Moonpar State Forest – Threatened species habitat assessment in Compartment 13

Introduction

Moonpar State Forest has a current approved plan for logging Compartment 13, though work has not yet commenced. Figure 1 shows the approved harvesting plan, including notations of threatened species. The harvest prescriptions for threatened species records are limited to some records for Scrub Turpentine (*Rhodamnia rubescens*), some locations for stream-breeding frogs and also a feed tree for Glossy Black-Cockatoo (*Calyptorhynchus lathami*).

Despite the limited notations for fauna species on the harvesting plan, a number of additional threatened species are also known to occur within Compartment 13 (Figure 2) or in habitat nearby, including species which are threatened at a national, as well as state level. Many of these occurrences are known from Forestry Corporation NSW's (FCNSW) own records. However, the mechanism for determining how threatened species are addressed in harvesting plans for logging operations, the Coastal Integrated Forestry Operations Approval (CIFOA), takes little account of those data. A series of protocols and conditions determine requirements for survey for a very limited number of species and habitat features. This report reviews the known or expected presence of threatened fauna species in Compartment 13 and contrasts this information to the limited array in the harvesting plan. The likely impact of logging on these species is discussed.

Two key focus species of this report are the nationally threatened Yellow-bellied Glider (*Petaurus australis*) and Southern Greater Glider (*Petauroides volans*). The harvesting plan makes no provision for these species, despite their being known to occur within Compartment 13. Oher threatened fauna species known to occur in the compartment or in the vicinity, include *Koala (Phascolarctos cinereus),* Parma Wallaby (*Notamacropus parma*), Hastings River Mouse (*Pseudomys oralis*), Glossy Black-cockatoo as well as large forest owl species Powerful Owl (*Ninox strenua*), Sooty Owl (*Tyto tenebricosa*) and Masked Owl (*Tyto novaehollandiae*). Again, most of these records are from FCNSW's own data however none generate a specific management response under the CIFOA. Under current rules, logging can occur without any direct protective measures for these species.

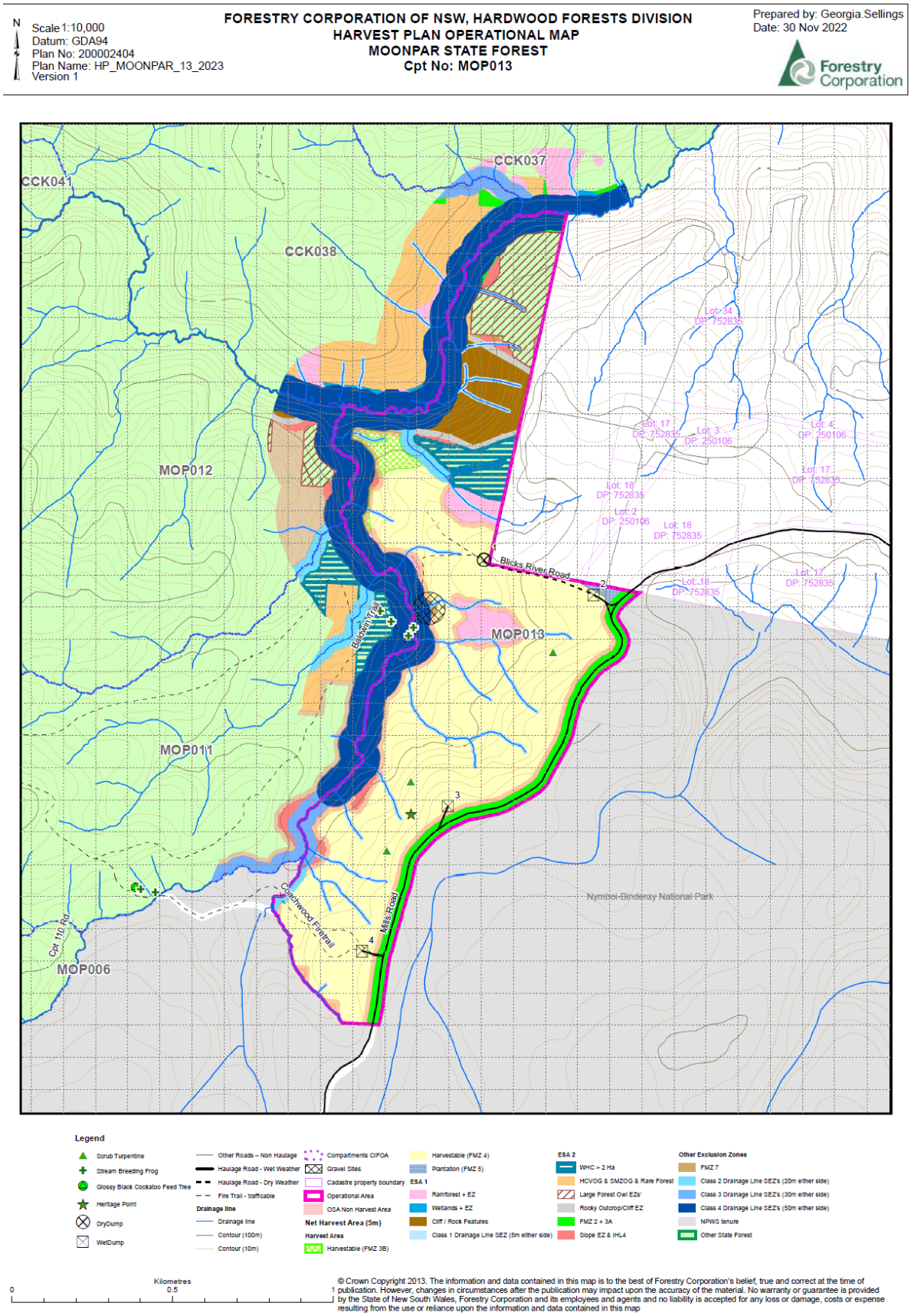

Figure 1 Approved harvesting plan - Moonpar SF Cpt 13

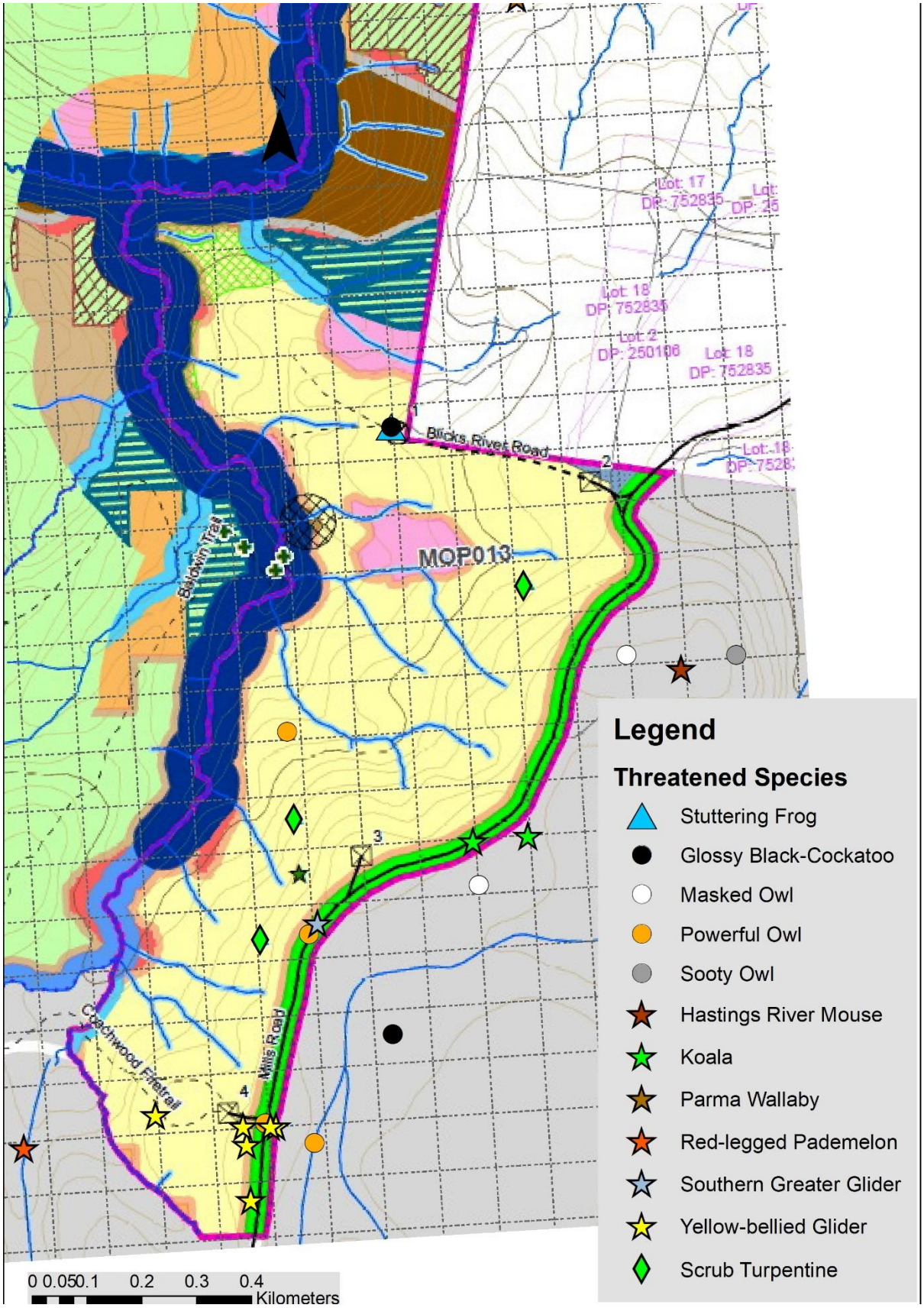

Figure 2 Threatened species records in and around Compartment 13 - Moonpar SF

Methods

In order to contrast the threatened species prescriptions in the harvesting plan to the actual presence of species, two nights of spotlighting were undertaken (3rd May 2023 and 12 June 2023). In addition, some daylight searching was undertaken for signs of Glossy Black-Cockatoo and also to assess likelihood of habitat for Hastings River Mouse. A search of BioNet records was made for records of other fauna of interest including Parma Wallaby, Koala and large forest owls. Further general habitat assessment was undertaken in terms of presence of hollow-bearing trees, assessment of weed infestation and presence of die-back.

Gliders

On both nights of spotlighting, both target glider species were detected. On the first night, four Greater Gliders were observed in Compartment 13 and another was observed in the adjacent National Park. One Yellow-bellied Glider was heard, with the vocalisation being very clear and close to the road where the observers were. On the second night, two Greater Gliders were observed in Compartment 13 and another observed in the adjacent National Park. Two separate Yellow-bellied Gliders were heard; one very close to the observers (and close to the previous record). A second animal was heard approximately 100m+ away. The two calls were heard in a short space of time and were quite distant from one another, leading to the conclusion that two separate animals were present.

Spotlighting commenced shortly after dark on both occasions and Greater Gliders were observed not long afterwards. One pair and one single animal were recorded in what were assumed to be their den trees. Figure 2 shows the distribution of glider spotlighting records (Red symbols = Greater Gliders, yellow symbols = Yellow-bellied Gliders) and Table 1 gives the location data.

Table 1 Location data for Gliders – May and June 2023

Date	Time	Species	Easting	Northing	Notes
3/5/2023	17:54	Greater Glider	467018	6657750	Probable den tree
3/5/2023	18:09	Greater Glider	467122	6658021	
3/5/2023	19:34	Greater Glider	467728	6658768	In NP side of the road
3/5/2023	19:38	Greater Glider	467672	6658709	
3/5/2023	19:48	Greater Glider	467166	6658125	
12/6/2023	17:36	Greater Glider	467033	6657691	2 x Gliders in probable den tree
12/6/2023	19:15	Greater Glider	467073	6657869	In NP side of the road
12/6/2023	17:53	Greater Glider	467166	6658121	In NP side of the road
3/5/2023	18:52	Yellow-bellied Glider	467677	6658871	Heard close to road (less than 50m)
12/6/2023	18:21	Yellow-bellied Glider	467556	6658718	Heard approx. 100 to 150m away from road
12/6/2023	18:28	Yellow-bellied Glider	467671	6658841	Heard close to road (less than 50m)

Table 2. Other arboreal mammals detected during spotlighting

3/5/2023	18:58	Short-eared Possum	467580	6658917	
3/5/2023	18:51	Ringtail Possum	467670	6658871	
12/6/2023	18:25	Short-eared Possum	467700	6658797	In adjacent NP

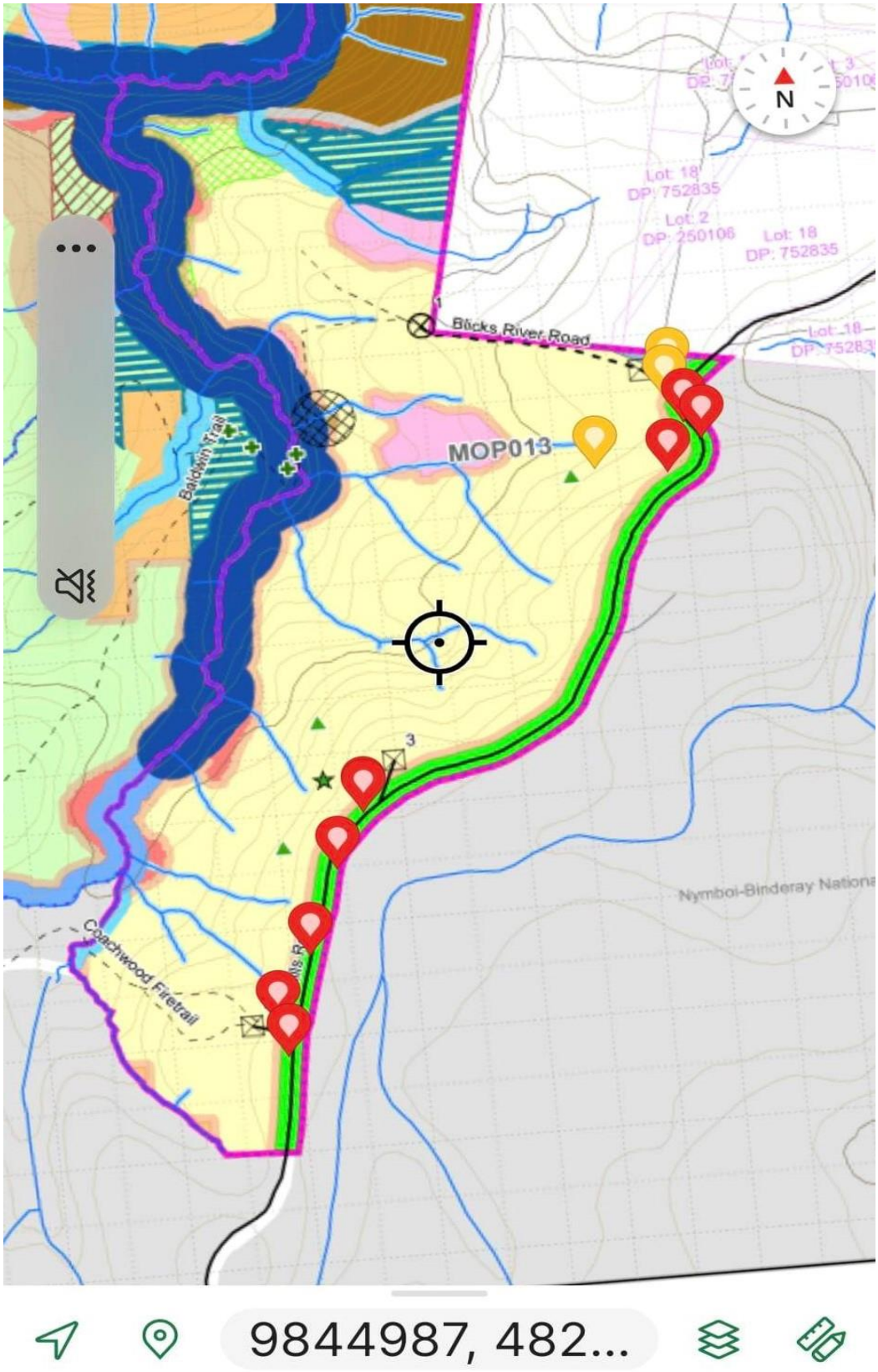

Figure 3 Spotlighting records from May and June 2023 Greater Gliders (red) and Yellow-bellied Gliders (yellow)

Forest Owls

Three species of large forest owls (Powerful Owl, Sooty Owl and Masked Owl) occur in the forests around Moonpar (Figure 4). A Powerful Owl was heard calling on 3rd May 2023 within Compartment 13 and FCNSW records in BioNet include Powerful Owl and Masked Owl within the compartment. FCNSW records also include Sooty Owl from close by.

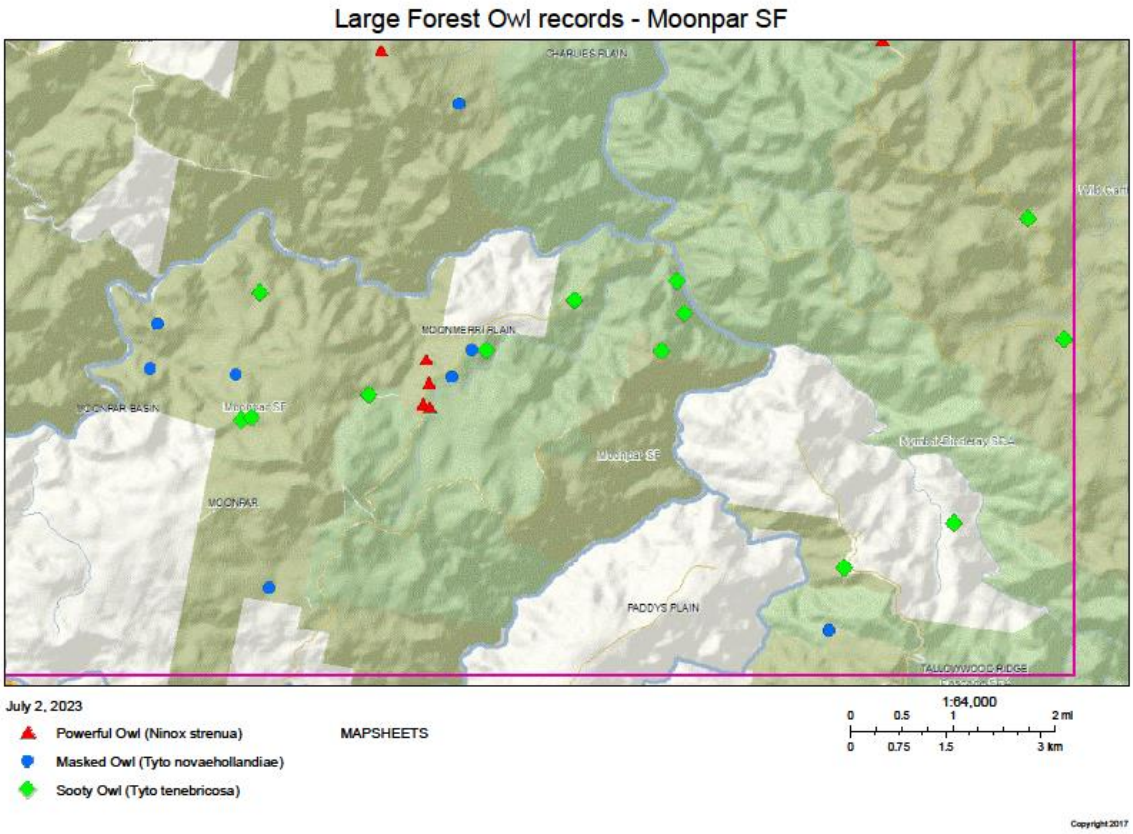

Figure 4 Large Forest Owl records - Moonpar SF

Parma Wallaby

Parma Wallaby is a threatened species of small macropod which is expected to occur in or near Compartment 13 in Moonpar SF. Figure 6 shows records of Parma Wallaby across the Chaelundi IBRA subregion and Figure 7 shows finer scale distribution of records close to Compartment 13. There are three records in Moonpar SF, two within 2km. There is a record close by in the adjoining NP and approxiately 15 records within 4km. Parma Wallaby prefers a mix of wet and dry forest with dense undergrowth and due to recent fire and relatively recent logging disturbance, most of Compartment 13 has dense undergrowth development, making the habitat very suitable for Parma Wallaby.

Figure 5 Dense understorey in Compartment 13

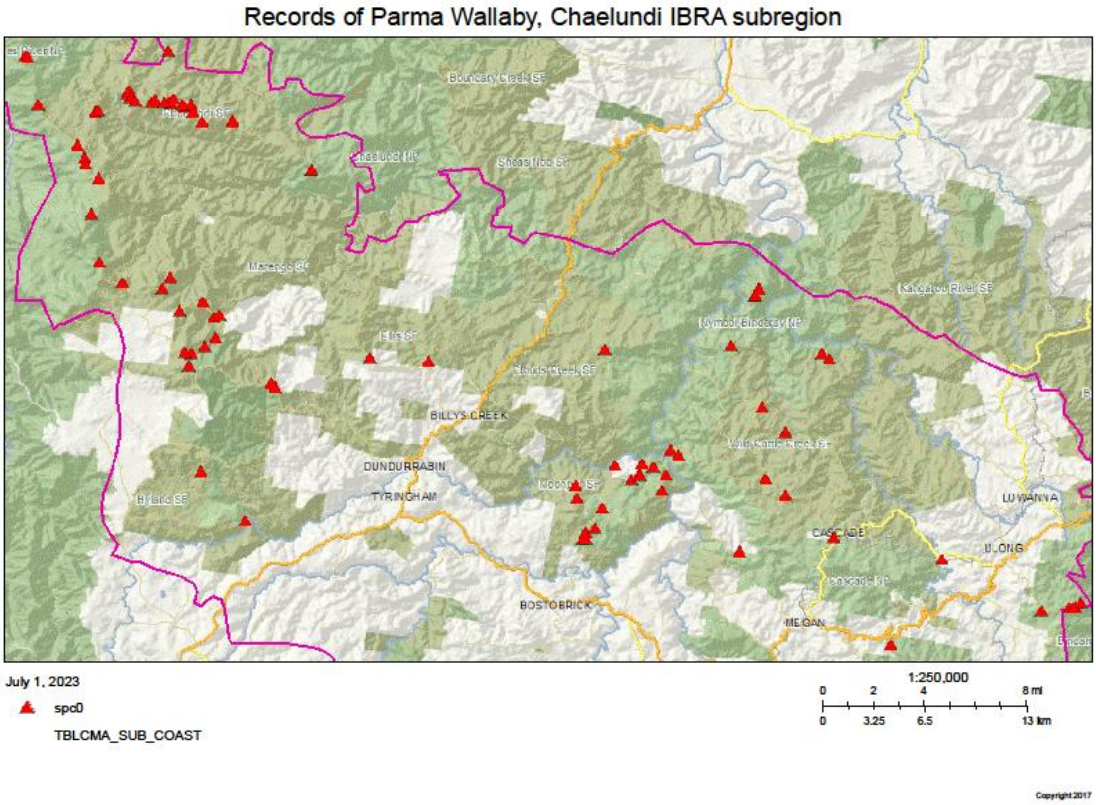

Figure 6Figure Records of Parma Wallaby across Chaelundi IBRA subregion

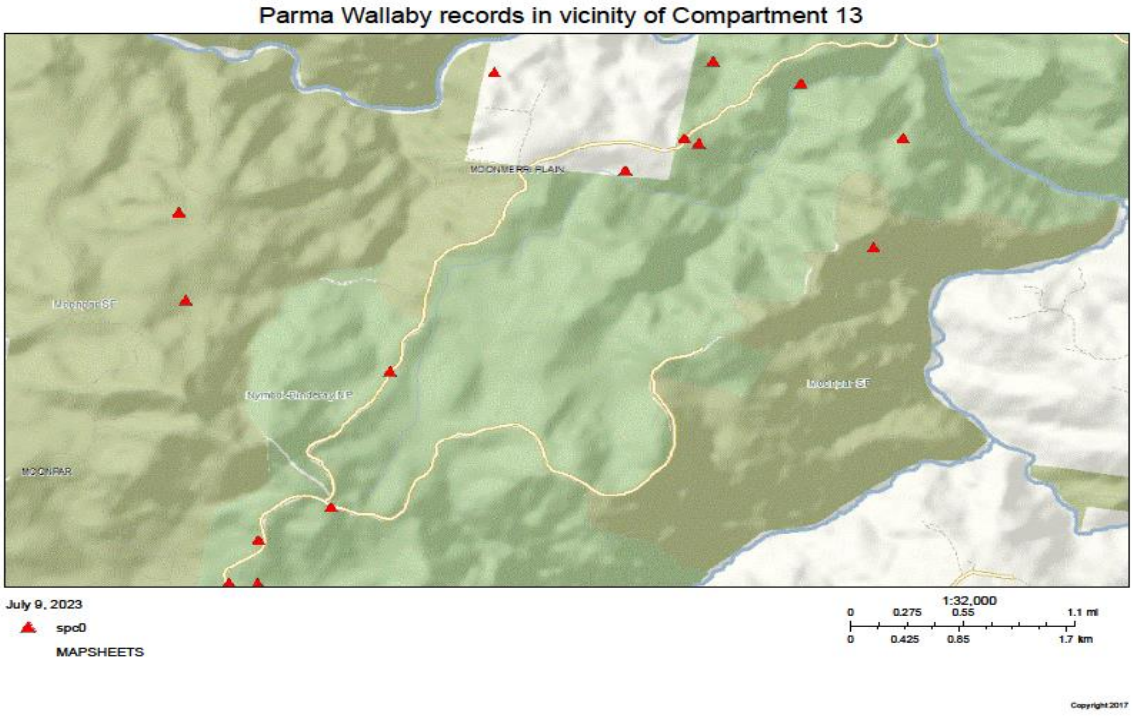

Figure 7 Parma Wallaby records near Cpt 13

Koala

Koalas are widely distributed in the vicinity of Moonpar, in fact the surrounding area is a critical forest link between upland and lowland populations. Figure 8 shows distribution of Koala records across the wider region and Figure 9 shows records at a finer scale (records in Moonpar SF). There are twenty records within in Moonpar SF including four which are less than 2km from Compartment 13.

There is one Koala record from within Compartment 13 and Koala feed trees, mainly Blue Gum and Tallowood, are present in reasonable abundance across Compartment 13 and especially abundant in the northern part of the loggable area between Mills Rd and Blicks River Rd. The presence of these species is an important predictor of Koala distribution and comprises an important habitat resource within Compartment 13.

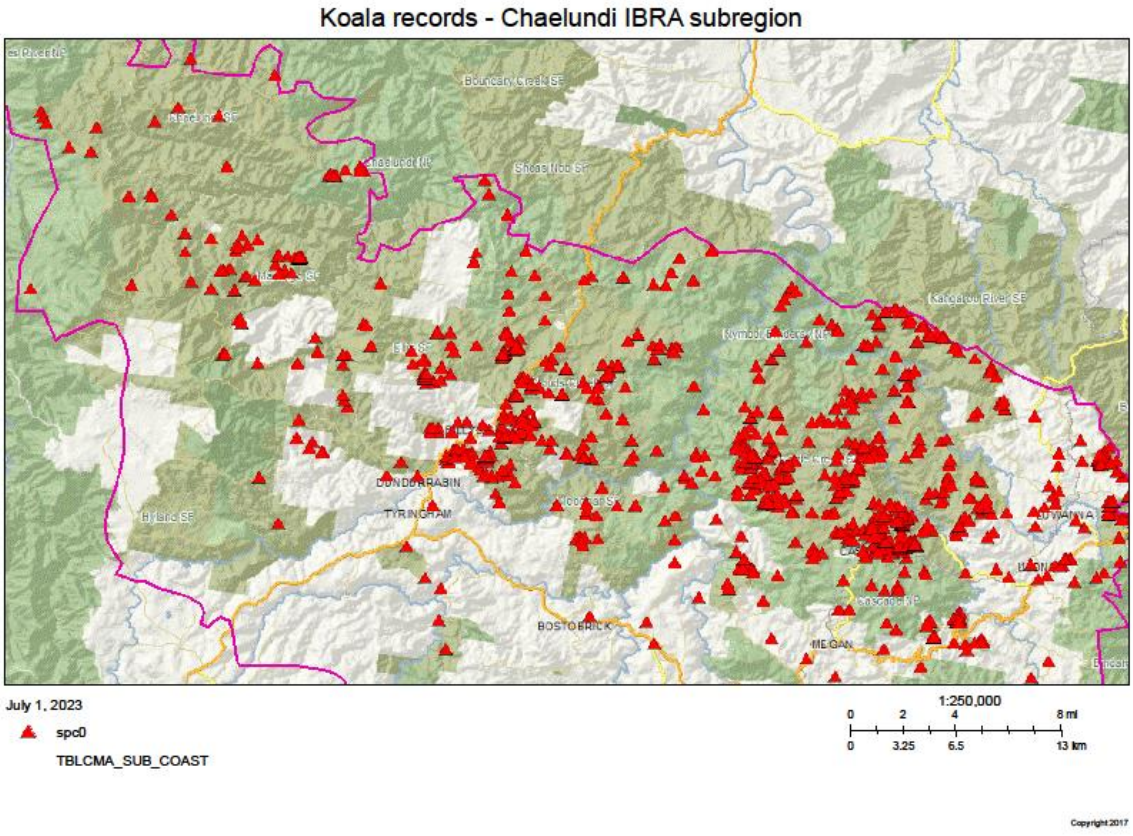

Figure 8 Koala records Chaelundi subregion

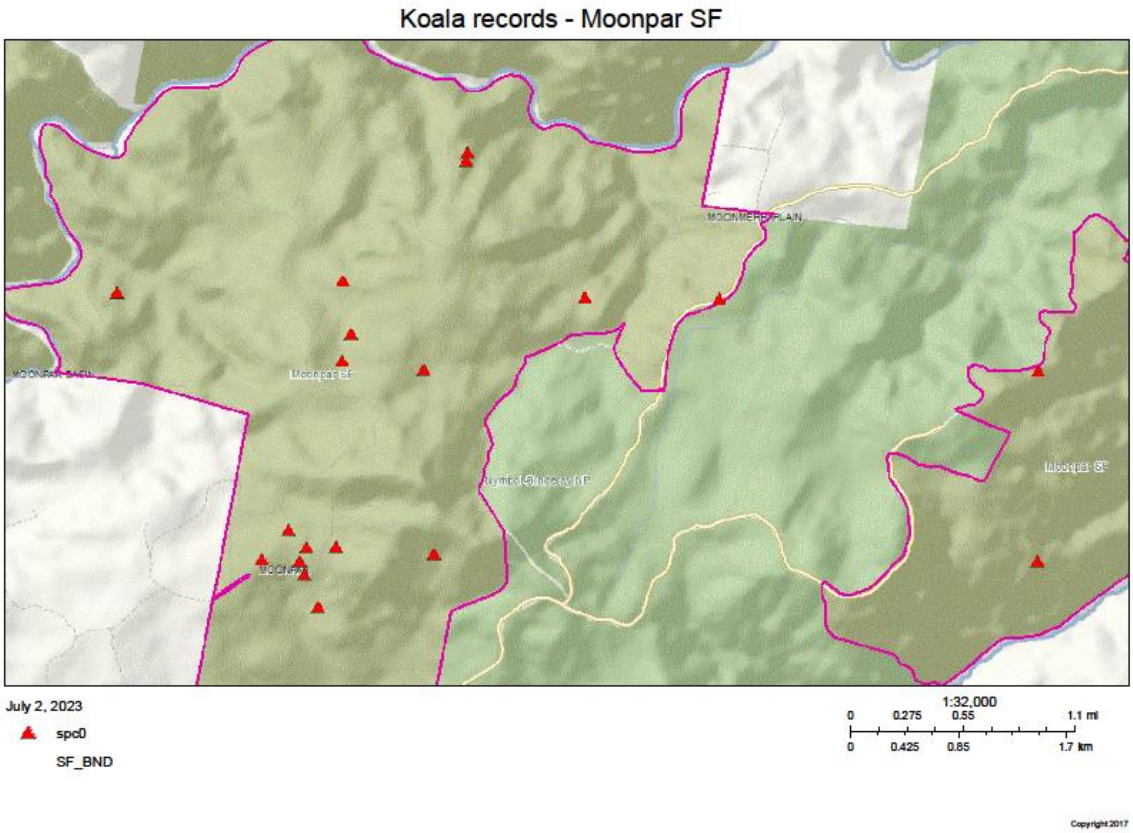

Figure 9 Koala records in and around Compartment 13

In September 2023, the NSW government announced a moratorium on logging in certain areas of State Forest designated as Koala Hubs.[1] A small area in Moonpar Cpt 13 is included in the moratorium area as shown below. The area excluded is approximately 14ha or approximately 15% of the 112ha harvestable area.

[1] https://wnc.maps.arcgis.com/apps/mapviewer/index.html?webmap=86ef6455e6774815843e4209852a7da7

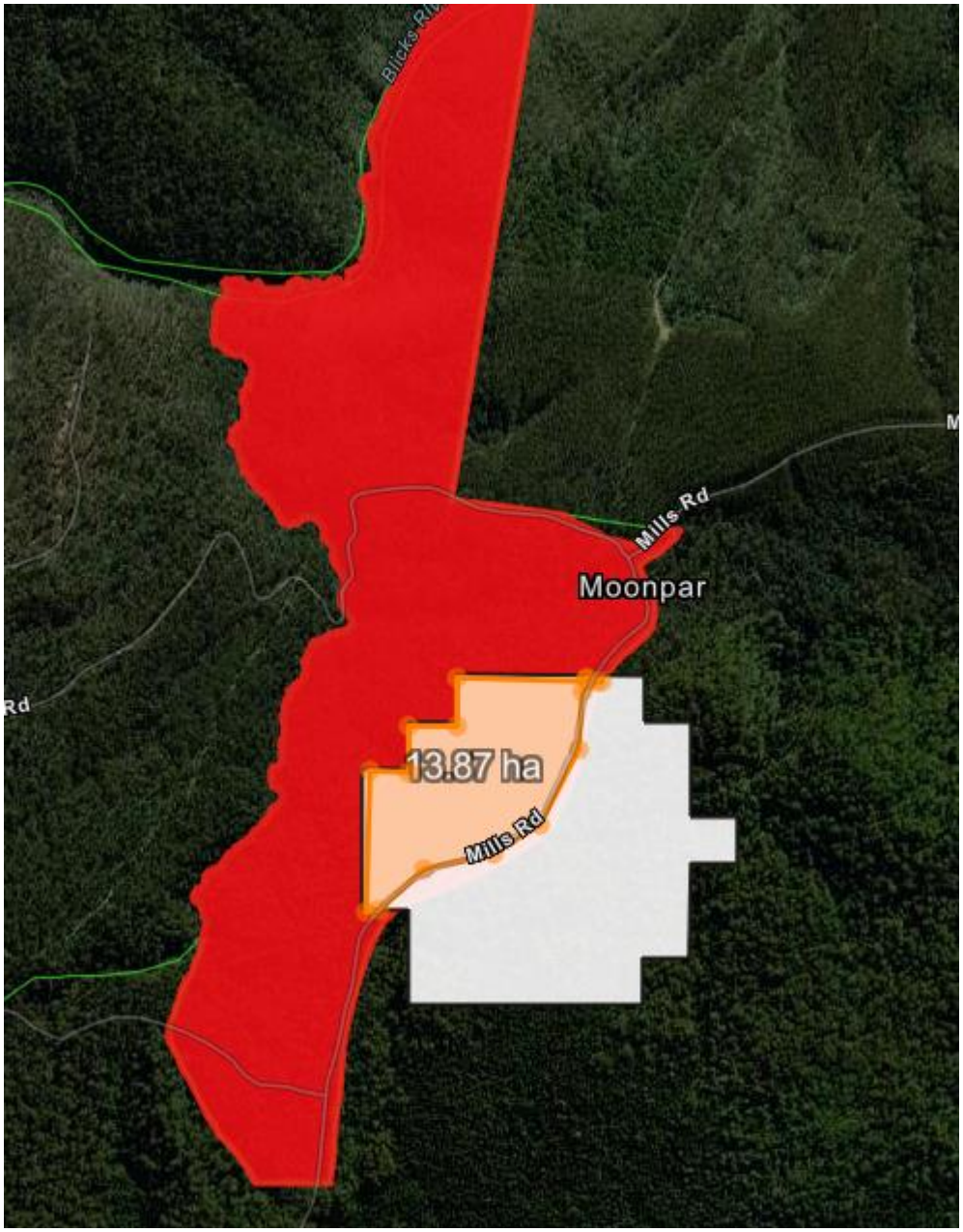

Figure 10 Koala hub exclusion area shown in white

Glossy Black-cockatoo

Searches were made for the presence of Glossy Black-cockatoo feed trees. At the time of searching. Very few trees were producing cones, so it was not possible to ascertain whether there were feeding sites. However, it was noted that the south-eastern section of Cpt 13 was characterised by very dense stands of *Allocasuarina torulosa* so this may well be an important food source and should be verified when trees are bearing cones.

There are numerous records of Glossy Black-cockatoo in and around Moonpar SF, including from within Compartment 13. Figure 11 shows records in and near the compartment with locations adjusted because of the sensitive nature of records for this threatened species.

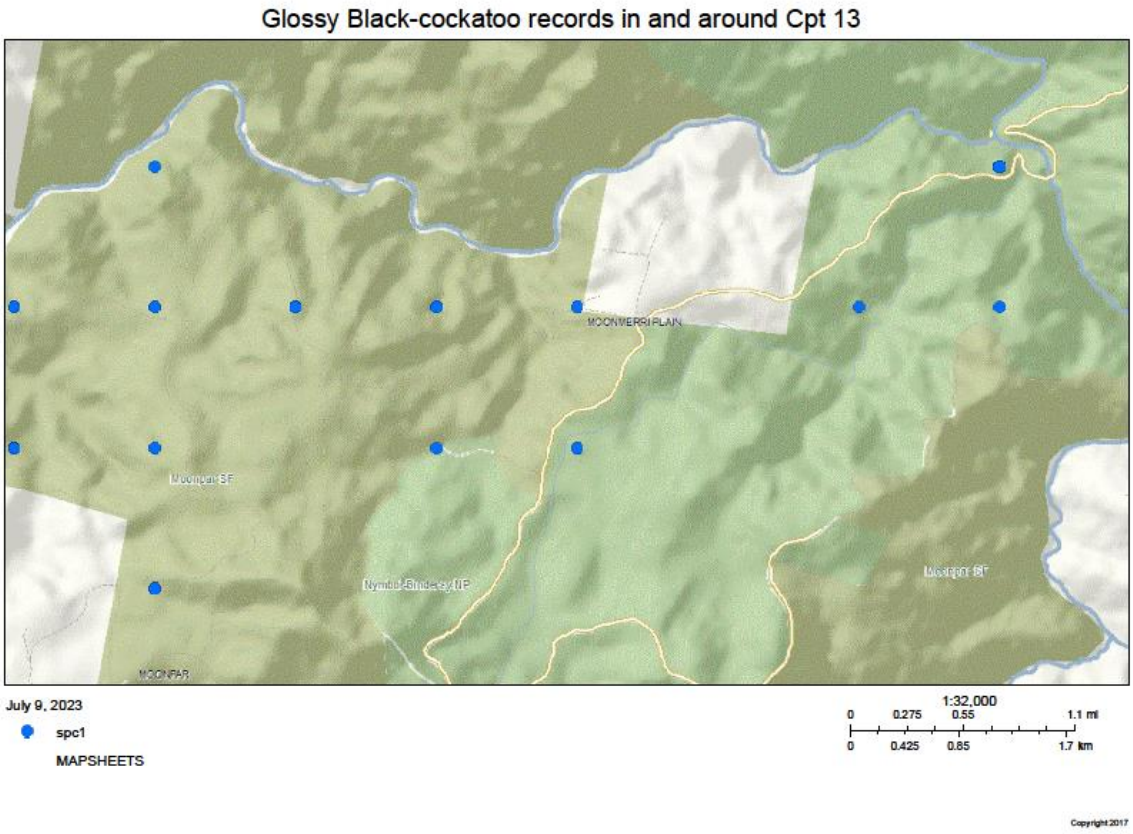

Figure 11 Glossy Black-Cockatoo records in surrounding area

Hastings River Mouse

There are 24 records of Hastings River Mouse in Moonpar SF. None of these are within Compartment 13 although all are within 4km of the compartment. Hastings River Mouse inhabit open forest and their patchy distribution is linked to the presence of suitable microhabitat. The preferred microhabitat is characterised by grasses and sedges and this microhabitat can be ephemeral over time and space due to influences of fire, rainfall and disturbance.

Compartment 13 is presently characterised by very dense understorey, likely due to disturbance of fire and earlier logging events. While this does not provide strongly suitable microhabitat for Hastings River Mouse, it constitutes important linking habitat within the forest mosaic. Further, areas of dense understorey can change over time and become more

open and grassy. Hastings River Mouse is broadly dependent on a mosaic of suitable habitat over space and time and Compartment 13 is capable of providing future habitat under the right conditions.

Forest health

Compartment 13 has likely been logged on multiple occasions and the harvesting plan states the last logging occurred approximately 20 years ago. The forest now comprises mostly young trees but there are hollow-bearing trees and large mature trees present in the compartment, particularly in the northern section. These form an important resource and the northern section is likely to be an important area for resident Yellow-bellied Gliders.

At present, Compartment 13 is in a transitional stage as a logged forest. Despite this, weed levels are fairly low and most of the dense regrowth understorey is comprised of native species.

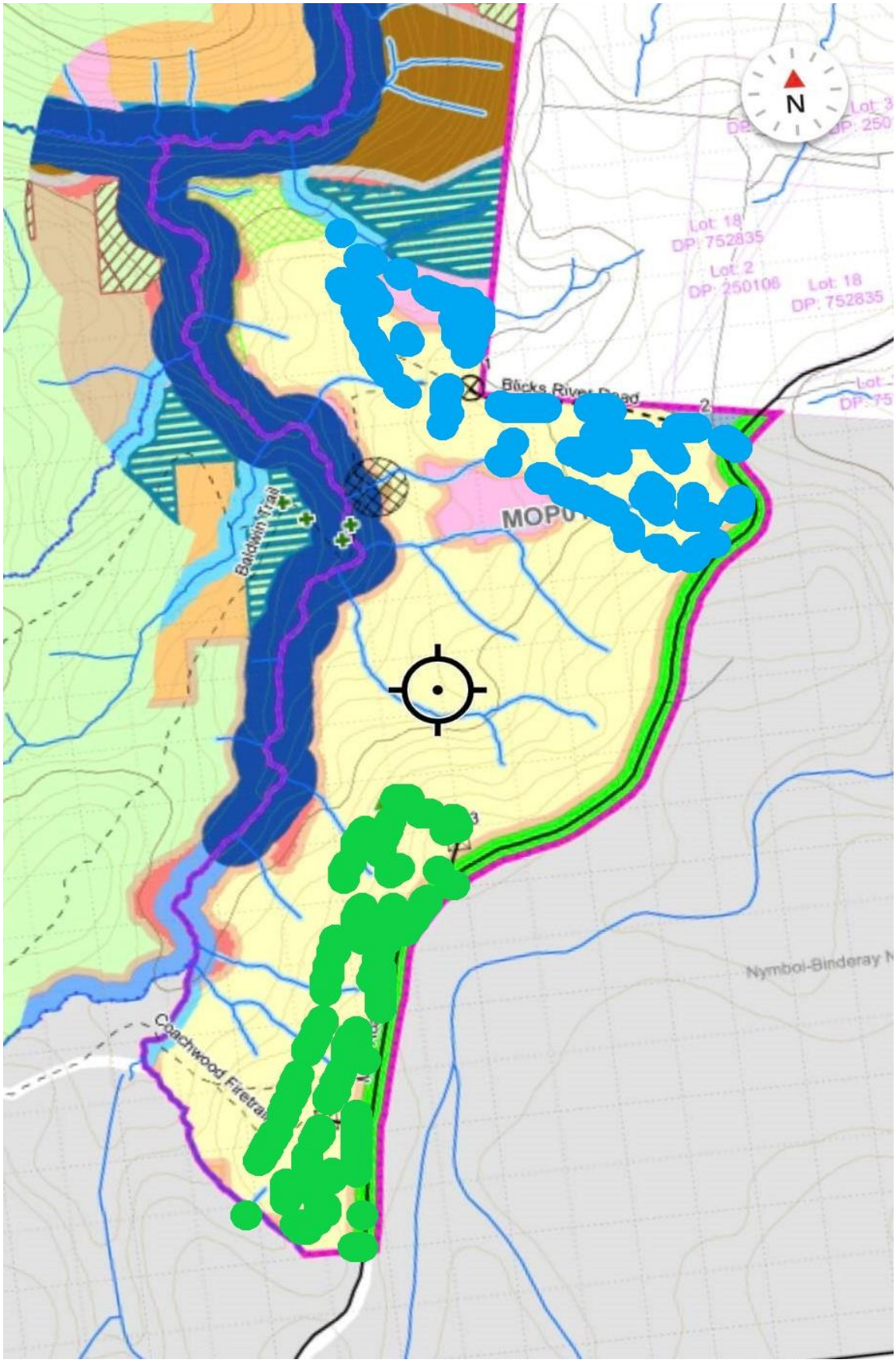

Figure 12 Area hatched blue dots indicates extent of taller wetter forest. Area hatched green dots indicates dense stand of Casuarina

Discussion

The results of the present searches reveal an enormous lack of meaningful prescriptive measures. Condition 15 of the CIFOA approval gives the specific objectives as follows:

> *15.1 In relation to threatened species conservation and biodiversity, the approval has the following specific objectives:*
>
> *(a) to set out the minimum measures required to be implemented to protect species, communities and their habitats from the impacts of forestry operations;*
>
> *(b) to set out multi-scale protection measures that ensure sufficient and adequate habitat is provided at the site, local landscape area, and management zone scales; and*
>
> *(c) to set out measures for species or communities that require specific measures to ensure habitat is protected around known occurrences;*

Gliders

For the nationally listed threatened glider species, it is difficult to see how the above objectives could be met with the current protocols. Condition 57 of the CIFOA requires broad area searches to be made for nest, roost and den trees. Yet there is no requirement to search actively for gliders. Den trees for gliders can only be reliably detected at night or pre-dawn and although the broad area search logs for this harvest plan were not accessed, it is doubtful whether active night-time searching occurred. It is notoriously difficult to detect den trees for Yellow-bellied Gliders, considerable effort would be required to reliably ascertain this information.

The present searches yielded Greater Glider den trees on both nights and further searching would no doubt yield more. However, despite the established presence of both species within the compartment, current approvals allow the logging of their habitat, with the only prescription relevant being the leaving of eight hollow-bearing trees per hectare. This takes no account of feed trees, no account of recruiting mature trees into the future population of hollow-bearing trees and no assessment of whether the hollow-bearing trees are suitable den trees for these species.

Despite the logging history, there are clearly still enough hollow resources to support glider populations. However, without planned recruitment of mature trees to grow into the hollow-bearing class, populations of hollow-dependent fauna will decline. Loss of hollow-bearing

trees is a listed as a Key Threatening Process and is widely recognised to be a critical issue for sustainable forest habitat management. Active management which allows mature trees to remain standing and progressively age is required to meet the goals of Ecologically Sustainable Forest Management (ESFM) and to maintain glider populations into the future. The current CIFOA prescriptions, despite the objectives of condition 15, will instead drive glider populations to fragmentation, habitat loss and local extinction.

Large forest owls

Similarly to the prescriptions for gliders, the CIFOA requirements for the forest owl species require only recognition of known roost or nest sites and no species-specific survey is required. Logging prescriptions include a 50m exclusion around a nest tree and a 25m exclusion around a roost tree (but only while a roost is active). These prescriptions are grossly inadequate and inappropriate for a number of reasons.

Owl roosts and nests are very difficult to locate and large survey effort would be required to reliably locate even a small number. Forest owls require large areas of habitat for a home range. In addition, an array of suitable hollows is necessary, not just for the owls but to support their prey base.

Sustainable forest management needs to consider the predicted distribution of forest owls across the landscape and consider the habitat resources needed for their survival. Retention of hollow-bearing trees is critical and so too is retention and recruitment of future hollow-bearing trees. As with gliders, mature and healthy trees make up a critical habitat resource as they eventually age into the hollow-bearing class. In undisturbed forest this process may take hundreds of years. Logging cycles of ten to twenty years result in a younger and younger aged forest and the progressive removal of trees which will form future hollows places downward pressure on populations of hollow-dependent fauna. Species which require the largest hollows, such as large owls, will be the most at risk, since those hollows take the longest time to form. Compartment 13 has hollow resources and a prey base which contribute to the habitat requirements for large forest owls and logging will have an immediate negative impact on the forest owl population.

Figure 13 Large mature trees are needed for retention into hollow resources for the future

Glossy Black-cockatoo

The CIFOA does not require surveys for Glossy Black-cockatoo or to make prescriptions based on species records or presence of habitat. Instead, it requires exclusion zones around known active feed trees and roost trees. The requirement to search for these habitat features is to be by 'Broad Area Searching' as per Condition 57. There is no stated minimum survey effort and habitat searches for Glossy Black-cockatoo feed trees are not specified to be seasonal. Since the production of cones by *Allocasuarina spp* is seasonal, the prescription actually allows the widespread removal of large areas of potential feed trees because searches can take place when cones are not present.

In Compartment 13, approximately 20 to 25% of the proposed logging area has dense and abundant *Allocasuarina* midstorey and likely makes a significant contribution to resources for Glossy Black-cockatoo. The current prescriptions allow for the total removal of the resource apart from a single feed tree as mapped on the harvesting plan.

Koala

Compartment 13 contains one Koala record and a number of records in close proximity. It also contains a substantial area of Koala feed trees and suitable habitat. Before the re-make of the CIFOA, active searches for Koala, including scat searches were required. Now the CIFOA does not require any survey to be undertaken for Koalas. Instead it requires the retention of browse trees at a rate of 10 per ha with a minimum size of 20cm dbh (Prescription 1).

There are no data to suggest that this retention rate in a logged landscape is capable of sustaining Koala populations. Habitat modelling shows that the area surrounding Moonpar includes important Koala high use areas. Further, this area provides a critical link between upland and coastal populations. The Koala habitat in Compartment 13, particularly in the northern area where Tallowwood-Blue Gum forest type is present is specifically targeted for logging as per the harvest plan which estimates sawlog yields from these species.

Absence of a requirement for any pre-logging survey effectively avoids the opportunity to have any information about Koala usage of an area. The requirement for minimum food tree retention number is without scientific basis. The minimum tree size and lack of requirement for tree health to be considered also reduces any mitigation.

The harvest plan for Compartment 13 starkly typifies the disparity between the CIFOA's stated objectives in Condition 15 of the CIFOA. Here known high quality Koala habitat with

known records is freely available for logging without any survey and without any meaningful or scientifically supported mitigation measures. This cannot be reconciled with Condition 15.

Other threatened species and forest habitat

The harvest plan based on the conditions of the CIFOA is unlikely to act to maintain populations of other threatened species in or around Compartment 13. Logging disturbance removes ground habitat and cover for small ground-dwelling species such as Parma Wallaby, Red-legged Pademelon and Hastings River Mouse. Disturbance and increased roading can also allow for incursion of feral predators. Logging will also act to dry out forest habitats, increasing vulnerability to fire.

Since the plan is not required to consider these species or these impacts and there is no requirement for pre-logging survey or post-logging monitoring there is no way to judge the impact on threatened fauna. There is no way to assess whether Condition 15 will or can be met, but the obvious assumption is that it cannot.

Figure 14 Tall Tallowwood Blue Gum forest in Compartment 13

Conclusion

Compartment 13 contains significant habitat values for a range of threatened fauna and known or likely presence of these species. The presence of threatened glider species is particularly significant and currently there are sufficient hollow-bearing trees to support a population of both Greater Glider and Yellow-bellied Gliders. However, proposed harvest prescriptions don't require the recognition of the species' presence and only require a cursory search for dens or sap trees. Current prescriptions require only the retention of a small number of hollow-bearing trees with no requirement for these trees to be suitable for gliders. Current prescriptions also fail to provide for recruitment of future hollow-bearing trees, thereby consigning gliders and other hollow-dependent fauna to a doomed future.

Measures to ensure survival of other species such as large forest owls, Parma Wallaby, Koala, Hastings River Mouse and Glossy Black-cockatoo are fundamentally absent from the CIFOA structure and thus from the harvest plan for Compartment 13. The results of the present searches in compartment 13 in Moonpar SF show that a range of threatened species are known or expected. However the disparity between species records and the harvest plan illustrate that sustainable populations of forest fauna will not be delivered by the CIFOA, rather it will be the architect of their demise.

This is especially the case for the Koala. Since the CIFOA removed the previous requirement for survey and instigated a minimal measure for habitat retention of browse trees, there can be no expectation that this will provide any meaningful platform for survival. Instead, Koala habitat is available for logging with no requirement to survey for the species' presence. Continued logging under these prescriptions will continue to drive populations of Koala and other forest fauna species on a downward trajectory. Current government policy is an abrogation of duty to protect threatened forest fauna.

Dr Sally Townley
B.App. Sci, Ph.D, LLB
8 July 2023