hollow logs on ground	5
Hollow-bearing trees	5
Dead old trees	5
Deeply fissured bark	5
Deep leaf litter	5

Penna (2004) discussed research in Eden and stated “forest-dependent fauna were considered to be the most vulnerable animals because integrated logging and planned rotation times would remove critical forest features upon which they depend, including large trees and tree hollows for nesting. Such forest-dependent fauna include the koala, several species of forest bats, and a variety of gliders, possums and birds. The research also argued that the logging would reduce the abundance of nectar feeding birds because of changes in the patterns of flowering and abundance of nectar, while favouring birds and mammals suited to open and low vegetation (Recher et al. 1980).” This broadly supports the categories proposed by Kavanagh et. al. (2004).

c) *Koalas*

Koalas are identified as an iconic species by the NSW government, species that “are important socially, culturally and economically, and the community expects them to be effectively managed and protected”. Given the new CIFOA has removed the need to conduct pre-logging surveys for koalas, the species should be one of the targets of the monitoring program.

Three decades ago Reed & Lunney (1990) raised the potential for clearfell logging “to push remnant local koala populations to extinction” (see quote in Penna 2004). This is being borne out in southern NSW with a tiny remnant population in the Murrah Flora Reserves, a sobering premonition of the impact of the new ‘intensive harvesting zone’ in north-east NSW.

We understand that three separate koala research programs are occurring. We do not have adequate information on the dietary and nutrition studies to judge their validity and merit, but we have serious concerns about the validity and independence of the song meter approach—and serious ethical concerns about the project to radio track koalas to determine their response to regeneration logging. This is reminiscent of ‘scientific whaling’ and recent work by VicForests to examine the response of greater gliders to logging and we urge the Panel to question the merit of this research in the context of ethics and the likelihood of koala survival.

The biggest failing of the DPI-Forestry song-meter assessment is that it is based on extrapolation from just the calls of male koalas somewhere within 300m (or up to 2km) of the recorder, with no indication of whether other koalas were present or whether it was just a transient male searching for a mate. The only ground-truthing reported for koala occupancy in the DPI-forestry pilot 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. This extremely low occupancy does not validate any of the sites as supporting significant koala populations and raises concerns that the song meter approach may overestimate occupancy and plots may not reflect occupied habitat if used as a monitoring approach. Further, the researchers themselves say that about 50% of the 1km circles surrounding their heavily logged sites was made up of protected forest. This means that the detected koala bellows could be coming from any of these protected areas of forest. The researchers actually surmise that the “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” (Law et. al. 2018). This raises concerns of false positives of koala occurrence in intensive logging areas, which may in turn lead to underestimates of the impacts of logging and inappropriate decision-making.

We therefore do not accept the song meter work as a valid means to monitor the impact of logging on koalas. Instead, we urge the use of koala detection dogs using qualified handlers to undertake koala monitoring.

The 2016 EPA study (NSW EPA, 2016) 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 has declining koala populations. The strong selection of disproportionately large trees by koalas has been documented elsewhere (Moore et. al. 2005).

Smith (2004) found that koalas preferred structurally complex, uneven-aged forests with some mature and old-growth 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.

An unpublished 2013 Biolink 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.

These studies all strongly suggest that logging—particularly the intensive logging proposed for the best koala habitat in north coast state forests—will further reduce koala populations that are already in precipitous decline, with north coast populations declining by 50% over the life of the last RFA. We contend that there is more than enough evidence to exclude intensive logging from koala habitat based on the precautionary principle. Unfortunately, in the absence of a trigger or allowance to halt logging, it is likely that this process will simply monitor koalas into extinction. This is not an acceptable approach and is ethically dubious.

OEH has analysed koala records "to delineate highly significant local scale areas of koala occupancy currently known for protection", which they term 'koala hubs'. Based on the data then available these are the known highest priority areas for koala protection in NSW to increase their survival prospects. The threats to hubs are highest in coastal areas (where most hubs are) as a result of the intent to apply the regeneration logging technique, making the protection of the 19,785 hectares of koala hubs on state forests in coastal and hinterland areas the highest priority for the basis of a koala reserve system to safeguard core koala populations and begin to stabilise koala numbers.

It is alarming, and totally unacceptable, that 2,546 ha of koala hubs on State Forests were logged from 2015-2018.

It is essential for the future of koalas that a moratorium be immediately placed on all remaining OEH koala hubs on state forests, along with all potential habitat within one kilometre, while further ground-based assessments are undertaken to delineate the full extent these "*highly significant*" resident populations which, based on current records, are the highest priority for protection on public lands. This should be a priority for the monitoring program, and the implementation of the new CIFOA should not occur until the hubs are assessed.

We note that the hubs are records-based, and that there are therefore likely to be numerous unidentified highly significant local scale areas of koala occupancy that also need to be identified and excluded from logging. Much of these are likely to be on private land.

d) Bell-miner Associated Dieback

The NRC CIFOA documentation alluded to the fact that several state forests are no longer 'productive' for logging as they are so degraded by Bell-miner Associated Dieback (BMAD). This has serious implications for both conservation and the logging industry. We urgently need to understand the current extent and severity of BMAD and how is this changing over time. We are aware that helicopter sketch mapping was conducted in 2004 and again over the same area in 2017 but there was little correlation. This suggests that time and resources are being wasted on subjective, non-repeatable and incomplete assessments.

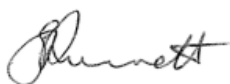
e) Non-timber ecosystem services

The value of ecosystem services provided by forests is huge and dwarfs that of the value of timber (Keith et. al. 2018). Given we are living in a time of dual biodiversity and climate crises, it is clear that the most valuable use of forests is for wildlife conservation, maximal stores of carbon and provision of clean, plentiful water. Regular monitoring of water quality and quantity from catchments subject to logging is vitally important to ensure water supplies are not jeopardised.

Because we know that the carbon stores of trees increase continuously as they age (Stephenson et. al. 2014), it is imperative that an accurate, independent (i.e. academic, non-government) assessment of the carbon stores of production forests is conducted throughout the CIFOA zone and benchmarked to protected old-growth in order to facilitate an estimation of the carbon sequestration potential throughout coastal NSW. Studies have addressed this issue in southern NSW (e.g. Keith 2015), and a previous study (Mackey et. al. 2008) estimated that allowing logged forests in south-eastern Australia to recover their maximum carbon stores would be the equivalent of avoiding 136 million tonnes of CO2 emissions per year for the next century. This work should be repeated for all production forests as a matter of urgency.

It is evident that logging has significant impacts on water yields from native forests, such that a reduction of mature and old-growth forest to younger growth stages will cause a significant reduction in water yields, and water yields will increase with increasing forest maturity. There have been a number of studies in NSW that have monitored these changes, such as the work by Cornish in his Karuah study (Cornish 2001). A follow-up assessment (Webb 2012) found variable results. Such long-term studies deserve remeasuring to detect ongoing changes, though must account for the degree of vegetation change in the catchment, and the influence of compounding effects such as Bell Miner Associated Dieback.

Signed



Gary Dunnett
Executive Officer
National Parks Association of NSW



Kate Smolski,
Chief Executive Officer
Nature Conservation Council

A handwritten signature in black ink that reads "Dailan Pugh". The signature is fluid and cursive, with a long horizontal stroke extending to the left of the first letter.

Dailan Pugh,
North East Forest Alliance

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