

What extinction looks like

Greater Glider den tree



A report on den tree logging breaches
in Tallaganda State Forest



What extinction looks like

A report on den tree logging breaches in Tallaganda State Forest

10 November 2023

Dr Kita Ashman WWF Australia
Andrew Wong Wilderness Australia
Scott Daines South East Forest Rescue

Summary

Greater gliders (*Petauroides volans*) are a Commonwealth and NSW Endangered species which is dependent on nesting hollows ('dens') in mature trees which can take over 100 years or more to form. Greater gliders are severely impacted by logging. If the few remaining strongholds of this species are destroyed, including Tallaganda State Forest, then eventual extinction of the species will likely become inevitable.

Forestry regulations require all greater glider den trees to be identified and protected with a 50 metre exclusion zone. It is an offence to log within these 50 metre exclusion zones.

This report finds that in Tallaganda State Forest, at least **20 den trees have been identified that should have been protected by 50 metre exclusion zones**. But Forestry Corporation NSW failed to identify and establish the required exclusion zones and as a result have logged within 50 metres of each tree.

We conservatively estimate **the density of greater glider den trees as being 2.75 per hectare** in the areas that have been subjected to logging in Tallaganda State Forest



In the recent forestry operation, 442 hectares have been logged across seven compartments. Extrapolating these conservative estimates across that area suggests that at least **1,215 den trees have likely been logged or have had logging inside their 50 metre exclusion zones**.

Forestry Corporation only identified one den tree across the entire area of over 1,800 hectares that they then commenced logging within. This astonishing failure to adequately conduct surveys which would identify and protect greater glider den trees before commencing logging means that **it is likely that 1,215 breaches have occurred** across the seven logging compartments.

Wilderness Australia, WWF Australia and South East Forest Rescue believe that prosecution should appropriately be pursued for all 1,215 of these breaches. We call for permanent protection of the nationally significant population of greater gliders in Tallaganda State Forest.



The location of 27 den trees found by WWF/WA/SEFR

-  Boundaries of logged area up to November 2023
-  50m radius exclusion zones around den tree records

A total of 20 den trees have logging within their exclusion zones

Tallaganda logging may be a consequential step towards the extinction of a species

“The southern greater glider has been made endangered in NSW due to climate change, bushfires and native forest logging severely reducing its population and habitat.”

Laura Chung, Sydney Morning Herald

“The logging of Greater Glider Habitat in Tallaganda State Forest could be the nail in the coffin of extinction for Greater Gliders.”

NSW MP Sue Higginson

The Southern Greater Glider (*Petauroides volans*; hereafter greater gliders) has recently been upgraded to ‘Endangered’ status both in NSW and nationally. The recognised primary threatening processes to this species’ persistence are logging and climate-exacerbated bushfires.

Greater Gliders’ preferred habitat precisely overlaps with the native forest logging industry’s preferred sources of sawlogs and woodchips. These are the tall, wet old growth forests of the eastern seaboard of Australia. As a result of intensive logging that has targeted this type of forest since the 1970s, core greater glider habitat is now rare. The unprecedented Black Summer bushfires of 2019-2020 burnt a large proportion of this habitat across much of the breadth of the greater gliders’ range. The very few areas of tall old growth forest that have been left unscathed by extreme fires or logging are now a critical and irreplaceable resource for this species that is on a rapid trajectory towards extinction.

If the greater glider becomes extinct in the future, the scenario unfolding now is almost certainly how it will happen. The few remaining strongholds will be destroyed one after the other to either logging or fire, and at some point in that chain of events the species will become functionally extinct, with no opportunity for recovery.

The images presented in this report show den trees, some with gliders sitting in them, surrounded by a sea of destruction due to logging. **This is what the process of extinction looks like.**

The choice we must make is to knowingly push the greater glider towards extinction, or to protect one of their last vital strongholds. This latter represents hope for this species and all others who depend on these forests, and is what a first step towards a successful recovery effort for an endangered species looks like.

A Greater Glider sitting in its hollow: den tree #26. Image by David Gallan.





Former NSW Minister for the Environment and current Chair of Wilderness Australia Bob Debus inspects a greater glider den tree surrounded by logging: den tree #3.

New den tree records

Our previous report submitted 17 den tree records located in the active logging compartments in Tallaganda State Forest.

This report provides 10 more, all taken from a single 400m-long transect sited along a snig track in compartment 2448. All ten den trees had logging within fifty metres.

The new records are:

Species	ID	Zone	Easting	Northing	Date
Petauroides volans	15	55	73001x.xx	604751x.xx	6/11/2023
Petauroides volans	16	55	73004x.xx	604752x.xx	6/11/2023
Petauroides volans	17	55	72996x.xx	604748x.xx	6/11/2023
Petauroides volans	18	55	72995x.xx	604753x.xx	6/11/2023
Petauroides volans	19	55	72987x.xx	604753x.xx	6/11/2023
Petauroides volans	20	55	72988x.xx	604752x.xx	7/11/2023
Petauroides volans	21	55	72982x.xx	604750x.xx	7/11/2023
Petauroides volans	22	55	72979x.xx	604751x.xx	7/11/2023
Petauroides volans	23	55	72974x.xx	604755x.xx	7/11/2023
Petauroides volans	24	55	72964x.xx	604757x.xx	7/11/2023

A greater glider (left) re-enters its hollow (right): den tree #20



A greater glider sitting in its hollow in den tree #15, on transect 3.



Logging is clearly visible around den trees #15 and #16, within the area that should be an exclusion zone surrounding both trees.





Den tree #12 sits entirely surrounded by logging.

Actual breaches recorded in Tallaganda State Forest

The following conditions of the Coastal Integrated Forestry Operations Approval (CIFOA) have been breached multiple times in the forestry operations undertaken within Tallaganda State Forest compartments 2447A 2448A 2449A 2450A, 2451A, 2208A and 2209A.

18. Forestry operations to be carried out competently

18.1 Every **forestry operation** must be planned, implemented and conducted:

- (a) in accordance with the conditions of the **approval**;
- (b) in a competent manner; and

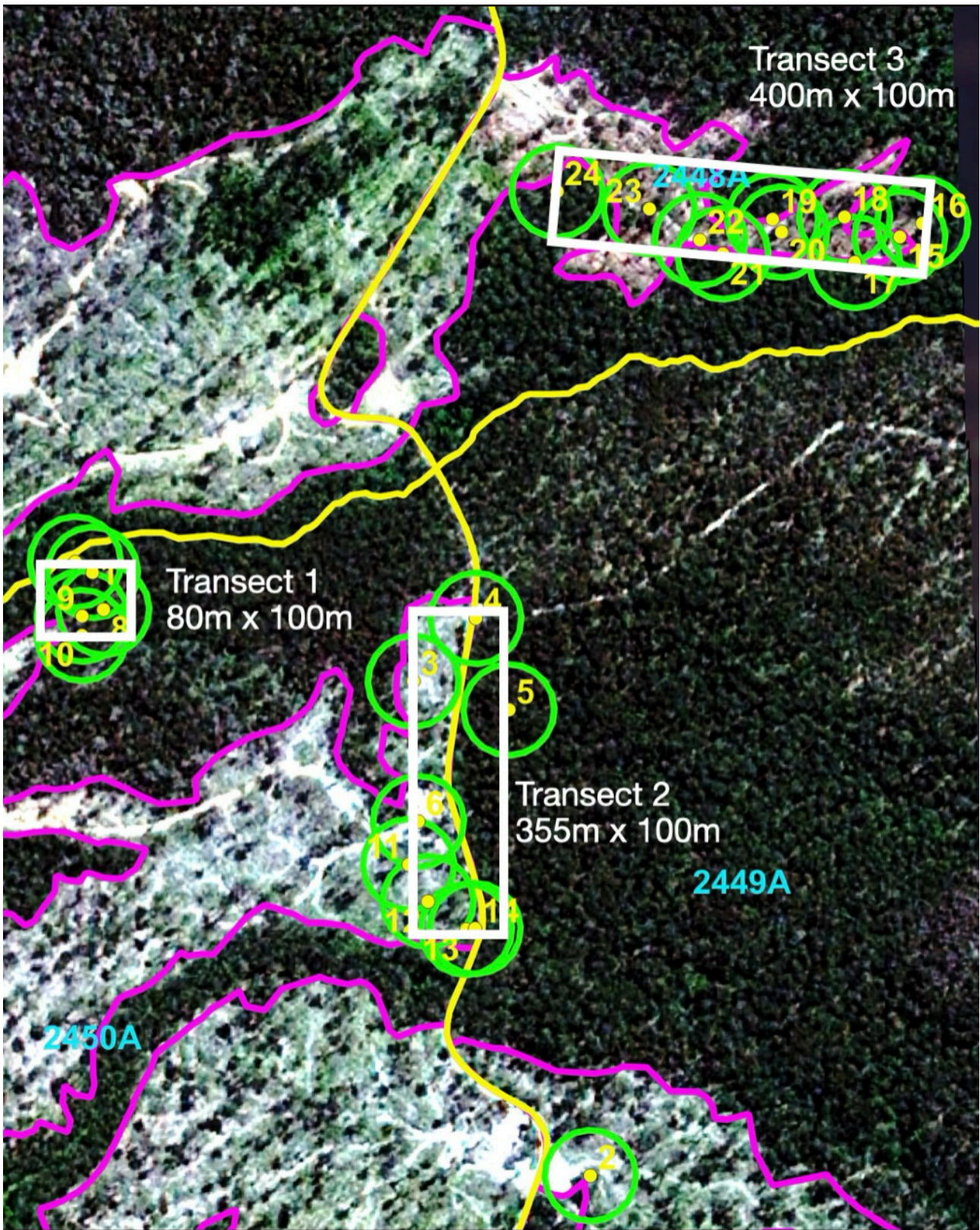
76. Nest, roost or den

76.1 An **exclusion zone** must be retained around each **nest, roost or den** as specified in **Table 4**.

Table 4: Protection of nest, roost or den

(a) 25 metre radius exclusion zone	(b) 50 metre radius exclusion Zone	(c) 100 metre radius exclusion zone
<i>Regent Honeyeater nest</i>	<i>Powerful Owl nest</i>	<i>Bush Stone-curlew nest</i>
<i>Varied Sittella nest</i>	<i>Masked Owl nest</i>	<i>Albert's Lyrebird nest</i>
<i>Gang-gang Cockatoo nest</i>	<i>Barking Owl nest</i>	<i>Emu nest of the Emu population in the NSW North Coast Bioregion and Port Stephens local government area</i>
<i>Brown Treecreeper nest</i>	<i>Sooty Owl nest</i>	
<i>Black-chinned Honeyeater (eastern sub-species) nest</i>	<i>Flame Robin nest</i>	
<i>Speckled Warbler nest</i>	<i>Scarlet Robin nest</i>	
<i>Diamond Firetail nest</i>	<i>Hooded Robin nest</i>	
<i>Grey-crowned Babbler nest</i>	<i>Glossy-black Cockatoo nest</i>	
<i>Powerful Owl roost</i>	<i>All stick nests (50 cm or greater in diameter)</i>	
<i>Masked Owl roost</i>	<i>Emu nest other than of the Emu population in the NSW North Coast Bioregion and Port Stephens local government area</i>	
<i>Barking Owl roost</i>	<i>Dusky Woodswallow nest</i>	
<i>Sooty Owl roost</i>	<i>Gliders (<i>Petaurus australis</i>, <i>Petaurus norfolcensis</i> and <i>Petauroides volans</i>) den trees</i>	
<i>Turquoise Parrot nest</i>	<i>Brush-tailed Phascogale den trees</i>	
<i>Little Lorikeet nest</i>		
<i>Swift Parrot roost</i>		

The maps contained in this report show evidence of at least 20 instances of a breach of Condition 76.1. This then equates to 20 documented breaches of Conditions 18.1(a) and 18.1(b). The realised number of breaches of these conditions across the seven compartments is undoubtedly significantly higher than these 20 instances. In the following sections, we calculate the likely number of breaches based on representative sampling methods.



Calculating greater glider den tree densities in Tallaganda State Forest

The established method for identifying a greater glider den tree is to physically see the nocturnal species entering or exiting a hollow using spotlights at night. Similarly, a glider sitting on the entrance of a hollow for an extended period immediately following nightfall is also indicative of a den. Den trees cannot be identified by examining trees from the ground during the day. However,

a Forestry Corporation NSW spokesperson admitted that broad area habitat searches, which included looking for den trees, were conducted during the day.

There are two problems with the established methodology; 1) den hollows may be obscured from sight, for example by being on the far side of the tree from the surveyor, 2) gliders are known to use multiple and as many as 20 dens, and so they may not be present at a particular den tree on any given night.

To address these problems, reputable and scientifically robust methods for identifying greater glider den trees typically rely on collecting high-quality data of den tree numbers across a representative, smaller area of forest and extrapolating those numbers across larger areas. Surveys conducted in this way can more accurately allow for den tree abundance modelling that can then be applied over a larger area of forest, provided that it is still representative of the intensive sampling.

Accordingly, our surveys followed these well-established methods.

We established three transects in areas that were representative of the broader forest across the seven compartments. This selection of representative forest considered tree density, tree species, and hollow bearing tree occurrence. The transects were walked once with a spotlight and every den tree was recorded within range of the spotlights - about 50 metres either side of the transect line. Den trees were defined as any tree with a glider seen in or on a hollow, or any hollow bearing tree with a glider perched on or near the entrance of a hollow for an extended time directly after nightfall. All records were taken in the period just after dark.

The survey area covered by the transects was 8.35 hectares; transects were 100 metres in width and 835 metres in length. In this area, 23 den trees were recorded, equating to an **average den tree density of 2.75 per hectare**.

This is a conservative estimate and it is highly likely that the figure is an underestimate for the following reasons:

- It is possible some gliders were not identified because they were on the other side of trees, obscured by vegetation, hiding, or still in their hollows;
- Gliders have multiple dens, and so it is likely that at least some den trees present in the survey area were uninhabited on the night they were surveyed;
- The majority of these transects were within recently logged areas. Greater gliders are known to be extremely sensitive to disturbance, with some sites recording their decline when logging is within two kilometres, let alone when it overlaps with the species' habitat. Therefore the logging of many trees (including den and feed trees), have significantly degraded and fragmented this habitat or killed resident greater gliders. Thus, the densities present today are likely much lower than they were before logging commenced.

This last point is possibly demonstrated (though with low sample size) by the difference between the transects themselves.

Den tree densities:

Transect 1 (primarily unlogged): 6.25 per hectare.

Transect 2 (largely logged): 2.25 per hectare.

Transect 3 (largely logged): 2.5 per hectare.

Our figure of 2.75 per hectare shows what is present within a mix of logged and unlogged forest. The figure of 6.25 per hectare for transect 1 is approximately double the density for the three transects, and may be a more accurate picture of densities prior to logging. We therefore consider our estimate of 2.75 per hectare to be conservative.

Estimating the number of greater glider den trees within the logged area

442 hectares have been logged within the seven compartments.

Due to the clear incompetence of Forestry Corporation NSW's pre-harvest surveys, many den trees that were present before logging commenced will have been felled during the logging that has occurred to date. However, we can estimate the number that were likely present before logging by extrapolating our representative survey results across the 442 hectares. While it is possible there were patches of lower densities of den trees within the other 434 hectares compared to the 8 hectares we surveyed, we are confident that our surveys were conducted within areas that are accurately representative of the broad forested areas surrounding and throughout the seven compartments, which therefore accounts for these fine scale variations

In the 442 hectares that have been logged, at a conservative estimate of density 2.75 per hectare, there would have been at least **1,215 den trees present prior to logging**. Correspondingly, this also represents the number of den tree breaches that have occurred, because not a single one of those den trees were identified by Forestry Corporation (who only identified one den tree) and therefore had no exclusion zones applied. In the event that a den tree was recorded within a riparian exclusion zone, a maximum exclusion zone of 30 metres wide would have been applied, meaning a den tree in the middle of this would still have logging within 15m of it to either side.



The area surveyed was missing many trees, which would have reduced possible den tree records and glider sightings. (Taken from the middle of transect 3)

The future

Our surveys are representative of the broad forest attributes across all seven compartments, therefore the estimated den tree densities can be applied to the area that is yet to be logged.

If forestry operations resume, then this statistic should give pause for thought: **for every 100 hectares that are logged, 275 den trees of a nationally endangered species will likely be destroyed or severely impacted.**

In northern NSW the koala, another endangered species, is being temporarily protected in a series of 'koala hubs,' and will be permanently protected with a proposed Great Koala National Park.

The greater glider deserves the same level of care and protection. It is no less important than the koala. We hope that the NSW Government will find a way to apply 'greater glider hubs' or their equivalent in the short term. In the long term, we commend the idea of a Greater Glider National Park - or a series of extensions to pre-existing national parks, such as Tallaganda National Park - of any identified stronghold of greater gliders in NSW.

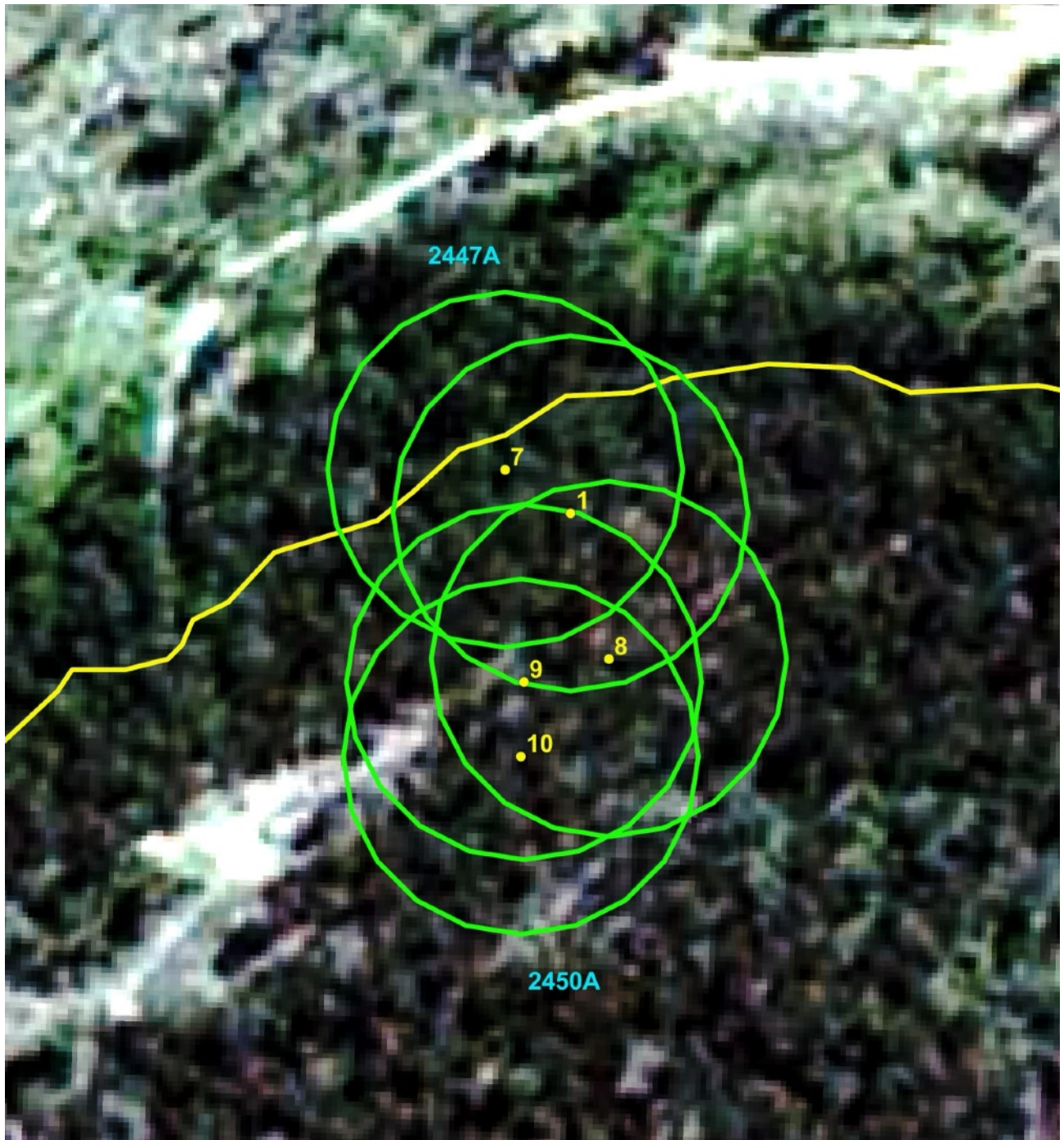
Sincerely,

Dr Kita Ashman, WWF Australia
Andrew Wong, Wilderness Australia
Scott Daines, South East Forest Rescue

Andrew Wong in the forest at the end of transect 3. This area is marked up, and will be logged if forestry operations resume



Transect 1 map



- WWF WA GG
- Buffered
- FCNSW_Coastal_IFOA_Compliant_Land_Units

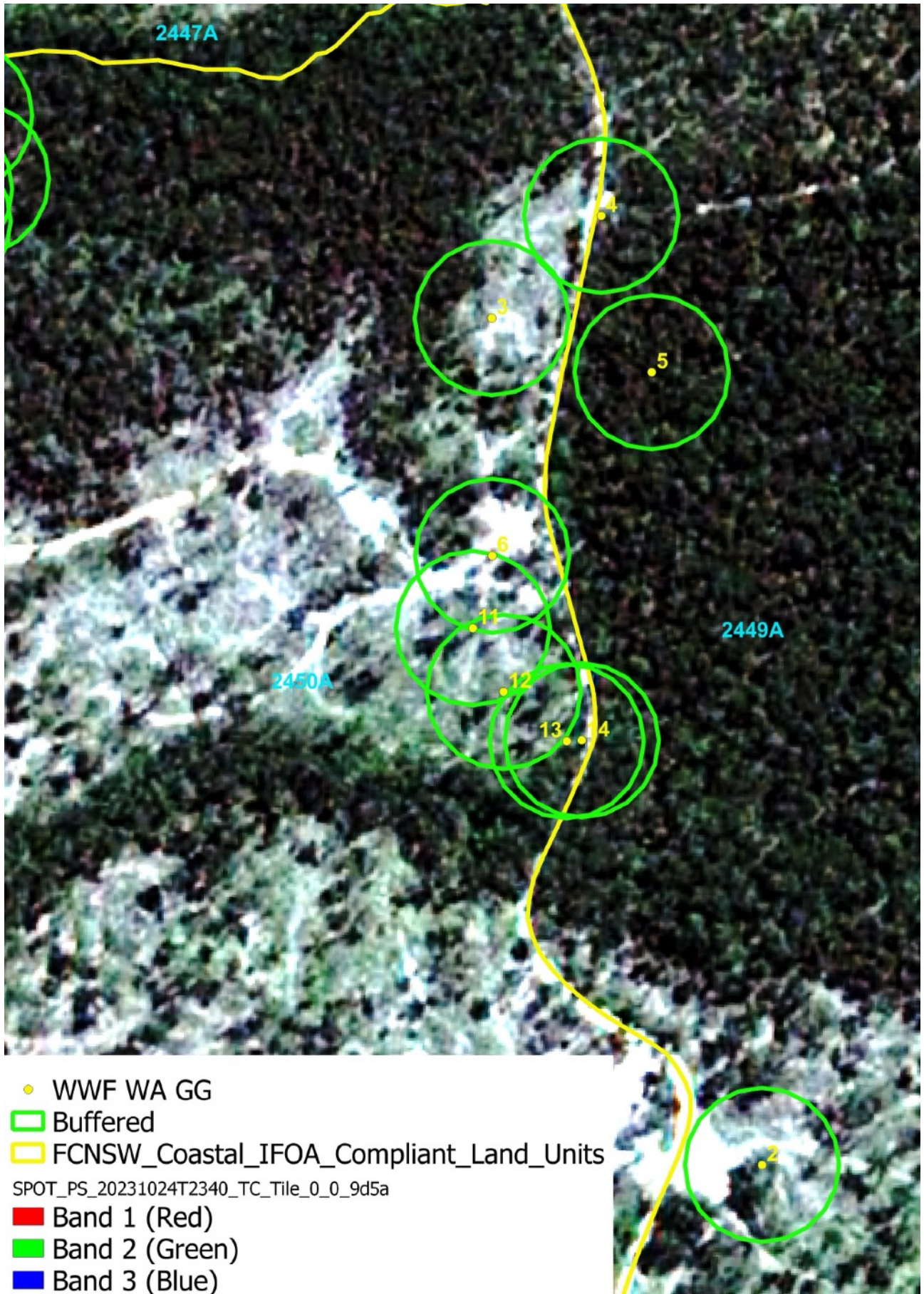
SPOT_PS_20231024T2340_TC_Tile_0_0_9d5a

- Band 1 (Red)
- Band 2 (Green)
- Band 3 (Blue)

Sentinel-2 L1C - Geology (WMS, 2023-10-31, 100%, mostRecent, EPSG:3857)



Transect 2 map



Transect 3 map

