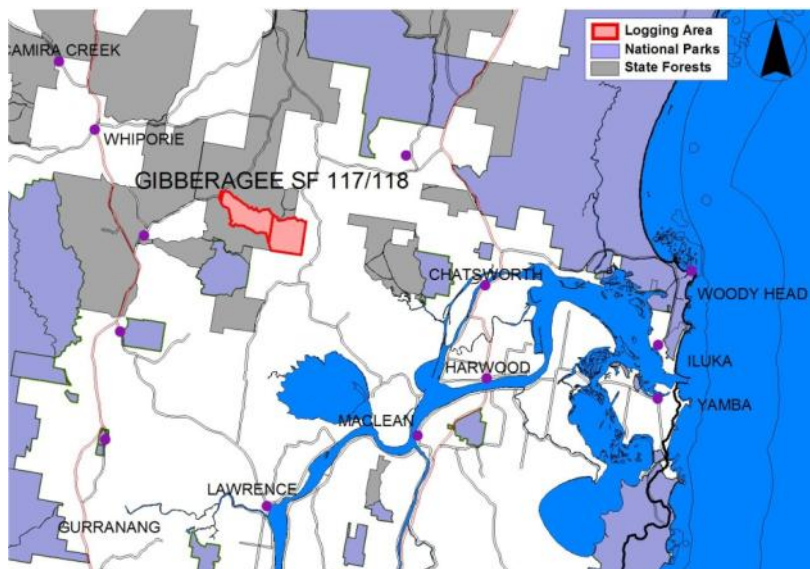


# Preliminary Audit of Gibberagee SF

Dailan Pugh, March 2017



This audit covers compartment 118 and part of 117 of Gibberagee State Forest, west of Woody Head in the lower Clarence valley. Logging has been underway since October, and is still current.



NEFA undertook a preliminary assessment of a small part of the area on 6 February 2017, identifying a variety of problems and providing a "Preliminary Audit of the Endangered Narrow-leaf Melichrus in Gibberagee SF" to both Fisheries NSW and the Environment Protection Authority (EPA) on 8 February 2017, identifying problems with the management of the nationally endangered Narrow-leaf Melichrus (*Melichrus sp. gibberagee*), habitat trees and unmapped drainage lines.

There followed a ludicrous process where EPA invited us out to the forest on 10 March to show them breaches of Narrow-leaf Melichrus buffers. When they arrived they had the Forestry Corporation with them, who immediately ordered us out of the forest without even allowing us to show them more breaches we had just found nearby.

The Forestry Corporation then sent a backdated letter to me threatening legal action if I returned to the forest on the grounds that it is a "closed" forest. From previous experience NEFA had no confidence that either the EPA or Fisheries would attempt to identify any additional breaches aside from those we had initially reported. We have long given up on the assumption that if we highlighted problems this would initiate a thorough investigation by the regulatory agencies.

When we became aware that Fisheries NSW had mapped habitat for Purple-spotted Gudgeon within the compartment, and told us of their unwillingness to look for breaches that we hadn't first identified, it was apparent that neither the Narrow-leaf Melichrus nor the Purple-spotted Gudgeon would get the protection they were legally entitled to. A desk-top review identified 41 other State forest compartments where unmapped drainage lines in, or upstream from; mapped habitat for Purple-spotted Gudgeon were identified for logging in current operations

Despite the Forestry Corporation's threats, NEFA felt it had no alternative but to return to the forest to undertake further investigations of both Narrow-leaf Melichrus buffers and the protection of "unmapped" streams for Purple-spotted Gudgeon. On Sunday 26 March 2017, when there were no forestry operations underway, NEFA undertook a further audit, the outcomes of which are described below.

This audit report includes the results documented in "Preliminary Audit of the Endangered Narrow-leaf Melichrus in Gibberagee SF" and supersedes that audit.

## SUMMARY OF FINDINGS

### **Trashing Fish Habitat (Section 2)**

It is apparent that the Forestry Corporation have not undertaken the required Review of Proposed Operation(s) in accordance with FL 9.2 and have not prepare a "Pre-Logging and Pre-Roading Aquatic Habitat Assessment" that considered the Purple-spotted Gudgeon in accordance with FL 9 (a)(c).

For this audit two mapped "unmapped drainage" lines (UDL) were inspected in the area of Purple-spotted Gudgeon habitat identified by Fisheries NSW. Both were considered to also satisfy the definition of wetlands under the Fisheries Licence (FL) and Threatened Species Licence (TSL). Both were found to have been carelessly and recklessly logged, with little protection of riparian habitat, huge volumes of logging debris pushed and dropped into streams, and snig track crossings of streams. No protection was provided and there was no attempt to minimise damage, if anything the damage was increased in the UDLs. They were literally trashed. NEFA found:

1. Both UDL/wetlands were found to have no exclusion or buffer zones identified around them. This is in direct contravention of FL 7.1(b)(c) and 7.2(b), and the TSL 5.1 (f)(h) and 5.9(c)(g).
2. Both UDL/wetlands were found to have forestry activities, harvesting machinery, earthworks and felling of trees within what should have been their exclusion and buffer zones, in direct contravention of FL 7.4(b)(c)(d)(e), FL 7.5(b)(c)(d), TSL 5.9(a) and TSL 5.1(a))(i)(ii)(iii)

From this assessment it is evident that 6 of the 7 stream crossings assessed that involved in-stream works in Class 1 habitat of the Purple-spotted Gudgeon do not satisfy the FL 8.2.1.design requirement for in-stream works.

### **Trashing of Endangered Ecological Communities (Section 3)**

From this assessment it is evident that the Forestry Corporation has targeted at least one area of mapped Endangered Ecological Community Sub-tropical Coastal Floodplain Forest of the NSW North Coast bioregion for intensive logging. From the intensity of logging in the vicinity we expect other stands to also have been trashed. Given that this stand was mapped, this trashing of the EEC appears to be a deliberate and intentional breach of section 118A(2) of the National Parks and Wildlife Act 1974.

### **Narrow-leaf Melichrus (Section 4)**

In total NEFA have so far identified 14 Endangered Narrow-leaf Melichrus that have had forestry operations conducted within their 50m exclusion zones. Eight have had roading conducted within their buffers, often within a few metres of the plants, and 6 have had logging operations extend within what should be exclusion zones, by up to 18 and 22m in the worst cases.

NEFA considers

1. the failure of the Forestry Corporation to locate any Narrow-leaf Melichrus in the net logging area as part of the harvest planning process indicates that either the compartment traverses required by TSL 8.7 were not done, or were not undertaken by a suitably qualified person.
2. that exclusion zone boundaries, at least at some sites, have not been marked on the ground in accordance with 5.1 (f) and (i).
3. these logging intrusions are in contravention of the TSL 5.1 (a), as the roading operations may be if not approved in accordance with TSL 5.1 (b).

The EPA needs to investigate

1. whether Narrow-leaf Melichrus exclusion zones were identified and mapped in accordance with TSL 3(a) and 3(e) and whether operational plans were revised to show Narrow-leaf Melichrus records and exclusion zones before roading and logging were undertaken.
2. whether EPA approval was given for roads constructed, reopened and used through the Melichrus exclusion zones in accordance with TSL 5.1(b) and Schedule 6.
3. whether roads were constructed, reopened and used prior to Melichrus, and the required exclusion zones, being identified in accordance with 5.1(h).

NEFA maintains its February request for a fire and lantana management plan to be prepared and implemented for the Narrow-leaf Melichrus occurring in and near compartment 118 of Gibberagee SF as a matter of urgency.

## Habitat Trees (Section 5)

Nineteen habitat trees were identified as being damaged in the small part of the logging area assessed, with an additional 4 hollow-bearing (H) trees wrongly marked as recruitment (R) trees (this is a significant percentage of habitat trees within the inspected area). From incidental observations NEFA has so far documented:

1. 5 hollow-bearing trees (H) that had been damaged in the logging (breaches TSL 5.6 (h)(i)).
2. 14 marked recruitment (R) trees that had been damaged in the logging (breaches TSL 5.6 (h)(i)).
3. Excessive debris left around 2 habitat trees (breaches TSL 5.6 (h)(ii)).
4. 7 marked recruitment (R) trees that failed to satisfy the selection criteria, in that they should have been marked as H trees.

NEFA is concerned that only partial marking of recruitment trees is occurring before logging (breaches 5.6 h(ii))

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# 1. Background

The dealings with Government Agencies over this assessment of Gibberagee deserve special mention as they are indicative of the problems NEFA experiences trying to hold Government agencies to account.

The Narrow-leaf Melichrus is named *Melichrus sp. gibberagee* as it is yet to be formally described. This species was discovered during pre-logging surveys brokered with the Minister for Forests by NEFA in 1997. The Forestry Corporation identified an exclusion zone, included it in a draft harvesting plan, and this was approved by the then Regulatory and Public Interest Committee (RaPIC) subject to the condition "*No new roads/dumps be constructed or reopened within interim exclusion zones for new plant species*".

NEFA attended a site inspection on 17 December 1997 where botanists identified individuals outside the interim exclusion zone which Forestry Corporation agreed to protect. When the Forestry Corporation and NPWS were in the process of developing an agreed management plan in January 1998 the Forestry Corporation used a bulldozer to reopen and widen a track through the middle of their interim exclusion zone for the newly discovered population. resulting in the Forestry Corporation (Doug Binns) admitting 23 Narrow-leaf Melichrus were eliminated by grading, and another 7 plants damaged. NEFA's audit identified an additional 194 individuals that had disturbance (tree heads and machinery disturbance) within 10m (10m buffers were all that were required back then).

State Forests blamed the contractor for not following instructions and suspended him. The contractor in turn claimed he was following State Forests' instructions and, with the backing of the Forest Products Association, commenced legal proceedings to be reinstated. State Forests gave in without a fight, implying they were in the wrong. In March the NPWS approved them to upgrade the illegal road and to log up to 10m of Narrow-leaf Melichrus. They got away with it scot free.

Narrow-leaf Melichrus is a small shrub, about 1 m tall. It is identified that it is only known from a single population in compartment 118, Gibberagee State Forest, and adjacent private property, about 40 km south of Casino. The entire population occurs over an area of around 1 km<sup>2</sup>. It is now listed under both State and Federal legislation as Endangered and requires a 50m exclusion zone be created around it.

It was thus decided this year to undertake and audit of current logging in compartment 118 of Gibberagee SF in the vicinity of the only record of this species given in the harvesting plan. I undertook a preliminary assessment of a small part of the area for NEFA on 6 February 2017, focussing on Narrow-leaf Melichrus and identifying a variety of problems which were documented in the NEFA report a "Preliminary Audit of the Endangered Narrow-leaf Melichrus in Gibberagee SF", which was provided to both Fisheries NSW and the Environment Protection Authority (EPA) on 8 February 2017, recommending that:

1. a fire and lantana management plan be prepared and implemented for the Narrow-leaf Melichrus occurring in and near compartment 118 of Gibberagee SF as a matter of urgency
2. the EPA ensures the legal identification and marking of exclusion zones for the Narrow-leaf Melichrus
3. the EPA intervene to stop the continuing reckless damage being inflicted on habitat trees.

4. unmapped drainage lines be excluded from logging to protect important downstream habitats, particularly the seagrass beds of The Broadwater.

On 3 March 2017 Bryce Gorham emailed me asking me to attend an inspection with EPA staff at Gibberagee SF next Friday the 10<sup>th</sup> of March, stating:

*The purpose of this inspection is to accurately identify (on ground identification) of the alleged breach of intrusion into a Melichrus sp. Gibberagee exclusion zone detailed on page 4 of your report*

While it was inconvenient for me as it was the day I mind my grandson I thought it best to not provide the EPA with an excuse not to investigate this complaint in a timely manner. It was already 2-3 months since the area of my complaint in Gibberagee had been logged, and the evidence was already fading. I also believe it is important to have the opportunity to argue our interpretation of the legislation on the ground, as the EPA usually only get the Forestry Corporation's view. I had no idea whether logging was continuing elsewhere in the compartments, though I expected that the EPA would only invite me if they had the authority to do so.

We were due to meet at the Melichrus site at 11 am. The EPA were late so I went for a wander and identified two more breaches of Melichrus buffers, indicating that the problem is far greater.

When the EPA belatedly arrived they had a Forestry Corporation employee, Jamie Churchill, with them (I assume he had been alerted to our presence by forestry workers). Bryce Gorham told me I had to leave because the Forestry Corporation wanted me to. A position that was repeatedly stated by Mr. Churchill, claiming it was a workplace and he wanted me to leave the forest on the grounds of occupational health and safety. I insisted that I had been invited into the forest by the EPA and that, in the area where we were, logging had finished some 3 months ago so we were not interfering with an active operation and there were no safety issues.

I told both the EPA and Forestry Corporation that I had just found another legal breach nearby, describing to them the breach where logging was within 28m of a Melichrus, and I asked to at least be able to show it to them, the Forestry Corporation refused and the EPA went along with them. With no support from the EPA I had no option but to leave.

After driving 2 hours to get there I was forced to leave without being able to show the EPA anything at all. What a waste of my time. The EPA requested we talk outside the forest, where they tried to justify the failure to undertake the site inspection as inconsequential. I would not have bothered accepting the EPA's invitation if I thought there was no point to it, and I certainly would not have gone if I had of known that the EPA did not have the authority to invite me.

I have attended site inspections with the EPA of breaches I have reported on 5 occasions, on 2 occasions (first time at Royal Camp SF) and this one I have been told to leave without being able to show the EPA any breaches (once at the EPAs insistence and once at the Forestry Corporations). On two other inspections I have taken the EPA to breaches only to have the EPA ignore most of them in their reports (second time at Royal Camp SF they claimed they were unable to find breaches we took them to, at Cherry Tree they ignored the breaches we took them to, or claimed there was insufficient evidence). Doubleduke SF was the only one that they paid attention to, though they botched a prosecution over the Endangered Ecological Community and the Forestry Corporation got off scot free.

On 13 March 2017 I wrote to Mark Gifford, Chief Environmental Regulator of the Environment Protection Authority complaining about the aborted site inspection at Gibberagee, and the general futility of attending site inspections with the EPA, though am yet to get a response.

As an outcome of the botched site inspection the Forestry Corporation (Dale McLean) sent me a letter telling me that at the time of my first inspection "*this area of forest was closed to unauthorised persons*", stating:

*I also note that your Report is a 'Preliminary' report, indicating an intention to return to conduct further inspections. Entering this area without proper authorisation is not permitted and if detected, Forestry Corporation may issue a Penalty Infringement Notice or pursue prosecution.*

They threatened me with a \$2,200 fine. The most notable feature of the letter is that it is dated "6/03/2017" but the envelope is post stamped "13MAR17". The Forestry Corporation have intentionally backdated their letter to make it appear that they warned me prior to my site inspection with the EPA. This is fraudulent. This is an extraordinary action for a Government agency.

NEFA have previously audited closed forests at Cherry Tree SF and Richmond Range SF and the Forestry Corporation have never complained because we do not interfere with their operations, so I would be surprised if they were going to complain this time until they needed to retrospectively justify expelling me from the forest.

Forestry Corporation's website identifies that only two native forestry operations in NSW are subject to closures for logging, and these are the two closest to me at Gibberagee and Bungawalbin. The Forestry Corporation began closing forests in this region after we exposed their illegal logging of Koala habitat in Royal Camp State Forest.

On the 21 March 2017 I became aware that Fisheries NSW had mapped habitat of the Endangered fish Purple-spotted Gudgeon in the compartments, so I wrote them:

*I note that the report on threatened species shows the Endangered Purple-spotted Gudgeon in the vicinity of Gibberagee. I also note from the Google Earth maps that Filans Creek is identified habitat for Purple-spotted Gudgeon. You assured me that these maps have been provided to the Forestry Corporation so there is no excuse for them not protecting unmapped drainage lines at Gibberagee. I therefore ask you to investigate the Forestry Corporation's illegal logging of unmapped drainage lines at Gibberagee and to stop it forthwith, if you didn't do so when I first complained.*

After years of requests I am still trying to get Fisheries NSW to provide me with mapping of habitat for the Oxleyan Pygmy Perch. Their website (along with other documents) identifies the provision of such maps to the Forestry Corporation as a completed recovery action, claiming as an outcome "*The provision of detailed habitat maps to Forestry NSW as part of the Integrated Forestry Operations Approval process for the Upper North East Region to ensure impacts are minimised during harvest activities*". Yet in response to my request Fisheries told me there is no mapping, stating (Marcus Riches 21/03/2017) "*As I advised some species distributions (eg Oxleyan Pigmy Perch) are determined via records, summary of distribution and habitat preferences*".

We have raised concerns with Fisheries NSW over the Forestry Corporation's repeated refusal to take downstream records of Oxleyan Pygmy Perch into account, and protect unmapped drainage lines, on three previous occasions (Doubleduke 2010, Wedding Bells 2011, and Royal Camp 2012). In not one of those cases has Fisheries written a response to us regarding this species. In relation

*NEFA Audit of Gibberagee SF*

to our Royal Camp complaints (including a creek crossing for which Fisheries issued a formal caution letter to FCNSW) the Forestry Corporation wrote to the EPA (Craig Busby 19 April 2013):  
*DPI Fisheries auditors also visited the site to investigate alleged (third-party) poor soil and water management practices associated with the harvesting. These were dismissed by the auditors as trivial, and in part, vexatious.*

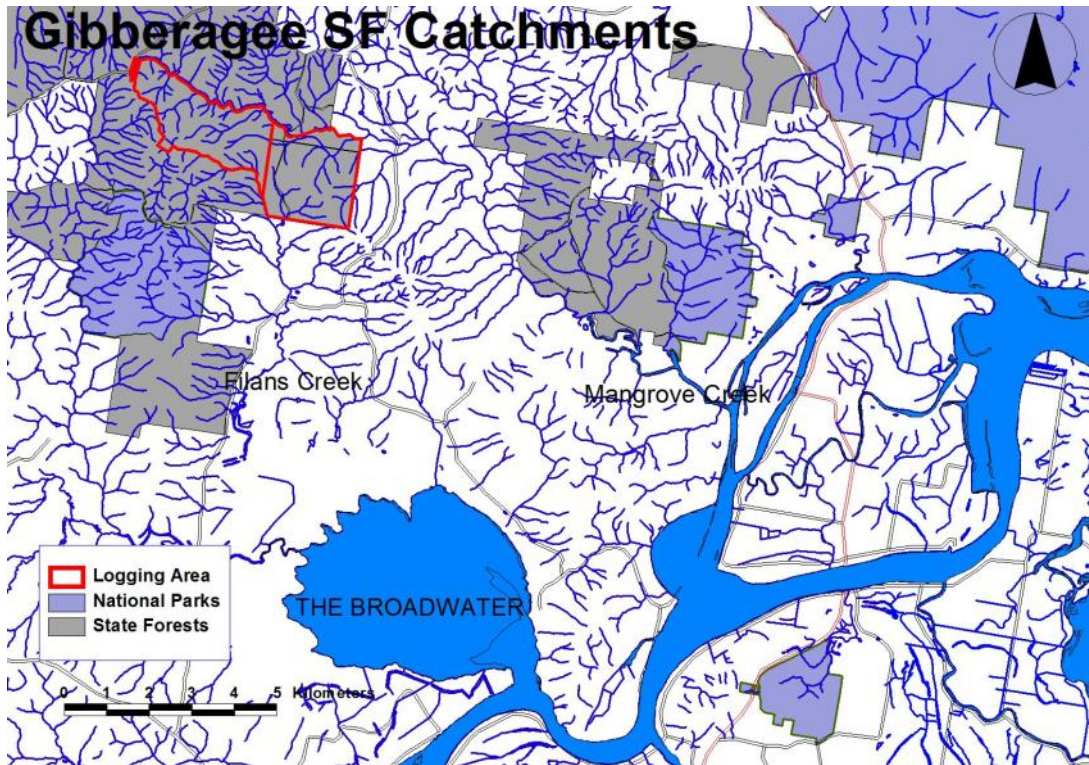
If this is true, it is worrying that Fisheries would treat our attempts to get the Oxleyan Pygmy Perch appropriately protected as vexatious, though this may explain their actions. As a result of Fisheries obfuscation I have been unable to consider this species in this audit report, though it was identified in our "Preliminary Audit of the Endangered Narrow-leaf Melichrus in Gibberagee SF" as an issue of concern, and remains so.





## 2. Trashing Fish Habitat

The logging area is drained to the east by Mangrove Creek directly into the Clarence River Back Channel some 16km downstream, where it travels to the North Arm at the mouth of the Esk River and then into the mouth of the Clarence River, and by Filans Creek to the south directly into the largest seagrass beds on the north coast in The Broadwater, and thence into the Clarence River.



The Harvesting Plan states "*No fisheries licence conditions apply*". and identifies that "**Unmapped drainage Line harvesting**" is "*Permitted*". This claim is testimony to the ongoing failure of Fisheries NSW to implement the minimal requirements of their Fisheries Licence, as NEFA has proven time and time again. Aside from the legal obligations it is the height of irresponsibility to allow the logging of unmapped streams in the catchment of the regionally significant seagrass beds of The Broadwater, particularly given their susceptibility to smothering by sediments.

NEFA raised these concerns about the logging of unmapped drainage lines in our initial complaints to Fisheries NSW and EPA on 8 February 2017, also focussing on the endangered Oxleyan Pygmy Perch, specifically requesting:

*unmapped drainage lines be excluded from logging to protect important downstream habitats, particularly the seagrass beds of The Broadwater*

At that time we were not aware that the habitat of the Endangered Purple-spotted Gudgeon had been identified in the compartments by Fisheries NSW - though Fisheries should have been. Unfortunately the logging operations in unmapped drainage lines described below are likely to have occurred after our request for such logging to stop.

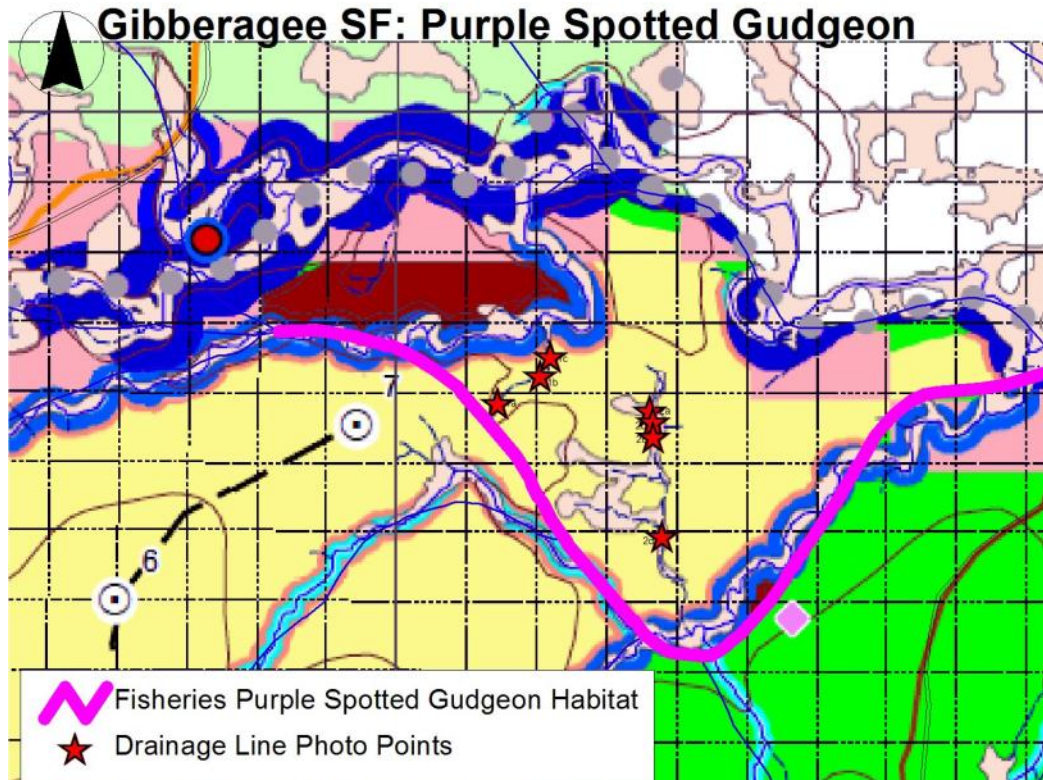


**Purple-spotted Gudgeon (photo Dailan Pugh).**

The Purple-spotted Gudgeon has been identified as endangered in coastal north-east NSW since 2008, yet the Forestry Corporation has never done anything to protect it on the grounds that Fisheries NSW had not provided them with maps of its habitat.

This changed in May 2016 when the NSW Department of Primary Industries (DPI) published their "Fish communities and threatened species distributions of NSW" (Riches *et. al.* 2016) which identified the DPI's mapping of the habitat of a variety of threatened fish, including the Purple-spotted Gudgeon. Their report includes "Figure 14 – Indicative distribution of the Purple Spotted Gudgeon *Mogurnda adspersa*", which is also available in Google Earth. This shows both Filans and Mangrove Creeks which drain compartments 117 and 118 of Gibberagee SF to be Purple Spotted Gudgeon habitat, with "indicative" habitat extending up Mangrove Creek into compartment 118.

After a phone call request, Fisheries sent me a copy of their mapping report on 21 March 2017. After a brief look I responded to Fisheries NSW on the same day "*I note that the report on threatened species shows the Endangered Purple-spotted Gudgeon in the vicinity of Gibberagee. ... You assured me that these maps have been provided to the Forestry Corporation so there is no excuse for them not protecting unmapped drainage lines at Gibberagee. I therefore ask you to investigate the Forestry Corporation's illegal logging of unmapped drainage lines at Gibberagee and to stop it forthwith, if you didn't do so when I first complained*".



Fisheries NSW identified "Indicative" Purple Spotted Gudgeon habitat (note that it is based on the 1:25000 mapping of Mangrove Creek, which differs from the revised Lidar mapping).

The southern Purple-spotted Gudgeon (*Mogurnda adspersa*) is an attractive small fish up to 10-17 cm long. It inhabits still or slow-flowing freshwater streams and billabongs, preferring deeper pools and pools with low velocity flow and overhanging vegetation in small upland, tributary streams. It is associated with water plants, tree roots, rocks, undercut banks, and sunken logs, where it feeds on aquatic and terrestrial insects (such as mosquito larvae), crustaceans, molluscs, worms and small fishes.



Still backwaters such as these on Mangrove Creek on the boundary of Gibberagee SF 117 and 118 are the habitat preferred by Purple Spotted Gudgeon. They have been muddied after recent rains and runoff from Forestry Corporation roading and logging in the catchment.

The Oxleyan Pygmy Perch is another species of concern as it potentially occurs downstream and is identified as Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and the NSW *Fisheries Management Act 1994*. Threats to this species include runoff and sediment from stream crossings, logging operations and post-logging burns. The Fisheries Licence was specifically intended to protect this species when it was issued in 1999, though to date Fisheries have refused to provide us with the mapping provided to the Forestry Corporation, so it is unable to be further considered.

The Fisheries Licence is “*Terms of Licence under section 220ZW of the Fisheries Management Act, 1994 to harm threatened fish species during undertaking of forestry related activities. Upper North East Region*”. The Licence establishes two critical questions for forestry operations:

1. Does Class 1 or Class 2 habitat occur in the area being proposed for logging?
2. Is a Pre-Logging and Pre-Roading Aquatic Habitat Assessment required to be prepared?

The Fisheries Licence (FL) identifies:

**Class 1 aquatic habitat** is defined as that part of a watercourse, wetland or other water body where the pre-logging and pre-roading assessment has determined that potential habitat of threatened species does occur within 2km upstream or 5km downstream of the site of the proposed works, or any aquatic habitat within 10km of critical habitat.

**Class 1 aquatic habitat** requires various responses from the Forestry Corporation, most significantly triggering the preparation of Aquatic Habitat Assessments (AHA), fish surveys, improved design and implementation of stream crossings, and the requirements (7.1a, 7.1b) to establish exclusion, buffer and special operational zones around streams.

The Fisheries Licence requires in Section 9 (a) and (c) for Forestry Corporation to prepare “Pre-Logging and Pre-Roading Aquatic Habitat Assessments” (AHAs). Given that mapping of the distribution of Purple-spotted Gudgeon has been available since May it should have been considered, and if it was then these compartments would have been identified as Class 1 Aquatic Habitat, which would have triggered specific assessment requirements for in-stream works. The Licence defines “*In stream works*” as “*Any activity being carried out within the incised channel or, where there is no defined bank, between the apparent edges of any watercourse*”. It is evident that an adequate assessment in accordance with Section 9.2 “Desktop Review of Proposed Operation(s)” cannot have been undertaken.

An adequate AHA would have identified the need to protect "unmapped" drainage lines. The Fisheries Licence has requirements for "unmapped" drainage lines and first order streams for 5m exclusion zones, 5m buffer zones and 10m special operational zones.

Unmapped drainage lines are those streams that are not depicted on the 1:25,000 topographical maps that were prepared decades ago. Many streams were missed in that process, particularly headwater streams in forests where the streams were obscured by the dense canopies. Pugh (2016) found that for the Richmond and Clarence catchments 62% of the stream length is within catchments 0-20ha and that 43% of these streams are 'unmapped'. It is apparent that it is along the smallest streams and drainage lines where most of the interaction between terrestrial and aquatic environments occurs, and thus they have the most significant impact on downstream water quality and fish habitat.

These "unmapped" streams, along with other streams, have been mapped using Lidar for a few years. The Forestry Corporation now uses this new mapping though refuses to vary the

classification of streams and their protection, instead applying protection that would be required by the equivalent "stream orders" identified in the out-of-date 1:25,000 mapping. Thus harvesting plans now include detailed and accurate mapping of "unmapped drainage" lines, where 1st and 2nd order streams are classed as "unmapped drainage" lines (UDL) and often given no protection.

For this audit two mapped UDL were inspected in the area of Purple-spotted Gudgeon habitat identified by Fisheries NSW. Both were considered to also satisfy the definition of wetlands. Both were also on the floodplain, for which the harvesting plan states *"To the greatest extent possible, avoid disturbance in flood plains not protected by drainage exclusions"*.

Both were found to have been carelessly and recklessly logged, with little protection of riparian habitat, huge volumes of logging debris pushed and dropped into streams, and snig track crossings of streams. No protection was provided and there was no attempt to minimise damage, if anything the damage was increased in and adjacent to the UDLs.

Given that these compartments are classed as Class 1 aquatic habitat for Purple-spotted Gudgeon (if not also Oxleyan Pygmy Perch) then, amongst other requirements, the Fisheries Licence (7.1a, 7.1b, 7.1c) requires the Forestry Corporation to establish exclusion, buffer and special operational zones around "unmapped" drainage lines (UDL).

Both UDL were considered to also satisfy the definition of wetlands. Both the Threatened Species Licence (TSL) and Fisheries Licence (FL) require the protection of wetlands. The FL (similarly to the TSL) defines a wetland as:

*a vegetated depression with a permanent, seasonal or intermittent water table at or slightly above the floor of the depression (typically having a vegetation type that indicates a wetter micro-environment than that of the surrounding land);*

These wetlands qualify as Class 1 habitat (FL 7.2a), Fisheries Licence (7.2b) requires that an exclusion zone at least 10m be established for wetlands of this size. The FL (7.2c) also states:

*Where a wetland with a surface area of less than 0.5 hectares is in a compartment in which a harvesting operation is proposed to be carried out, SFNSW must, before commencing that operation, record the wetland on any harvesting plan and mark it in the field so that it can be protected.*

The TSL (5.9) requires (a) the exclusion of forestry activities from wetlands of any size, (c) the establishment of 10m exclusion zones around wetlands of these sizes, and (g) that they be marked in the field and on harvesting plans. The TSL 5.1(f) requires the marking of exclusion zone boundaries, and (h) requires this be at least 100m ahead of logging.

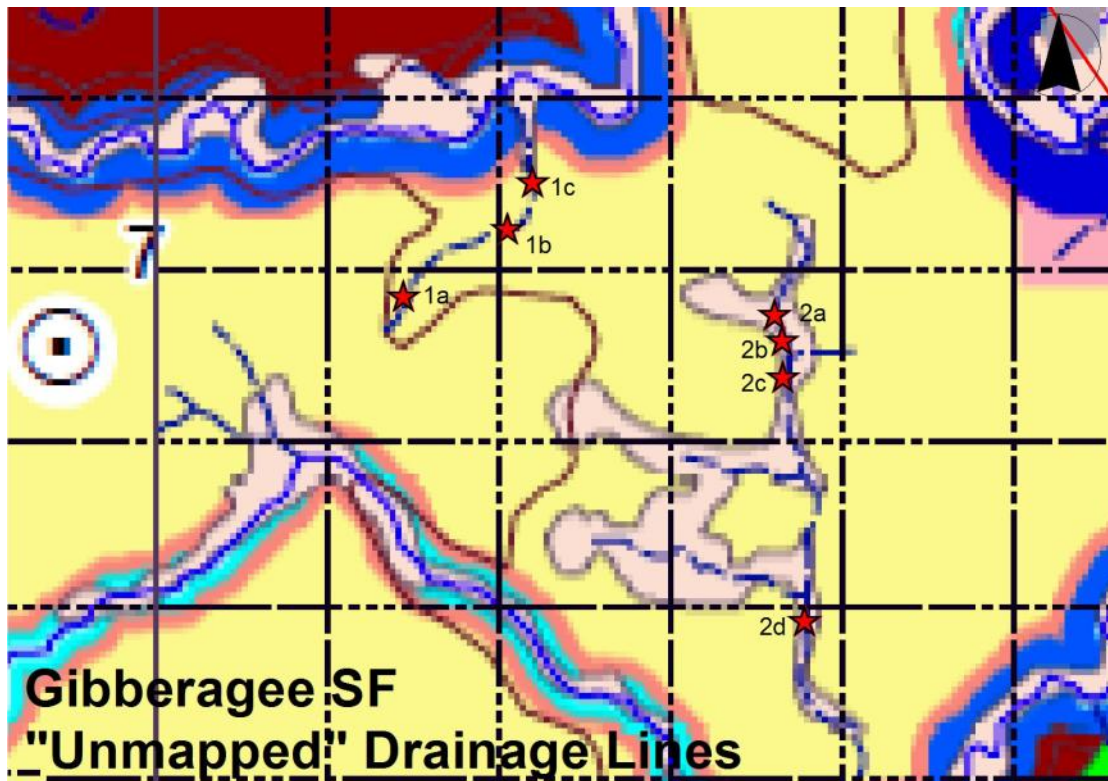
Both UDL/wetlands were found to have no exclusion or buffer zones identified around them. This is in direct contravention of FL 7.1(b)(c) and 7.2(b), and the TSL 5.1 (f)(h) and 5.9(c)(g).

For exclusion zones the FL 7.4 requires the exclusion of (b) forestry activities, (c) harvesting machinery, (d) earthworks and (e) the felling of trees. For buffer zones the FL 7.5 requires the exclusion of (b) forestry activities, (c) harvesting machinery (except to get access to fell a tree outside the buffer), and (d) earthworks.

The TSL 5.9(a) requires the exclusion of forestry activities from wetlands of any size, and 5.1(a) the exclusion of (i) forestry activities, (ii) tree felling (iii) harvesting machinery (generally),

Both UDL were found to have forestry activities, harvesting machinery, earthworks and felling of trees within what should have been their exclusion and buffer zones, in direct contravention of FL 7.4(b)(c)(d)(e), FL 7.5(b)(c)(d), TSL 5.9(a) and TSL 5.1(a)(i)(ii)(iii).

Condition 8.2 of the FL specifies requirements for in-stream works in Class 1 habitat, including that they need to inform Fisheries NSW, with 8.2.1. setting design requirements that must be complied with. From this assessment it is evident that 6 of the 7 stream crossings assessed that involved in-stream works in Class 1 habitat of the Purple-spotted Gudgeon do not satisfy the FL 8.2.1. design requirements for in-stream works.



Location of "unmapped drainage" lines (from Forestry Corporation harvesting plan), showing the sites specifically assessed and used as photo locations in this report..

## 2.1. UDL Wetland Trashing

The first assessed "unmapped drainage" line (UDL) is identified on the above map by the photo-points 1a, 1b and 1c (see Appendix A for locations). This (UDL) was found to have large pools of standing water with dense Tall Saw Sedge (*Gahnia clarkii*) and what was left of Broad-leaved Paperbark (*Melaleuca quinquenervia*) tall open forest dominating the margins, with occasional Red Mahogany (*Eucalyptus resinifera* subsp. *hemilampra*). Additional species around the wetland include Cheese Tree (*Glochidion ferdinandii*), Tree Heath (*Trochocarpa laurina*) and *Carex* sp. (no fruiting material available). Frogs were calling, but not identified.

This UDL is considered to satisfy the criteria for a wetland under both the Threatened Species Licence (TSL) and Fisheries Licence (FL). This UDL is 150m long, and is thus likely to fall within the category 4-5,000m<sup>2</sup> and require a 10m exclusion zone.

Over two thirds of this UDL was observed to have suffered severe damage and degradation from having numerous trees dropped into it. For most of its length the damage was so severe that the bed of the UDL could not be seen, with only glimpses of sedges visible at places through the debris.

As obvious from the photos, except for one stretch, this UDL/wetland was mostly trashed in an act of wanton vandalism.



**Photo location 1a, looking downstream, the Forestry Corporation's mapped "unmapped drainage" line is buried under the broad swath of debris extending for some 80m downstream in the middle of the photo.**



**View over "unmapped drainage" line (at centre of photo).**



Centre of stream (from above photo), looking upstream, note the sedges amongst the debris. Frogs were calling amongst the debris. Upstream from photo location 1b



Photo location 1b, looking upstream. Note the sedges, including under the debris at the end of the pool, clearly indicating frequent wetting. This was the only section of the UDL not to be trashed.





Photo location 1c. Note the canopies of Paperbarks on the edge of the pool smashed by trees being felled into the stream.

## ***2.2. UDL EEC Wetland Trashing***

The second assessed "unmapped drainage" line (UDL) is identified on the above map by the photo-points 2a, 2b, 2c and 2d (Locations are given in Appendix A).

The vegetation around this UDL comprises the Endangered Ecological Community Subtropical coastal floodplain forest of the NSW North Coast bioregion (see Section 4) which is a vegetation type that indicates a wetter micro-environment than that of the surrounding land.

When considered with the large pools and seepages this UDL is considered to satisfy the criteria for a wetland under both the Threatened Species Licence (TSL) and Fisheries Licence (FL). This UDL has a combined length of around 600m, and is thus likely to fall within the wetland category 4-5,000m<sup>2</sup> and require a 10m exclusion zone.

There was no marking or identification of exclusion zones along any part of this UDL/Wetland and one crossing was observed. Logging and machinery disturbance occurred down to the water's edge. As with the first UDL the banks of the UDL were extensively and intensively logged with trees randomly dropped into the stream, causing severe damage and degradation. As is obvious from the photos below (and in Section 3) this UDL/wetland was mostly trashed in an act of wanton vandalism.



Photo location 2a, looking downstream, Machinery had been driven across the drainage line and trees pushed into it.



Photo location 2b. The wetland here has been driven over by machinery, trees pushed into the UDL and logged very heavily.



Photo location 2c. Again the Forestry Corporation has logged up to the stream bank, virtually clearfelling the riparian vegetation. Note stream crossing on right.



Photo location 2d. Looking upstream. The forest to the right has again been clearfelled, with trees felled and pushed into the stream bed. A tree on the bank to the left is marked as an R tree, showing that logging of this area was intentional.

### ***3.3. In Stream Works***

Condition 8.2 of the FL specifies requirements for in-stream works in Class 1 habitat, including that the Forestry Corporation need to inform Fisheries NSW, with 8.2.1. setting design requirements that must be complied with, such as:

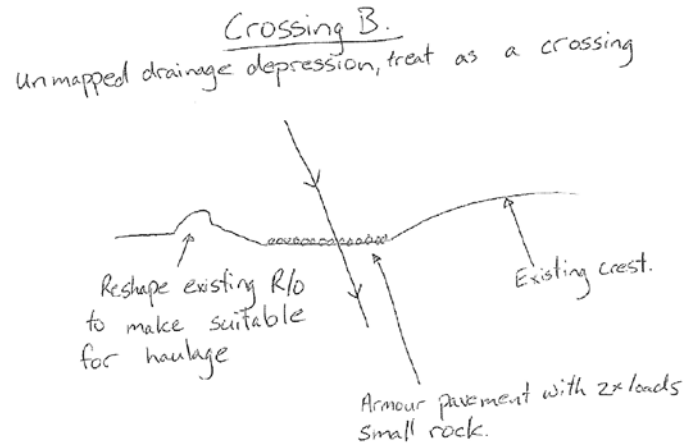
*i. flows up to and including a peak flow from a 1:5 year storm event or a floodplain level flow, whichever is the lesser, are conveyed underneath the road formation without water flowing over the road surface...*

...

*iv. road surfaces within 30m either side of the watercourse are sealed with concrete, suitable bitumen product or other material such that displacement of road material is unlikely to occur during use of the road and rainfall events up to and including a 1:10 year 1 hour duration storm at the location of the crossing.*

There are numerous crossings proposed within stream exclusion and buffer zones that constitute in-stream works. The main access road has 4 stream crossings that are identified for in-stream works : A, B, C, and D. Three of these are simply proposed as gravel fords, with only Crossing D proposing a pipe under the road.

Crossing B is across an "unmapped drainage" line, the plans provided in the Harvesting Plan clearly show there is no drainage under the road:



Extract from harvesting plan showing "design" of Crossing B.



**Crossing B across an "unmapped" drainage line does not have a drain under the road, let alone one capable of conveying a 1:5 year storm event, and does not have a suitably armoured surface within 30m of the crossing. Note the extensive erosion of sediment from the road, which simply bypassed the token sediment fencing and conveyed huge volumes of sediment directly into the stream.**

Similarly Crossing Z over a mapped 1st order stream was proposed in Cpt 118, though was simply a ford with no pipe. A TSL Schedule 6 assessment of this crossing was conducted because of proposed restructuring of the crossing, though no consideration of threatened fish was undertaken. This was not constructed due to inclusion in a Melichrus exclusion area.

From the crossing observed of UDL 2 (see 3.2. above) it is evident that unidentified crossings of unmapped lines are being undertaken without any attempt to comply with the design requirements

for Class 1 habitat crossings, let alone good practice. No pipe, no armouring and with cross drains on the edge of the bank.

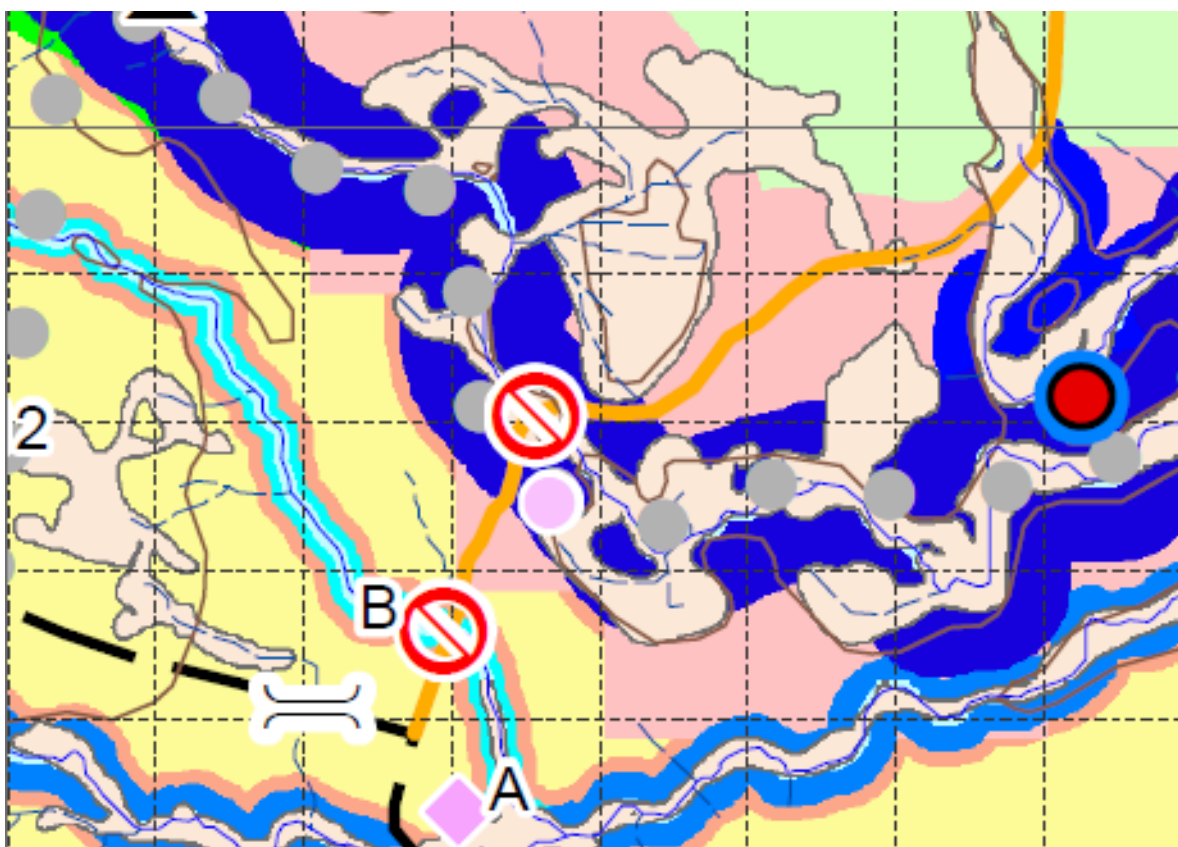




**Poorly rehabilitated crossing of UDL 2.**

Mangrove Creek Road is shown as a "no haulage" road and has two stream crossings marked on the Harvesting Plan as "crossing not approved for use", though the road and crossings show evidence of heavy traffic use, apparently also for haulage. The road has also been upgraded with gravelling of steeper slopes, though still had erosion problems. Neither of these crossings satisfy the FL 8.2.1. design requirement for in-stream works in Class 1 aquatic habitat.



**Mangrove Creek Road turnoff in the logging area showing frequent use of Mangrove Creek Road (to centre of photo).**



 Crossing not approved for use  Non Haulage Roads

Extract from Harvesting Plan showing Mangrove Creek Road crossings of Mangrove Creek and another creek, clearly marked as unapproved for use.



Mangrove Creek Road near crossings of Mangrove Creek. Note the extensive erosion of sediments into crossings.



**Mangrove Creek Road in adjacent compartments, showing gravelling, upgrading and erosion.**

From this assessment it is evident that 6 of the 7 stream crossings assessed that involved in-stream works in Class 1 habitat of the Purple-spotted Gudgeon do not satisfy the FL 8.2.1.design requirement for in-stream works.



**Purple-spotted Gudgeon (photo: Dailan Pugh)**

### 3. Trashing Endangered Ecological Communities

The Endangered Ecological Community *Sub-tropical Coastal Floodplain Forest of the NSW North Coast bioregion* occurs across all coastal floodplains on the NSW North Coast, being common near streams at lower elevations in these compartments.

NEFA has previously complained about logging of this EEC in Compartment 145 of Doubleduke State Forest (Pugh 2010a, 2010b). In response to our complaints in October 2011 the Chief Executive Officer of the Office of Environment and Heritage commenced legal proceedings against the Forestry Commission of NSW for logging 120 mature trees in 7.5 ha of the EEC in contravention of section 118A(2) of the *National Parks and Wildlife Act 1974*. In July 2012 the EPA withdrew from its prosecution of Forests NSW, claiming this was because “*Forests NSW evidence raised questions about the interpretability of the soil related component of the NSW Scientific Committee’s determination*”.

NEFA (EDO 2012) maintains that the case failed because the largest area of logged EEC document in NEFAs supplementary report (Pugh 2010b) was ignored by the EPA and because of the EPA's inclusion of additional areas that did not satisfy the EEC definition.



Photo location between 2c and 2d.



As an outcome of that case, and other cases of logging of EECs, the EPA resolved to map EECs. In 2013–14, the Environmental Trust awarded funding of \$3 million over three years to the EPA to deliver major reform of the environmental regulation of native forestry in New South Wales. The EPA commissioned OEH to map 25 priority threatened ecological communities across native forestry areas, using extensive aerial photo interpretation mapping, model development, expert consultation and survey work. The outcome was detailed maps of the distribution of 15 priority Endangered Ecological Communities, including Sub-tropical Coastal Floodplain Forest, and field keys.

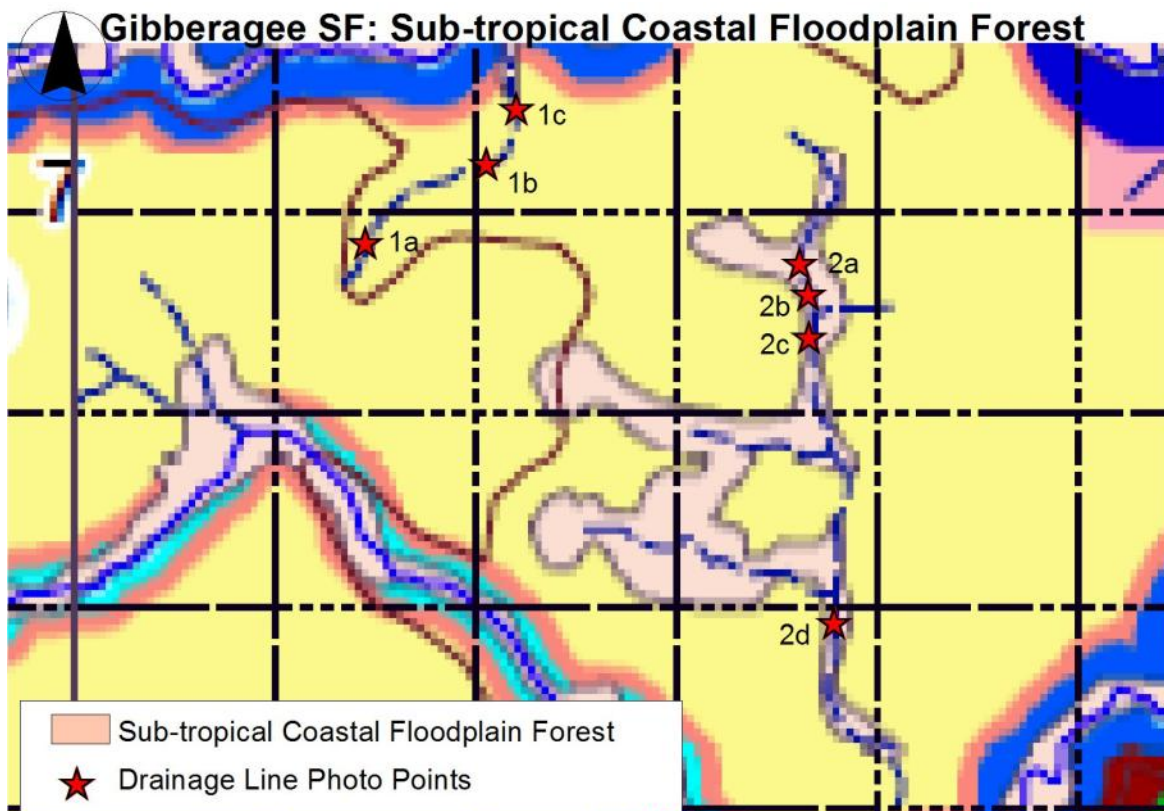
NEFA is still waiting to be provided access to the mapping and products from that assessment. With NCEC we have been granted access through a GI(PA) Act request, though have yet to overcome Forestry Corporation's objections to our being provided with the mapping and documents.

The mapping from that project is now included on the harvesting plan for compartments 117 and 118 of Gibberagee SF. The Harvesting Plan identifies that

*Sub-tropical Coastal Floodplain Forest EEC and Swamp Sclerophyll on Coastal Floodplain EEC occur in compartment 118. The indicative extent of both EECs is shown on HPOM.*

*The FT must identify and mark as an exclusion the actual EEC boundary in the field using the indicative mapping and the attached Field Guide.*

*The crew must protect all areas of marked EEC.*



**Extract from harvesting plan showing Sub-tropical Coastal Floodplain Forest and photo points.**

From NEFA's brief assessment of the mapped location of this EEC along the "unmapped drainage" line (Photo points 2a,b,c,d) we found the vegetation was consistent with the description of this EEC, but there had been no attempt to delineate it in the field and that it had been intensively logged. The

photos below and those in section '2.2. UDL EEC Wetland Trashing' are taken within the mapped EEC *Sub-tropical Coastal Floodplain Forest*. Rather than identifying and protecting the EEC the extent of damage to the mapped EEC is so extensive and intensive that it appears to have been an attempt to eliminate it.

The Scientific Committee's profile description of this community is:

*While the composition of the tree stratum varies considerably, the most widespread and abundant dominant trees include Eucalyptus tereticornis (forest red gum), E. siderophloia (grey ironbark), Corymbia intermedia (pink bloodwood) and, north of the Macleay floodplain, Lophostemon suaveolens (swamp turpentine).*

*Other trees may be scattered throughout at low abundance or locally common at few sites, particularly where there is an influence from lithic substrates upslope. These include Eucalyptus moluccana (grey box), E. propinqua (grey gum), E. seeana (narrow-leaved red gum), Angophora subvelutina (broad-leaved apple), E. robusta (swamp mahogany), Eucalyptus resinifera subsp. hemilampra (red mahogany), E. acmenoides (white mahogany), Angophora woodsiana, A. paludosa and rainforest trees such as Ficus spp. (figs) and Cupaniopsis spp. (tuckeroos).*

*A layer of small trees may be present, including Allocasuarina torulosa (forest oak), Alphitonia excelsa (red ash), Glochidion ferdinandi (cheese tree), Callistemon spp., Melaleuca spp. and Casuarina glauca (swamp oak).*

*Scattered shrubs include Breynia oblongifolia, Acacia concurrens, Commersonia spp., and Hibiscus spp. Occasional vines include Eustrephus latifolius, Parsonsia straminea and Geitonoplesium cymosum. The groundcover is composed of abundant forbs, scramblers and grasses including Imperata cylindrica, Themeda australis, Vernonia cinerea, Dianella caerulea, Pratia purpurascens, Cheilanthes sieberi and Dichondra repens.*

At the vicinity of the photo points (2a,b,c,d) within the mapped Subtropical coastal floodplain forest of the NSW North Coast bioregion we located recently-logged stumps of Red Mahogany (*Eucalyptus resinifera* subsp. *hemilampra*), Grey Gum (*Eucalyptus propinqua*), and White Mahogany (*Eucalyptus acmenoides*). Additional species of remnant standing canopy trees are Broad-leaved Paperbark and Swamp Box (*Lophostemon suaveolens*). Midstratum trees and shrubs recorded were Cheese Tree, Tree Heath, Forest Oak (*Allocasuarina torulosa*) Red Ash (*Alphitonia excelsa*) and Prickly Tea-tree (*Melaleuca styphelioides*) and vines Sweet Morinda (*Morinda jasminoides*), Common Silkpod (*Parsonsia straminea*) and Barbwire Vine (*Smilax australis*).

The structure and floristic composition at the above locations are fully consistent with the final determination of the Scientific Committee for Subtropical coastal floodplain forest of the NSW North Coast bioregion.



Photo locations 2b and 2c.



Photo location 2d.

Endangered Ecological Communities are excluded from Forestry Corporation's TSL, making these incursions a direct offence under sections 118A and 118D of the *National Parks and Wildlife Act 1974* where it is an offence to pick or harm endangered ecological communities.

Section 118A of the National Parks and Wildlife Act 1974 “Harming or picking threatened species, endangered populations or endangered ecological communities” states

(2) A person must not [pick](#) any [plant](#) that is of, or is part of, a [threatened species](#), an [endangered population](#) or an [endangered ecological community](#).

Penalty:

(a) in respect of any [species presumed extinct](#), any [critically endangered species](#) or any [endangered species, population](#) or [ecological community](#)- 2,000 penalty units or imprisonment for 2 years or both, and an additional 100 penalty units in respect of each whole [plant](#) that was affected by or concerned in the action that constituted the offence,

Pick is defined to include gather, pluck, cut, pull up, destroy, poison, take, dig up, crush, trample, remove or injure the [plant](#) or any part of the [plant](#). A penalty unit is now worth \$110. This makes the maximum penalty \$220,000 and up to 2 years jail, with an additional \$11,000 for each plant illegally logged or bulldozed over.

It is clear that the Forestry Corporation have breached Clause 118A of the National Parks and Wildlife Act in that they did by act and omission harm and pick the *Subtropical Coastal Floodplain Forest* EEC. Given the intensity of the logging in this vicinity we expect that most of the extent of EEC outside mapped exclusion zones in this vicinity has been similarly trashed.

The trashing of the mapped Endangered Ecological Community Sub-tropical Coastal Floodplain Forest of the NSW North Coast bioregion is a deliberate and intentional breach of section 118A(2) of the National Parks and Wildlife Act 1974.



## 4. Melichrus sp. Gibberagee



The Narrow-leaf Melichrus is scientifically named *Melichrus sp. gibberagee* as it is yet to be formally described. The existence of this species was discovered during pre-logging surveys brokered by NEFA in 1997 (see section 1. Background). Narrow-leaf Melichrus is now listed as Endangered by both NSW and Commonwealth governments. The Department of the Environment and Climate Change lists the following as threats to Narrow-leaf Melichrus (DECC 2005f):

- Frequent fire
- Clearing or land development
- Timber harvesting activities
- Road-works
- Risk of extinction because populations are small.

The weed Lantana, *Lantana camara*, is an identified threat to the Narrow-leaf Melichrus.

In early 1998, soon after the discovery of Narrow-leaf Melichrus, State Forests (now Forestry Corporation) bulldozed a road through the heart of an exclusion zone they had established around part of the only known population in Gibberagee State Forest, with State Forests admitting to killing 23 plants and damaging 7 in the process. NEFA's audit identified an additional 194 individuals that had disturbance (tree heads and machinery disturbance) within 10m (10m buffers were all that was required back then).

The Threatened Species Licence (TSL) identifies Narrow-leaf Melichrus as one of 6 species occurring on State Forest for which condition 6.22 "**Threatened Flora: 50 metres Exclusion Zone, all individuals**" applies.

It was apparent from our inspections that surveys for Melichrus had been undertaken by the Forestry Corporation. With one exception, those found by us near the logging area had been identified prior to logging, judging by some spray markings and pink tape. It was found that a large area has had logging excluded. Despite identifying the localities of Melichrus, their management of them has been inadequate.

To date NEFA have identified 31 clumps of Narrow-leaf Melichrus. Their localities were documented, and parts of the logging edges (stumps, machinery tracks, logging debris) around some plants were marked by GPS, as were the roads within their exclusion zones.

The TSL 3a requires that operational maps "*must include showing all exclusion zones*", and 3(e) states this must be "*prior to specified forestry activities commencing in the compartment*".

NEFA is unable to assess whether these exclusion zones were identified and mapped in accordance with TSL 3(a) and 3(e). We also wonder whether the requirement to prepare a revised operational plan to show Narrow-leaf Melichrus records and exclusion zones has been complied with.

There are no exclusion zones on the operational plan available to us because despite compartment traverses only one Melichrus was apparently identified prior to preparation of the harvesting plan. This displays a significant failure of harvest planning because the 1997/8 records were apparently ignored. Given the widespread distribution of Melichrus through the logging area it is hard to believe that a competent person undertook the required four kilometres of traverses per 200 hectares of net survey area, and the minimum of six-ten person hours of flora survey along the traverse in accordance with TSL 8.7, without finding a single Melichrus in the net logging area.

In relation to undertaking logging and roading activities within exclusion zones around Narrow-leaf Melichrus the TSL states in part:

*5.1 Operational Requirements*

*a) For all exclusion zones implemented under the conditions of this licence the following must apply (except where otherwise indicated in this licence):*

*i. All specified forestry activities are prohibited in exclusion zones ...*

*ii. Trees must not be felled into exclusion zones (except where expressly permitted by another condition of this licence). ...*

*iii. Harvesting machinery is prohibited from operating in exclusion zones, except for:*

*1. road re-opening and routine road maintenance;...*

*b) The construction, reopening and operation of tracks used for the purposes of snigging and roads in exclusion zones implemented under the following conditions ... 6.22 Threatened Flora ... is only permitted with the prior written approval of the NPWS. Matters that SFNSW must address in order to seek NPWS approval are detailed in Schedule 6 of this licence.*

*...*

*h) Marking-up must be conducted at least 100 metres in advance of harvesting operations, road construction and road re-opening operations (unless otherwise specified in this licence) so relevant exclusion and buffer zones can be implemented prior to harvesting, road construction and road reopening occurring.*

NEFA is unable to assess compliance with 5.1(b). While we do not know the sequence of events, it does appear that roads may have been constructed/reopened prior to Melichrus and the required exclusion zones being identified in contravention of 5.1(h). If this is the case it is likely that some Melichrus may have been eliminated by roadworks.

It is apparent that logging can only occur within exclusion zones for Melichrus where it is either accidental or machinery enters to obtain access to a tree near, but outside, the boundary. Roads

through *Melichrus* exclusion zones can only be constructed, reopened or used where the EPA have approved them in writing.

Regarding the delineation of exclusion zones on the ground the TSL 5.1. states:

*f) All exclusion zone and buffer zone boundaries must be marked in the field, except where specified forestry activities will not come within 50 metres of such boundaries. The outer edge of lines shown on the map is considered to represent the boundary of the mapped feature when marking the feature in the field.*

*i) SFNSW must develop a standard tree marking-up code to apply to all operations, unless specifically excluded, by 30 June 2000. The code must include, but not be limited to, tree marking criteria for the following: exclusion zone boundaries, buffer zone boundaries, hollow-bearing trees, recruitment trees, eucalypt feed trees, Yellow-bellied Glider and Squirrel Glider sap feed trees.*

Their Forestry Corporation's harvesting plan states:

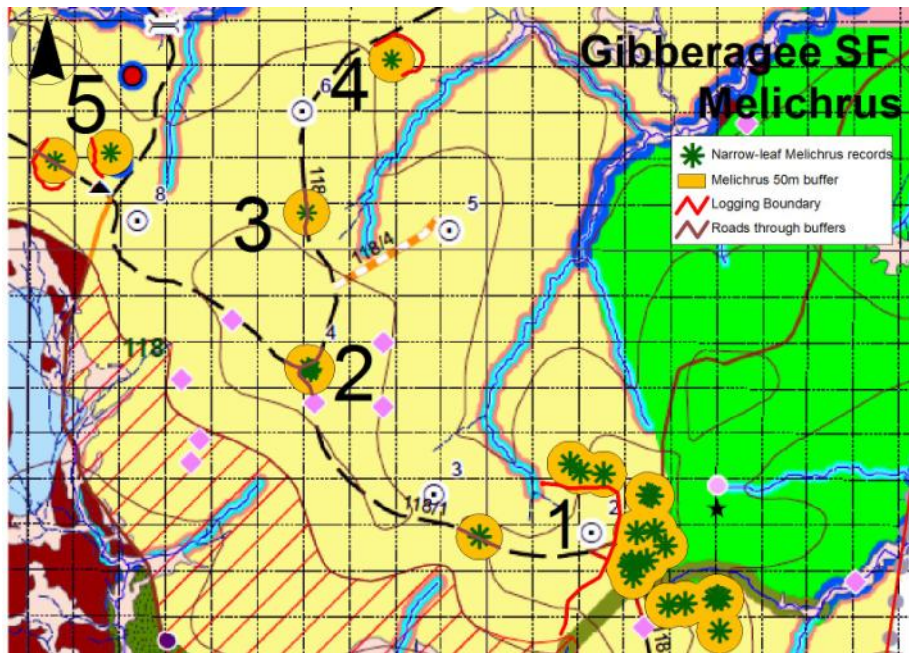
*One record of *Melichrus sp. gibberagee*, is wholly contained within an FMZ 2 exclusion. If additional records identified, mark 50m exclusion around the record.*

This marking is specified in the harvesting plan to comprise: *3 Machinery (3 bars 2 dots)*

Logging boundaries were assessed at 3 localities. At one (site 1) the boundary had been approximately delineated with the word "NO", at another (site 4) it appeared to have been initially marked with "NO" though later marked with the required "*3 bars 2 dots*", and at the third site (5) no boundary marking of any type was observed. It is assumed that site 4 may have been remarked after our initial complaint, though the reason for not marking site 5 is perplexing given it is the most recent and has had logging operations around them.

It is evident that exclusion zone boundaries, at least at some sites, have not been marked on the ground in accordance with TSL 5.1 (f) and (i).

In total NEFA have so far identified 14 Narrow-leaf *Melichrus* that have had forestry operations conducted within their exclusion zones. Eight have had roading conducted within their buffers, often within a few metres of the plants, and 6 have had logging operations extend within what should be their exclusion zones, by up to 18 and 22m in the worst cases. These logging intrusions are in contravention of the TSL 5.1 (a), and the roading operations may be too - if not approved in accordance with TSL 5.1 (b). Localities for these plants are provided in Appendix A.



**Locations of Narrow-leaf Melichrus identified by NEFA, required 50m buffers, and extent of forestry operations within buffers,**

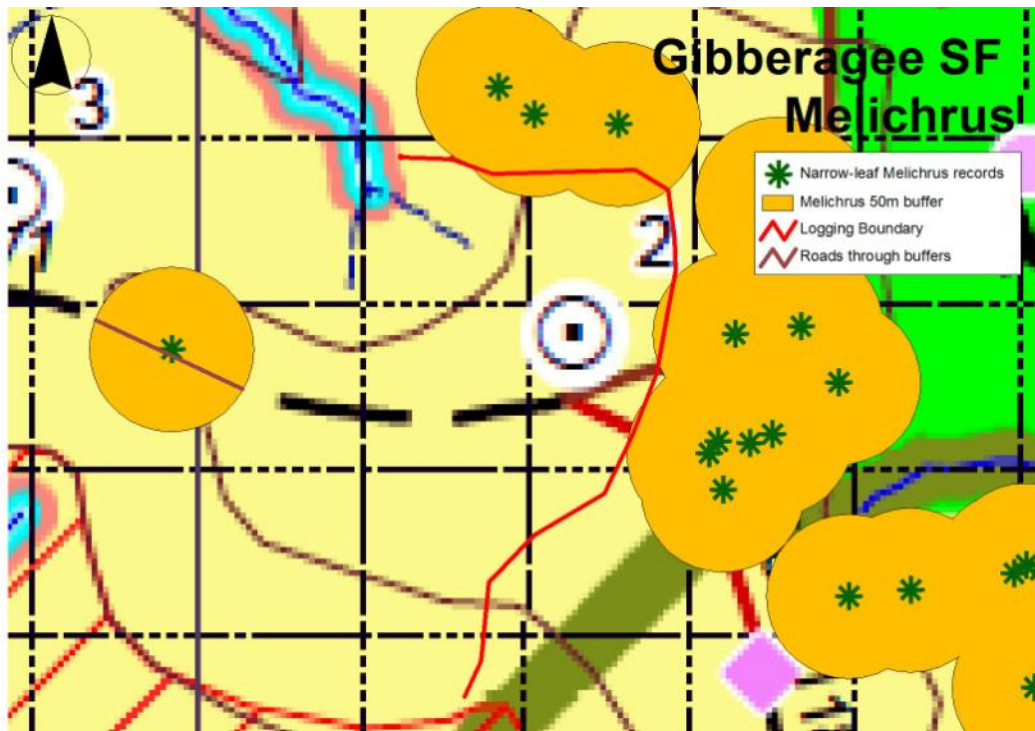
It is not known how the Melichrus population was affected by the 1998 logging. It is likely that lantana would have reacted positively from the reduction in canopy cover in the 1998 logging, and is thus likely to have increased in extent to the detriment of the Melichrus. The proliferation of lantana is already evident from the current logging. Records from the 1997-8 surveys should be collated and compared with extant plants to help identify population trends.

The habitat that the Melichrus was identified in has extensive areas of blady grass in places, indicating both a previous history of frequent burning and a potentially high fire intensity. There are extensive areas of lantana which can grow over and smother the Melichrus, and lantana is likely already significantly affecting the population. There are also logging debris remaining from the 1998 logging in close proximity to surviving plants.

It is clear that there is the potential for a hot burn, either post-logging or as a wildfire, fed by the recent logging debris and the abundance of blady grass amongst some plants. A fire management plan needs to be prepared by relevant experts to ensure appropriate burning of the Melichrus exclusion zone. It is also evident that lantana in the vicinity of Melichrus needs to be appropriately removed as it is a direct and present threat to the population.



### 4.1. Melichrus Site 1



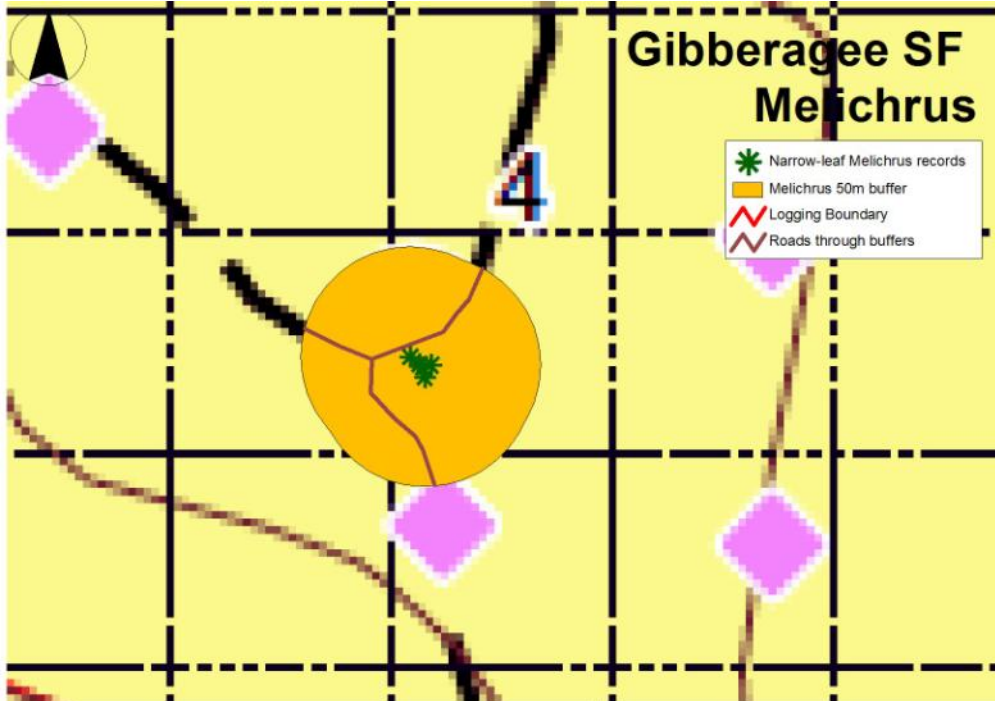
The exclusion zone boundary here was identified by the word "NO" sprayed onto the trunk of trees, this was assessed in cases to be marked 18, 38 and 43m from individual Melichrus. For the boundary assessed, the mapped logging boundary did not intrude as far, coming up to 28m, 35m, 42m and 47m respectively from 4 clumps of Melichrus. A Melichrus is also located immediately adjacent to a logging road. The actual logging did not extend up to the marked trees, with the mapped logging boundary found to be 28m, 35m, 42m and 47m from clumps of Melichrus. One Melichrus was not tagged (ie no pink paint or tape) so was apparently unidentified.



Marking of boundary of Melichrus exclusion "zone".

The making of trees around the boundary of what is required to be an exclusion area with "NO", in contravention of appropriate marking as identified in the harvesting plan, does not satisfy legal requirements and seems to be aimed at not identifying a formal exclusion area.

### 4.2. Melichrus Site 2



Arrow indicates the location of a Melichrus a few metres from the road, with debris pushed up close to it

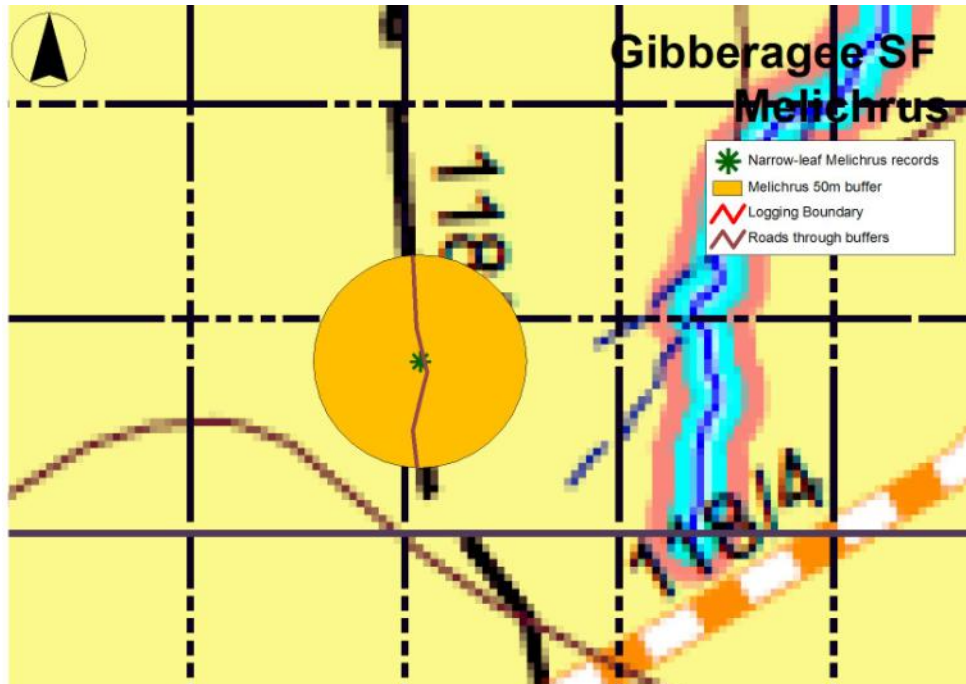
A group of 5 clumps of Melichrus were located near the junction of 118/1 and 118/3 roads. 118/1 approximates the route of an old track, though the history of 118/3 is unknown. With 5 large trees pushed out of the ground into the buffer zone, along with numerous smaller trees, soil pushed into the buffer, and extensive new earthworks within the buffer zone it is evident that extensive works have been undertaken within the exclusion zones of 5 Melichrus. The trees indicate that it was, at

least in part, new works. There is no marking along the side of the road to identify it as an exclusion area.



Along the road within the exclusion zone for Melichrus, 5 large root balls are evidence of trees being pushed over into exclusion area at site 2, with large amounts of other debris, and piles of soil, pushed off the road into the exclusion area. Extensive new road works were evident. The logging boundary was not checked.

### 4.3. Melichrus Site 3



At this site a Melichrus is situated adjacent to the road. Extensive works associated with the road have been undertaken within the exclusion area, with debris pushed into the exclusion zone. The logging boundary was not inspected, though a small area adjacent to the road was observed to be marked with the required "3 Machinery (3 bars 2 dots)". There is no marking along the side of the road to identify it as an exclusion area.

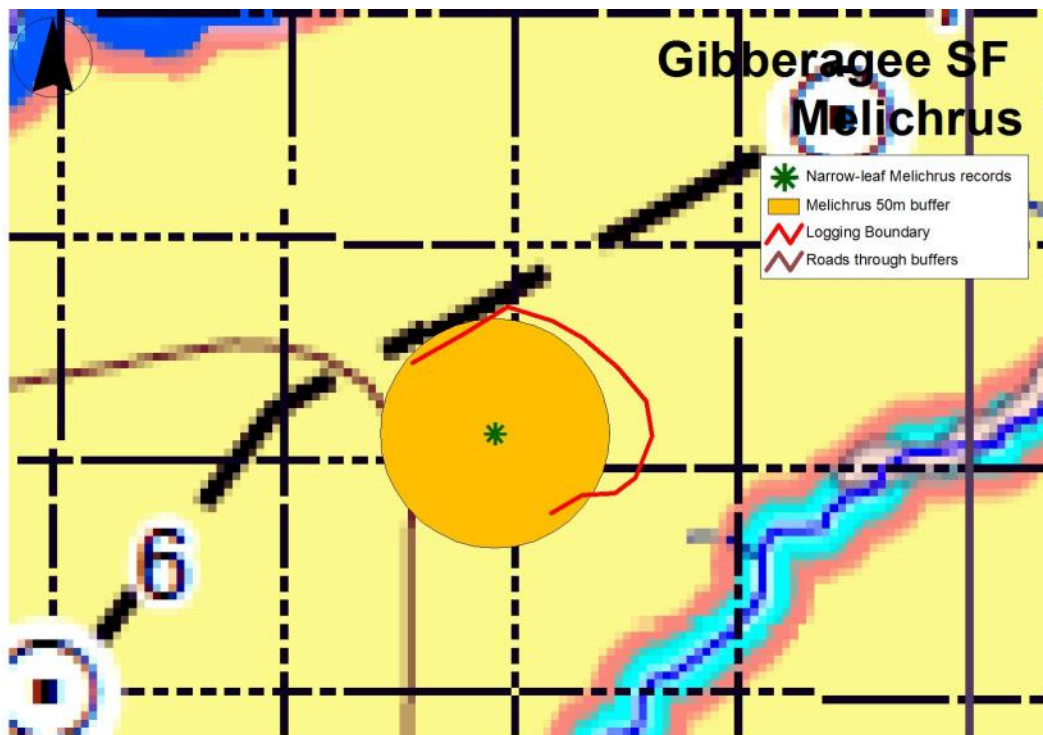


The arrow indicates the location of a Melichrus immediately adjacent to the road.



Debris bulldozed off road within Melichrus exclusion zone, site 3. Note the large number of small trees pushed over and well into the exclusion zone.

#### 4.4. Melichrus Site 4

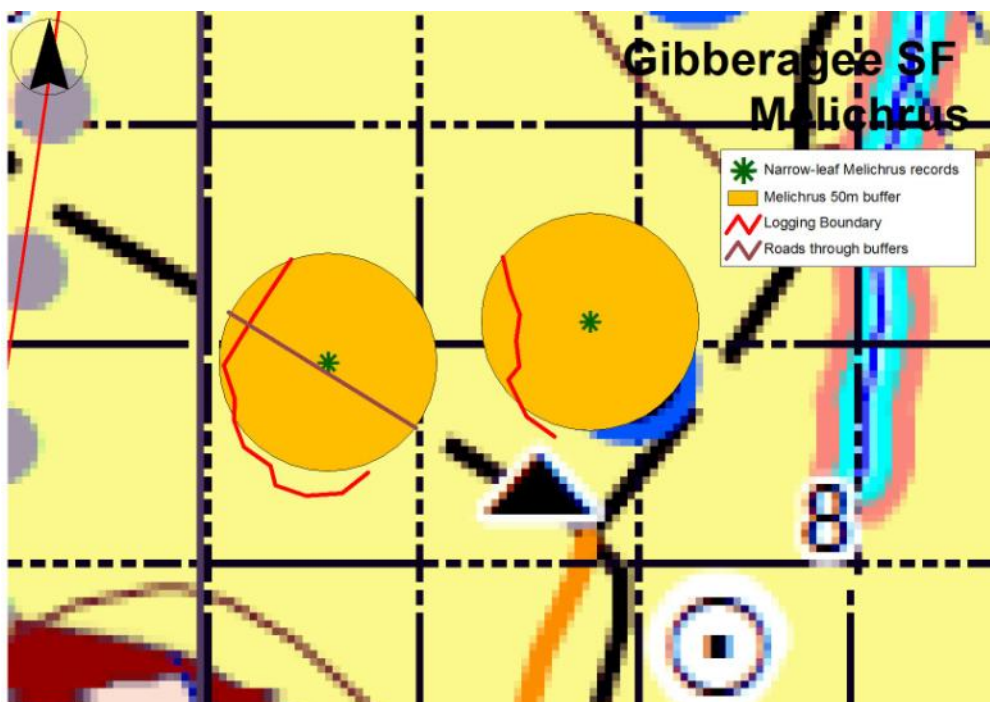


Those parts of the logging boundary inspected were marked with the required "3 Machinery (3 bars 2 dots)", though the marking of some interspersed trees with "NO" suggest it had been remarked (possibly in response to NEFA's initial complaint). Most of boundary assessed had logging outside the exclusion, with the exception of an area near the road where the boundary had been marked well in from, and parallel to the road up to 44m from Melichrus.



Logging into the boundary of the Melichrus exclusion area, with the boundary wrongly marked near the road with logging extending up to 44m from Melichrus. Note the appropriate boundary marking of "3 Machinery (3 bars 2 dots)",

#### 4.5. Melichrus Site 5



Two Melichrus were identified in this locality, one was immediately adjacent to the access road. It had been marked with a sign saying "TP", though there has otherwise been no attempt to mark the boundary of the exclusion area along the road. Similarly there were no boundary markings at all observed to be marked around the outer boundaries of either Melichrus exclusion zone. Logging intruded significantly into the eastern exclusion zone, with debris found 32m from the Melichrus and a stump located 35m from it. In the western exclusion zone a stump was located 40m from the Melichrus.



**The arrow indicates the location of a Melichrus adjacent to the road. A small sign "TP" is located near the plant. Note the extensive road works opposite the Melichrus.**



## 5. Habitat Trees

Incidental breaches of habitat tree retention requirements were observed when undertaking other assessments.

In general, there is a low number of large old hollow bearing trees from the original forest left scattered around the logging area. Indicating the past grandeur of the forest and emphasising that the few hollow-bearing trees left need to be protected. There are also a low number of the large healthy mature trees required as recruitment trees.

In these forests up to 5 hollow bearing (H) trees per hectare are required to be protected, along with a mature and healthy recruitment (R) tree for each H tree retained.

Numerous marked hollow-bearing (H) and recruitment (R) trees were identified within what should have been the Melichrus exclusion zone. These are not allowed to count towards retention requirements and should not have been identified and counted.

These incidental observations confirm that a high proportion of habitat trees were damaged in the logging operation. This indicates that the widespread and frequent damage to marked H and R trees documented at Cherry Tree SF and Sugarloaf SF is continuing here, though the number of instances of debris left around habitat trees appears to have declined. The practice of marking hollow-bearing trees and suppressed trees as recruitment trees also continues.

Nineteen habitat trees were identified as being damaged in the small part of the logging area assessed, with an additional 4 hollow-bearing trees wrongly marked as recruitment trees (this is a significant percentage of habitat trees within the inspected area):

- Two marked hollow-bearing trees (H) were found to have suffered canopy damage from having trees dropped on them;
- One unmarked hollow-bearing tree in a riparian exclusion zone had a machine driven over its roots, damaging the butt in the process.
- Two marked hollow-bearing trees (H) were found to have suffered root damage from having machinery driven close to their trunks.
- Five recruitment (R) habitat trees suffered canopy damage from having trees dropped on them (with one of these suffering root and trunk damage).
- Four recruitment (R) habitat trees suffered butt and trunk damage from falling trees or machinery.
- Five recruitment (R) habitat trees suffered root damage from having roads constructed next to them, causing significant root damage.
- Three of the above trees and four other marked recruitment (R) habitat trees were observed to have obvious hollows or evident crown senescence indicating the presence of hollows that should have been retained as hollow-bearing trees, with additional trees retained as recruitment trees.

The Harvesting Plan identifies that for Black Chinned Honeyeater (6.11) they need to "Mark for retention 10 E feed trees per 2 Ha". There were no trees observed that were specifically marked as eucalypt feed trees. Given the low number of retained habitat trees, it is considered there is likely to a deficit of trees marked for retention.



In general the most significant issues are:

- frequent damage to retained habitat trees in tree felling
- frequent and reckless driving over the roots of habitat trees close to trunks, with associated trunk damage
- marking of hollow-bearing trees as R trees to reduce selection requirements
- selection of inappropriate trees as R trees, notably those adjacent to roads with significant root damage

It was observe that in the vicinity of current logging to the north of Log dump 9 that H trees and a low number of R trees (only large old trees, with defects or that should have been H trees) were marked for retention, suggesting that the required numbers of R trees are being selected after the loggers have had their pick.

## 5.1. Hollow-bearing Trees

### ***5.1.1. Canopy Damage***



H tree, Bloodwood, 80cm dbh, Crown damage (6753968, 510669). Note the broken branch at the base of the tree.



H tree, Stringybark. 53, Crown damage, debris (6753844, 510679).

### ***5.1.2. Butt and Trunk Damage***



H tree. Grey Gum. Note machinery was driven up to base, damaging the butt and roots. This tree was not marked and appears to be in a riparian exclusion area. (6753477 511092)

### 5.1.3. Root Damage



LEFT: H tree, Spotted Gum 80 cm dbh note machinery use both sides of base (6754083, 510112). 326  
RIGHT: H tree. Grey Gum. note machinery use up to base (6753163 511142)

### 5.2. Recruitment Habitat Trees

#### 5.2.1. Canopy Damage



R tree. Grey Gum, note broken branches (6753214 511108)



R Tree, Grey Gum, Canopy damage, broken branches. Note senescent crown indicating presence of hollows. High Koala use. (6753146 511141)



R tree, Spotted Gum. 54cm dbh, canopy damage (6753828, 510669) 346



R tree, Grey Gum, 64cm dbh. Canopy, butt and root damage. Koala scratches (6753992, 510648) 350



361 R tree, Grey Gum, 60cm dbh. Canopy damage. Koala scratches (6754157, 510629) 361

### 5.2.2. Butt and Trunk Damage



R tree. Spotted Gum. Note damage to base and use of machinery up to tree. (6753449 511253)



R Tree Stringy Bark 50cm dbh. Butt and root damage. Apparent hollows (6753750, 510592).328



R tree. Bloodwood, note trunk damage (6753114 511110)



R tree, stringybark, note trunk damage and senescent crown indicating presence of hollows. (6753147 511099)

### 4.2.3. Root Damage



R tree, Bloodwood, 46 cm dbh. Root damage (6754624, 510292) 277 R tree, Blackbutt, 75cm dbh, trunk and root damage (6754611, 510289). 278



R tree, Red Gum, 46cm dbh. Root damage, debris (6754567, 510274) 281





R tree, Spotted Gum, 43 cm dbh, root damage (6753816, 510656). 345 R tree, Bloodwood, 61cm dbh, root damage (6753939, 510660) 348

### **5.2.4. Poor Choice**



R tree, Spotted Gum, 100cm dbh, obvious hollows (6754097, 510105) 327. This is an obvious and blatant roth that no reasonable person could have identified as an R tree.



R tree, Ironbark, 96cm dbh, obvious hollows (6754246, 510043) 299 This is an obvious and blatant rotr that no reasonable person could have identified as an R tree.



R tree, Obvious hollows, old damaged butt (6754198, 510012).303



R tree, Red Mahogany, 75cm dbh. Apparent hollows (6754545, 511074) 377



### 5.3. Other damage

Other tree damage was found to be widespread. Numerous trees essential as either the sawlogs or habitat trees of the future are also recklessly being damaged, as these few examples show:



## References

DPI Fish habitat mapping:

<http://www.dpi.nsw.gov.au/fishing/species-protection/threatened-species-distributions-in-nsw/freshwater-threatened-species-distribution-maps>.

EDO (2012) Letter to Barry Buffier, Chair and CEO Environment Protection Authority. 19 October 2012.

Pugh, D. (2010a): Preliminary Audit of Doubleduke State Forest Compartments 144, 145 and 146. North East Forest Alliance, June 2010.

Pugh, D. (2010b) Preliminary Audit of Doubleduke State Forest Compartments 144, 145 and 146, Supplementary Report. North East Forest Alliance, November 2010

Pugh, D. (2016) New IFOA Changes in Forest Protection In the Clarence and Richmond River Valleys. Report for the North East Forest Alliance, January 2016.

Riches, M., Gilligan, D., Danaher, K. and Pursey, J. (2016) *Fish Communities and Threatened Species Distributions of NSW*. NSW Department of Primary Industries

## Appendix A

Photo locations for unmapped drainage lines.

Photo Locations	MGA N	MGA E
1a	6754588	511147
1b	6754628	511208
1c	6754655	511223
2a	6754577	511365
2b	6754562	511370
2c	6754541	511370
2d	6754398	511383

Locations of Melichrus whose exclusion zones had forestry operations within them

Melichrus	MGA N	MGA E	Activity in Exclusion Zones	
Site 1	6753387	511328	Logging	
Site 1	6753314	511312	Logging	
Site 1	6753520	511206	Logging	
Site 1	6753514	511257	Logging	
Site 1	6753377	510986		Roading
Site 2	6753748	510611		Roading
Site 2	6753745	510615		Roading
Site 2	6753743	510616		Roading
Site 2	6753739	510617		Roading
Site 2	6753744	510620		Roading
Site 3	6754086	510609		Roading
Site 4	6754420	510795	Logging	
Site 5	6754199	510060	Logging	Roading
Site 5	6754217	510180	Logging	