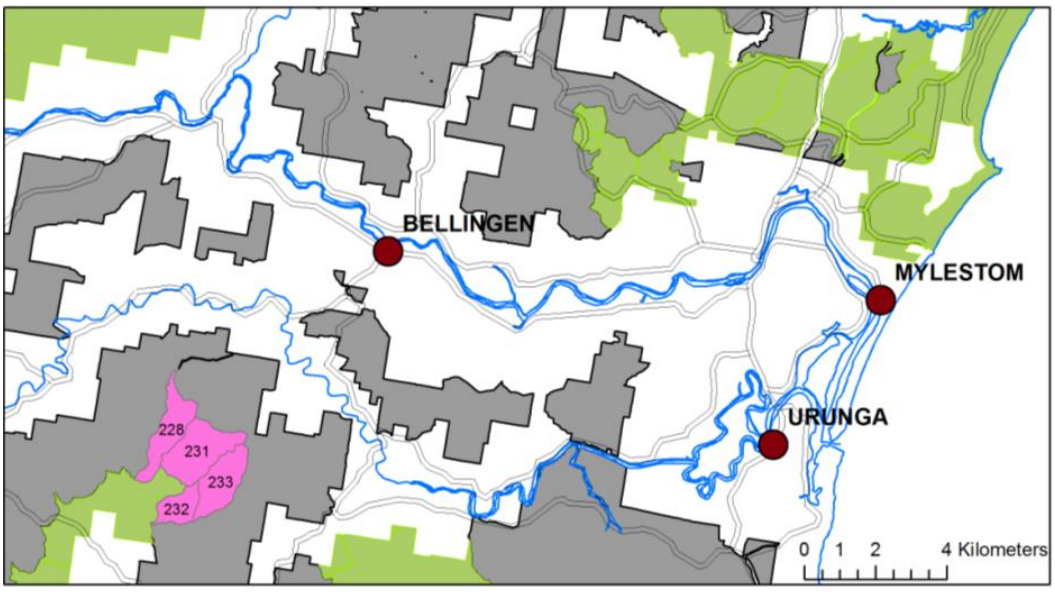
Preliminary Audit of Gladstone State Forest

Dailan Pugh, North East Forest Alliance, August 2017

The report relates to outcomes from preliminary assessments of streams, koalas and logging in compartments 228. 231, 232 and 233 of Gladstone State Forest, 6 kilometres to the south-west of Bellingen in north East NSW.



Gladstone State Forest has a diversity of forests supporting at least 9 threatened terrestrial animal species and 3 threatened plant species. This report details outcomes from our investigations to date, a number of which have been previously provided to authorities and are thus not considered in detail herein.

It is apparent that Gladstone State Forest, and in particular compartment 233, supports an important breeding population of Koalas with long term occupancy. Koalas have thus been the principal focus of our investigations.

With records of Koala high use trees along the ridge (near log dumps 2, 3, 4 and 5), 20 year historical records showing long term occupancy, and evidence of a breeding colony, compartments 232 and 233 of Gladstone SF should be recognised as core Koala habitat and excluded from logging.

There are 2 Koala call detection and 3 scat records from compartments 228 and 231, and yet the Forestry Corporation has not identified any Koala High Use Areas or that the area should be treated as an Intermediate Use Area (requiring the retention of 5 Koala feed trees per hectare). The finding of a Koala high use tree on the edge of recent logging below log dump 13, and evidence of long term use of Grey Gums for feeding, emphasise the need for something to be done for Koalas. Current logging is targeting Tallowwoods, Koala's preferred feed tree.

It is considered that compartments 228 and 231 should be immediately recognised as Koala Intermediate Use Habitat and the Threatened Species Licence requirement to protect 5 koala feed trees per hectare implemented (along with the FC agreement to only select trees above 30cm dbh for retention), with an urgent independent assessment undertaken using a scat-detection dog to identify remaining core Koala habitat.

There is concern that the Forestry Corporation may be undertaking roadworks without having done the required Koala Mark Up Searches (TSL 5.2.2), and may not be doing them ahead of logging with the thoroughness required. Even with the best will, the effectiveness of scat-searches is limited by the digging and scratching around trees by Lyrebirds in extensive areas, and by the density of lantana or vines in places. If there is any desire to achieve the objective of the TSL to identify Koala high use areas then a different approach, such as a scat detection dog, is required.

There are requirements to retain and protect all hollow-bearing trees, a recruitment tree for each hollow-bearing tree, and 3 Eucalypt Feed trees per hectare, in the net logging area. Regrettably the requirement to protect 5 Koala feed trees per hectare does not apply to the current logging, as it is not being met.

A rough assessment of 6.6ha identified 31 breaches of habitat tree selection and protection requirements of the TSL, affecting 20 habitat trees:

- 6 cases of inappropriate selection of recruitment habitat trees (5.6 (a) (ii), 5.6 (e))
- 2 cases of failure to mark hollow-bearing trees (5.6 (h) iii)
- 13 cases of excessive and intensive disturbance to soils, roots and understories around habitat trees (5.6 h (i) (ii))
- 3 cases of damaging tree trunks (5.6 h (i), (ii))
- 7 cases of debris being left around habitat trees (5.6 h (ii))

This is a conservative damage rate of 3 trees per hectare. Once the entire 176ha net logging area of compartments 228 and 231 is completed, at current rates over 500 habitat trees can be expected to have been unlawfully damaged by the reckless logging practices. Ongoing damage to retained trees needs to be stopped, damage to habitat trees urgently remediated (i.e. removal of debris or soil from around trees), and compensatory habitat trees should be retained and protected in current logging areas. The EPA must urgently investigate these complaints and ensure the reckless disregard for habitat tree selection and retention is stopped.

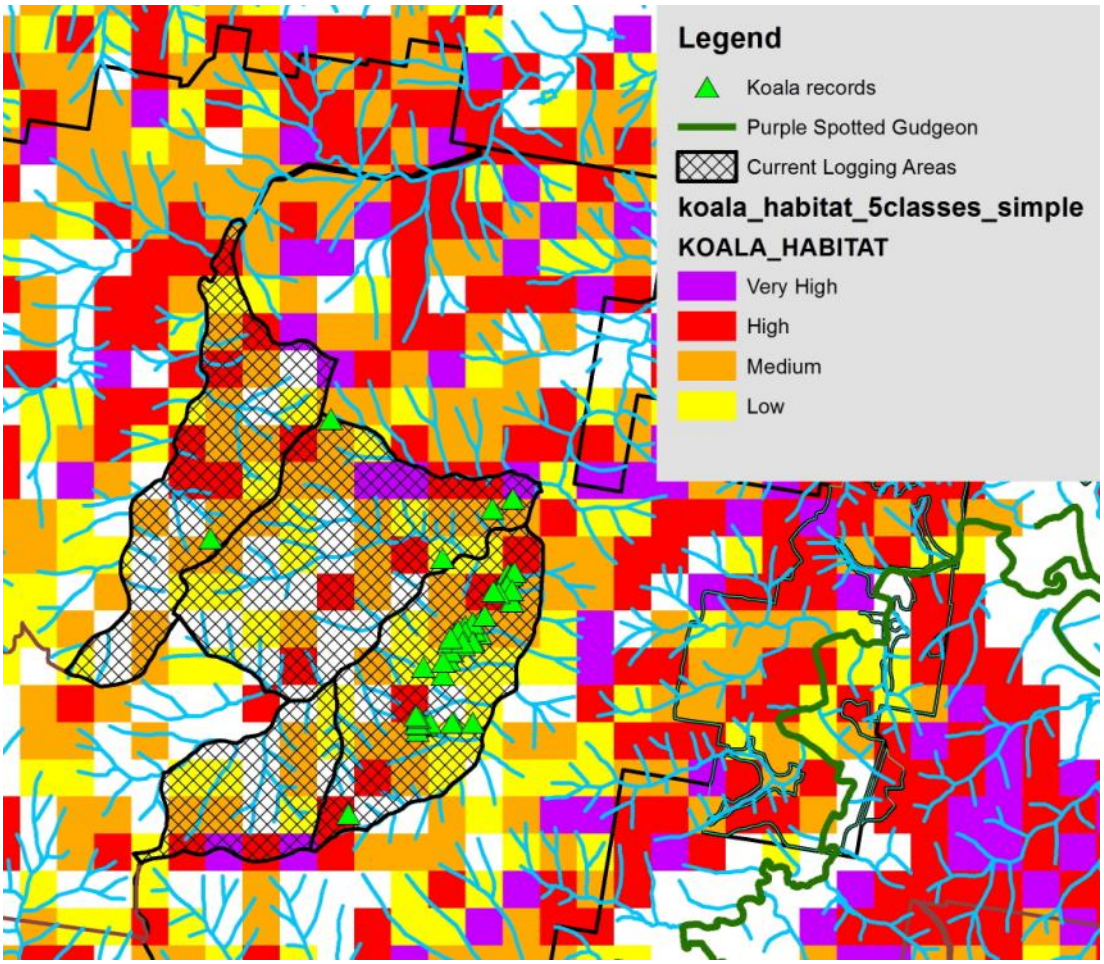
Streams encompassing identified habitat of the Endangered Purple Spotted Gudgeon and Giant Barred Frog, as well as comprising an important resource for downstream users, have been significantly degraded by sedimentation resulting from 3 unlawful creek crossings highlighted by NEFA in June. An incursion into a Great Barred Frog exclusion area (TSL 6.3) has also been identified. These offences need to be fully investigated and appropriate regulatory action taken.

The Forestry Corporation is practicing "Maximum Economic Utilisation" logging not Single Tree Selection logging, with basal area removal well in excess of the STS silvicultural limits across most of the net logging area. They are not logging within the lawful constraints of the IFOA (5) (3). There has also been widespread failure to protect ground habitat from specified forestry activities (TSL 5.17) because the Forestry Corporation are also practicing maximum understory disturbance.

The Forestry Corporation are intentionally maximising disturbance, while recklessly damaging retained habitat trees, as part of their process of converting Gladstone to a "quasi-plantation" for inclusion in their proposed "North Coast Intensive Zone".

This is strongly opposed, and irrespective of the deals done with the EPA, the Forestry Corporation has no right to flout current laws in order to undertake an unapproved and unlawful logging regime. The responsible Ministers must direct the Forestry Corporation to stop their currently illegal logging.

1. Koalas



Modelled Koala habitat and records in Gladstone State Forest.

Community surveys initially focussed on Compartments 232 and 233 given the exceptional number of Koala records from there. There were 68 trees found to have Koala scats under them when compartments 232 and 233 were last systematically searched in 1997, with five trees found to have >20 scats (22,25, 35, 40 and 70).

In their pre-logging survey in 2013 for compartments 232 and 233 the Forestry Corporation only found Koala scats under 20 trees, with >20 scats only under 2 trees (20, 25) near log dumps 2 and 5. Subsequent star searches identified 8 additional trees with scats within 100m of one tree and 6 additional trees with scats around the other, though as 3 additional trees in a row were not located on any single ordination neither area qualified as a Koala High Use Area. Compartment 233 was identified as an intermediate use area.

NEFA participated in a demonstration survey with Kalang River Forest Alliance and National Parks Association for Koala High Use Areas for around an hour on Friday 28 July 2017, near log dump 3, we located 3 trees with scats under them, one tree with 21 Koala scats and another with 11 adult scats and 1 baby (joey) scat.

Scats found under 2 trees in a demonstration search on Friday 28 July 20, the small and large scats on the right show the presence of a mother and baby.

On August 5 2017 members of the Bellingen Environment Centre and Kalang River Forest Alliance identified 15 trees with Koala scats near log dump 4, with 7 of these comprising Koala High Use trigger trees, with at least 300 adult koala scats and 80 joey scats found underneath two small Tallowwoods in the middle of proposed log dump 4, 10m from Woods Creek Road.

380 scats found under a pair of trees in the proposed log dump 4 demonstrating prolonged recent usage by at least one mother and baby.

It is In response to these findings NEFA wrote to the Minister for the Environment. Gabrielle Upton, on 6 August 2017 asking her to:

1. immediately stop further forestry operations in compartments 232 and 233 of Gladstone State Forest;
2. deploy OEH scat detection dogs to thoroughly search for Koala scats and identify occupied habitat
3. ensure that logging is permanently excluded from all identified core Koala habitat.

With records of Koala high use trees along the ridge (near log dumps 2, 3, 4 and 5), 20 year historical records showing long term occupancy, and evidence of a breeding colony, NEFA considers that there can be no doubt that compartments 232 and 233 comprise core Koala habitat and should be protected in their entirety.

It is also apparent that Koalas are widespread in compartments 228 and 231, and that there are likely to be a number of home ranges within the area. The preferred feed Tallowwood is in high numbers (but being targeted for logging). It is considered that the lower elevation eucalypt forests on creek terraces and lower slopes are likely to be important drought refugia.

In 2013 the Forestry Corporation heard calls of Koalas at two sites and identified Koala scats at 3 sites within compartments 228 and 231. Part of compartment 231 was audited for compliance, though the extent of disturbance precluded any ability to systematically search for evidence of Koalas.

20 Koala scats found on edge of recently logged area under Forest Oak on 13 August (6625645 485741). Note the damage to the trunk by being hit by machinery.

On Sunday 13 August 20 koala scats were located under a Forest Oak south of log dump 13. This constitutes a trigger tree for a star search. The search is required to determine if the rest of Compartment 231 should be treated as an intermediate use area, and thus have 5 Koala feed trees retained per hectare. The tree was on the edge of the logging and had been hit hard by a machine. The scats were recent and had been deposited post-logging, indicating that Koalas were likely present at the time of logging.

During the brief assessment of nearby areas where logging is pending, both old and fresh Koala scratches on Grey Gums proved long term occupation by Koalas. It was observed that extensive scratchings and diggings by Superb Lyrebirds in some areas makes Koala scat searches around most trees extremely difficult and therefore an unsuitable methodology to identify Koala high use trigger trees and HUAs.

Both old and fresh Koala scratches on Grey Gum prove long term occupation by Koalas in areas where logging is pending.

These observations confirm that there is an extant Koala population in these compartments and that there are likely to be Koala High Use Areas. Unfortunately the area with the highest modelled potential has been trashed. It is important that an independent assessment be made to identify any other areas of core Koala habitat remaining before they too are logged.

Compartments 232 and 233 should be recognised as core Koala habitat and excluded from logging. Compartments 228 and 231 should be immediately recognised as Koala intermediate habitat and the TSL requirement to protect 5 koala feed trees per hectare implemented, along with the agreement to select trees above 30cm dbh, with an independent assessment undertaken using a scat-detection dog to identify remaining core Koala habitat.

2. Habitat Trees

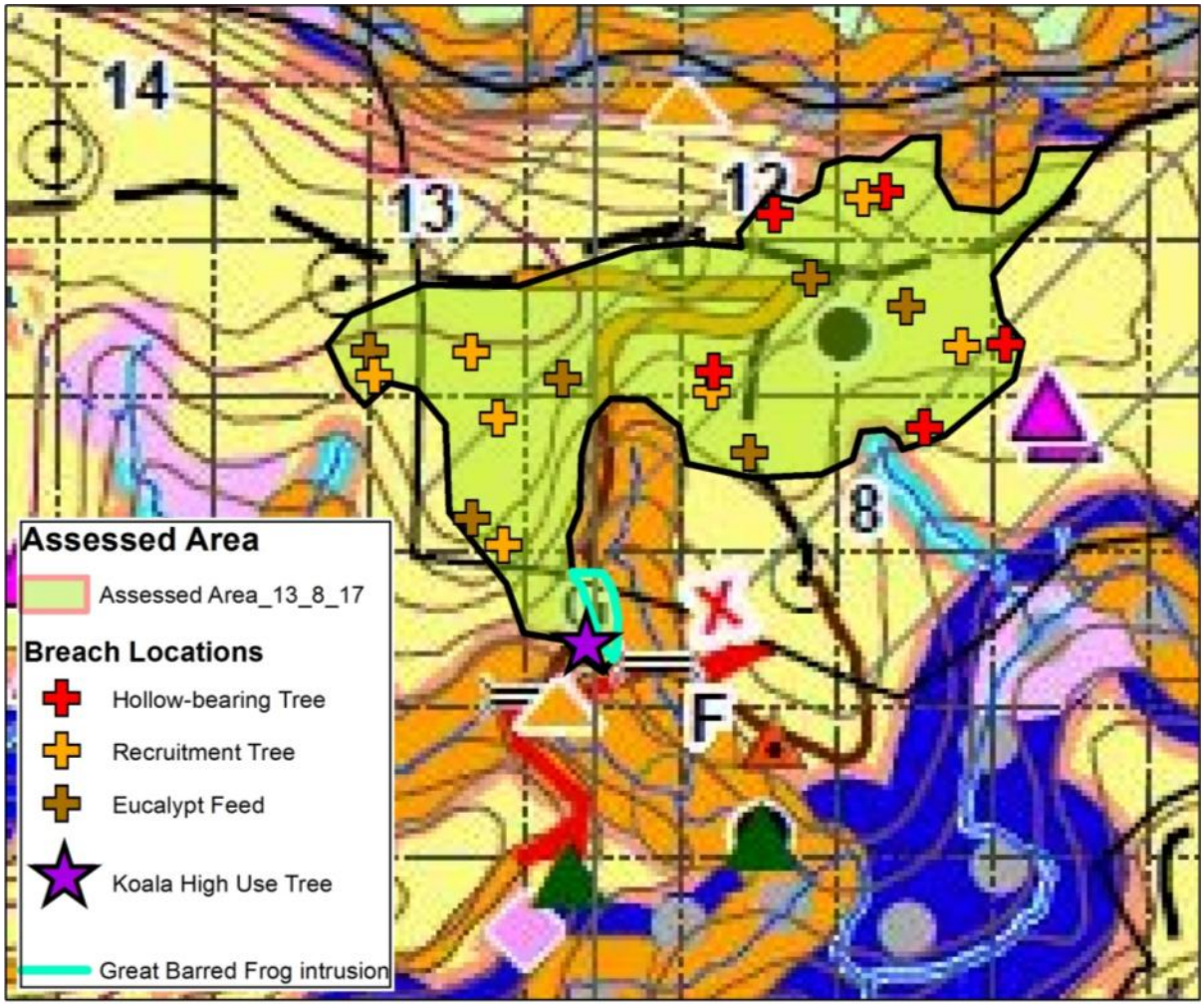
Structurally the original forest has been severely degraded. Occasional old stumps, with around 2.5m diameters, are testimony to the giants that once dominated these forests. Now the remaining big old trees sparsely scattered throughout the forest have in the order of 1.5m diameters on better sites. The larger mature tree component is similarly depleted. There is variably aged regrowth from past logging or fires. The scattering of mature trees, or trees approaching maturity, are being targeted for logging. Where unlogged the understorey is predominately natural and varied, with limited areas where lantana is a significant problem.

Habitat tree retention requirements are for up to 5 hollow-bearing (H) trees per hectare (where they remain), retention of one healthy tree from the largest size class as a recruitment (R) tree for each retained hollow-bearing tree, and 3 mature eucalypt feed (E) trees per hectare. As only compartment 233 has been identified as a Koala Intermediate Use Area, there are no requirements to retain 5 Koala primary browse trees per hectare in current logging.

Joe Sparks undertook an initial audit of Gladstone State Forest for NEFA and the Kalang River Forest Alliance in June (Community Audit for Forestry Corporations Native forest operation in Compartments 231/233 Gladstone state forest (5km south of Bellingen)) and identified that a sound 1.5m diameter Grey Gum marked as a H tree had been cut down near log dump 13 and locations for a R tree and an E tree that had been damaged by logging.

A large Grey Gum belonging to the largest cohort of trees remaining was identified for retention but wantonly cut down on the grounds it was in the way of a log dump. It was bulldozed into a pile for burning. This clearly displays the contempt the Forestry Corporation for protecting the severely depleted stocking of large hollow-bearing trees in the area.

A recently logged area covering some 6.6 ha of the mapped net logging area in the vicinity of logging dumps 12 and 13 in Compartment 231 was roughly assessed by one person on the afternoon of 13 August. Searching was severely hampered by gross logging debris. Only partial assessment of habitat tree retention was possible. Some adjacent unlogged forest was also traversed.



Assessed Area in compartment 231 showing area roughly searched, Koala High Use Tree, habitat tree breaches and intrusion into Great Barred Frog exclusion.

Across the 6.6ha assessed there should be 20 trees retained as eucalypt feed trees, and, given their low numbers, all hollow-bearing trees and as many recruitment trees as habitat trees. From my sample it appears that more trees are being marked as R trees than H trees, though with less than one hollow bearing tree per hectare the stocking is extremely low. There does not appear to be sufficient E trees retained, with 11 marked for retention identified as having been damaged. Given the high targeting of Tallowwood for logging, and low numbers retained (i.e. 4 of the 20 identified), it is doubtful that the Koala feed tree retention rate would have been met (if restricted to trees over 30cm).

There were a total of 20 habitat trees identified that did not satisfy retention and/or protection requirements. This was the vast majority of marked trees. Two of the hollow-bearing trees were not marked for retention, with 18 marked for retention as either hollow-bearing (H) trees (3), Recruitment (R) trees (9), and/or Eucalypt Feed (E) trees (11). One of the H trees and 4 of the R trees were also marked as E trees.

Recruitment habitat trees must be selected from the largest trees, with good crowns, not be suppressed, have minimal butt damage and have "good potential for hollow development and long term survival". Most of the recruitment trees observed were of poor form, 6 were considered to be inappropriate choices on the basis of old damage, deformities or being suppressed. In many cases nearby trees from older cohorts have been cut down.

The TSL requires that habitat trees "must be marked for retention" and that damage to habitat trees "must be minimised to the greatest extent practicable", stating (5.6 h ii)

> *In the course of conducting specified forestry activities, logging debris must not, to the greatest extent practicable, be allowed to accumulate within five metres of a retained hollow-bearing tree, recruitment tree, ... eucalypt feed tree ... Logging debris within a five metres radius of retained trees must be removed or flattened to a height of less than one metre. Disturbance to ground and understorey must be minimised to the greatest extent practicable within this five metres radius. Habitat and recruitment trees must not be used as bumper trees during harvesting operations.*

It is in relation to these requirements that the Forestry Corporation fails dismally. Thirteen of the habitat trees identified have extensive and deliberate soil and root disturbance around their bases. Three have suffered significant trunk damage by being hit by machinery or logs, with the small external injuries in two masking the exctensive internal injury. Seven had debris left around them increasing risk of death or injury in the next fire. These breaches variously affected 18 of the retained habitat trees.

The widespread disturbance to ground and understorey around trees demonstrates a reckless attitude towards compliance with legal requirements for the protection of habitat trees. This is also not consistent with requirements (TSL 5.17) that "SFNSW must, to the greatest extent practicable, protect ground habitat from specified forestry activities". Disturbance to understorey vegetation is being maximised.

The net logging area for compartments 228 and 231 is 176 ha. The extrapolation of these results across the two compartments suggests that by the time logging is completed over 500 habitat trees can be expected to have been unlawfully damaged in the logging.

LEFT: H tree (Tallowwood). Extensive soil disturbance with soil pushed up over base and snig tracks on two sides within 0.5 and 2 metres (6625935 485934). RIGHT: R tree (Tallowwood). Debris within 5 m (orange tape) and soil disturbance with 1.4 metres (6625932 485920).


LEFT: Unmarked 1.6m diameter H tree (Tallowwood), debris (Large dead pipe makes tree particularly vulnerable to burning). (6625921 485862). RIGHT: E tree (Bloodwood), debris, soil disturbance within metre (6625861 485947).


LEFT: H tree (mahogany). Snig tracks constructed both side of base, up to 0.5m from base (6625837 486011). RIGHT: R tree (Mahogany), snig track constructed up to base, large root severed 40cm from trunk (6625836 485983).


LEFT: Unmarked H (Brush Box), has hollows, debris (6625783 485959). RIGHT; E tree (Bloodwood) soil disturbance to within 1 metre, road 4.5m, some debris (6625880 485886).


LEFT: R & E tree (ironbark), spoil pushed against tree, snig track adjacent to base, significant old base damage, suppressed (6625806 485821). RIGHT: H tree (Turpentine) debris, spoil near base (6625819 485823).


LEFT: E tree (Bloodwood) road constructed next to base (6625767 485846). RIGHT: E tree (bloodwood) spoil pushed against tree, road 2.1. m (6625815 485725).


LEFT: R&E tree (Mahogany), tree base hit severely, inner bark separated, spoil against trunk, bulldozing 3 sides, suppressed (6625832 485667) RIGHT: E tree (Bloodwood), tracks to within 1.6m and 3m two sides, suppressed (6625833 485601).


LEFT: R tree (Tallowwood) trunk severely bashed and under bark separated (6625817 485604) RIGHT: R & E tree (Ironbark), trunk severely bashed, spoil pushed around trunk, track within 1 metre (6625789 485684).


LEFT: R&E tree (ironbark) track constructed within 1 metre. RIGHT: R tree (Blackbutt), severe butt damage, suppressed (6625725 485667) RIGHT: R tree (Blackbutt), note the severe butt damage, appears to have half grown over a log, since moved but leaving a very weak tree (6625707 485687).


LEFT: R tree, deformed, large burl, suppressed (6625707 485687) RIGHT: R tree (ironbark), debris (6625685 485714)

3. Logging Intensity

Logging intensity on State Forests is limited by the Integrated Forestry Operations Approval (IFOA). The IFOA (5) (3) is very specific in stating "*This approval applies only to logging operations where trees are selected for harvesting using Single Tree Selection or Australian Group Selection*". No other silvicultural practices are legally allowed.

The objective of Single Tree Selection is to maintain a self-sustaining forest of multiple age/size classes. Basal area removal is limited to 40% and no trees below 20cm dbh are permitted to be removed. In these forests the Forestry Corporation claim to be practicing "*STS medium*" with the objective "*to remove all saleable products within the constraints applied by the harvesting plan*". They claim that basal area removal will be limited to 35%.

While basal area retention was not quantified in this assessment, it is obvious that more that 40% of the basal area is being removed across most of the net logging area, with removal of 80-90% in places. The Forestry Corporation is actually practicing "Maximum Economic Utilisation" logging, with basal area removal well in excess of the Single Tree Selection silvicultural limits across most of the net logging area. They are not logging within the lawful constraints of the IFOA (5) (3). It is also apparent that vast majority of the understorey is being removed or grossly disturbed in contravention of requirements (TSL 5.17) that "*SFNSW must, to the greatest extent practicable, protect ground habitat from specified forestry activities*".

4. Giant Barred Frog

The Giant Barred Frog requires 30m exclusion zones to be placed on all streams within 200m of a record. They are widespread around streams at lower elevations, with their habitat significantly affected by sediment runoff from the already identified inadequate creek crossings. In the assessed area there was one significant incursion into a Great Barred Frog exclusion area in contravention of TSL 6.3 (see above map),

Logging into a Giant Barred Frog exclusion area (around 6625684 485753), a 30 m buffer was required on the creek though logging extended to within 16m of the creek.

Giant Barred Frog (Photo D. Milledge)

5. Streams

Joe Sparks undertook an initial audit of Gladstone State Forest for NEFA and the Kalang River Forest Alliance in June (Community Audit for Forestry Corporations Native forest operation in Compartments 231/233 Gladstone state forest (5km south of Bellingen)), identifying 3 stream crossings constructed in contravention of the Fisheries Licence that were causing significant pollution of Woods Creek within habitat of the Giant Barred Frog and the Purple Spotted Gudgeon.

Pollution occurring at Crossing B reported to authorities on the 18th of June 2017. Remedial work has been undertaken, though the silt persists and legal action is awaited.

Remedial work has since been undertaken to upgrade the crossings, though extensive sedimentation of the creek downstream from the crossings is still evident.

Extensive siltation upstream and downstream of crossing A, 27 July.