When is a rainforest no longer a rainforest?

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Forty years ago there was a highly biodiverse old-growth forest community spanning the boundary of Compartments 352 and 353 at Grange State Forest, measuring some 20 hectares. Today that forest would be acknowledged as the endangered Lowland Rainforest as described in the NSW Scientific Committee's 2005 Determination. Unfortunately, the then Forestry Commission of NSW saw little commercial value in this forest of largely over-mature trees, many of them entangled with Strangler Figs and native vines, and inflicted upon it the now infamous Timber Stand Improvement (TSI) program.

TSI is the practice of selecting the densest groups of the largest and oldest trees and cutting them down to provide an open space where the additional sunlight will ensure the regeneration of eucalyptus species, which will out-compete the rainforest species, and provide harvestable trees in the future.

That future was mid 2010 when the now Forests NSW somehow mapped the area in its Harvest Plan as Scribbly Gum – Blackbutt (despite neither species occurring there) and logged the entire forest, removing up to 80% of the basal area and flattening all unwanted rainforest trees, using the excuse of soil disturbance to assist regeneration.

When representatives of the Clarence Environment Centre investigated the logging, they took photographs of Tamarind, Pepperberry, Bangalow Palms and a range of other rainforest species scattered across the landscape. This was later confirmed by an independent ecologist employed by the then Department of Environment, Climate Change and Water, who confirmed a half hectare site as being the Lowland Rainforest, stating that: *"The EEC varied from having a closed but uneven canopy in the small unlogged stands, to* ***no canopy and bare earth*** *where it had been logged."*

Ms Horton reported on that half hectare stating that *"Of the 116 species noted in paragraph 2 of the Scientific Determination, 47 were identified* (in the half hectare)*... Conformity between the logged and unlogged areas was also apparent from the fallen debris."*

However, across the whole 20 hectares, Clarence Environment Centre's investigators recorded more than 150 rainforest species, 74 of which are on the Scientific Committee's indicative species list.

Some Lowland Rainforest has survived within logging exclusion zones. So the question is: **Was the 1970s disturbance, and subsequent eucalypt regeneration, sufficient to disqualify the community from being considered rainforest today, allowing it to be logged to glory, causing severe fragmentation and loss of ecological connectivity between the remaining Lowland Rainforest remnants?**

Recent history

On July 3, 2010, two Clarence Environment Centre (CEC) members investigated the logging operation in Grange State Forest (see Forest Type maping, image 1, from the Operational Harvest Plan No. 3578).

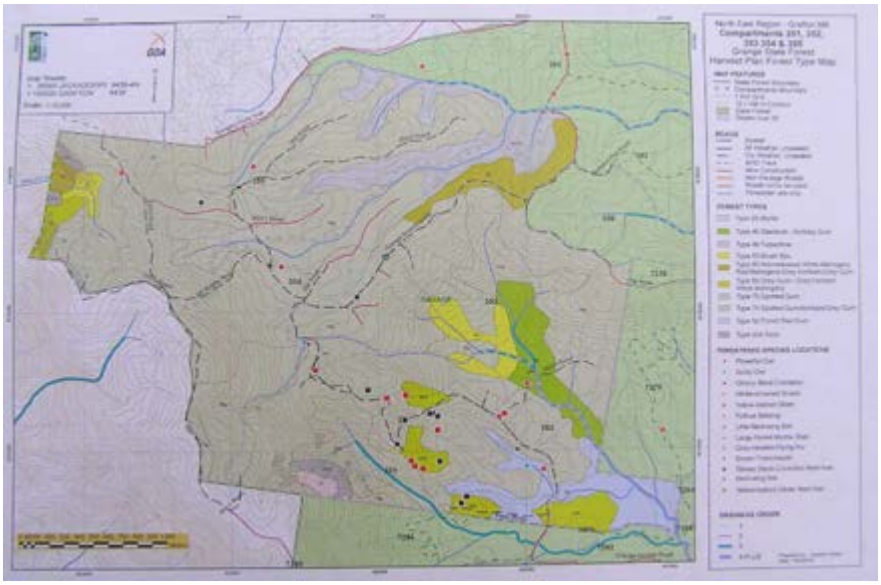

Image 1.

The forest community in question is shown in yellow green, straddling two compartments boundaries (see image 2), which the legend clearly identifies as Blackbutt – Scribbly Gum (see image 3).

The fact that neither of the nominated species were found at the site was sufficient for CEC to investigate further, which led to a determination that the community was in fact the Endangered Lowland Rainforest Community.

Image 2.

Image 3.

Site description

The disputed area at Grange State Forest, that mapped as Blackbutt – Scribbly Gum, is extensive, measuring over 1,200m in length by an average 200m wide (approximately 25ha), on relatively level ground dissected by a series of deeply incised creek lines and gullies that are mapped as exclusion zones. However, we estimated as much as 15 hectares were logged in June – July 2010.

Subsequent to that logging, which saw some 80% of the basal area removed, much of the forest floor reduced to bare dirt. As a result it was difficult for CEC to determine the true pre-logging status of the forest.

The northern two thirds of the area had been subjected to a "timber stand improvement" (TSI) program some 35 to 45 years ago, with old-growth Brushbox and Flooded Gum being the species cut down. However, the southern third had been left untouched, and with no signs of old stumps, was clearly old-growth forest dominated by Brushbox and rainforest species, with the occasional emergent Flooded Gum.

A giant hollow trunked, previously emergent, *Eucalyptus grandis,* surrounded by rainforest species, felled into a creek exclusion zone.

Immediately prior to the 2010 logging, the dominant species across the site were Brushbox *(Lophostemon confertus)* and Flooded Gum *(Eucalyptus grandis)*, with the latter being mainly early mature trees measuring up to 50cm diameter at breast height, and believed to have regenerated as a result of the earlier TSI activity.

The CEC investigation, which was far from comprehensive as logging was still in progress, identified over 150 rainforest species, more than 70 of which are listed by the Scientific Committee as indicative species for Lowland Rainforest.

Following the CEC report, the then Department of Environment, Climate Change and Water's ecologist assessed the site and recommended prosecution, which would require the opinion of independent rainforest and soils specialists, a recommendations that was initiated with both specialists agreeing with CEC's assertion that at least half a hectare, spared the TSI program, was still Lowland Rainforest. Forests NSW's Corporate Botanist however, claimed that in his opinion the community was not Lowland Rainforest, but acknowledged that the independent rainforest specialist would likely disagree with his assertion. That is exactly what happened.

However, at a subsequent on-site meeting officers of the now Office of Environment and Heritage (OEH), they were adamant that the occurrence of Eucalypt regeneration prior to the 2010 logging event, was evidence that the forest did not meet the description of Lowland Rainforest. In one 2 hectare old-growth area, where Brushbox were still dominant, we were told that the handful of regenerating young Flooded Gums, amidst the Tamarinds, Hairy Doughwood, Bangalow Palms, White Apple, Celery Wood, and Ribbonwood (all Lowland Rainforest species) were enough to disqualify the community from rainforest status.

Of course, most within the timber industry have always asserted that if a forest contains Eucalypts, then it cannot be a rainforest. However, following the extensive Native Vegetation Act consultation/ negotiation that led to the protection of rainforest, it became clear that certain high conservation value rainforest types, containing high levels of biodiversity, were not protected under the Act because they contained emergent Eucalypt species.

As a result, 'Mixed Rainforest" types, including Lowland Rainforest, were described with the latter gazetted as an Endangered Ecological Community (EEC) in 2004. I is interesting to note that Lowland Rainforest was gazetted under the EPBC Act as Critically Endangered in 2011.

Part of the half hectare at Grange S.F. determined to be Lowland Rainforest.

In making its final determination in 2007, The NSW Scientific Committee explained that: *"Lowland Rainforest in the NSW North Coast is the name given to the ecological community of subtropical rainforest, excluding Littoral Rainforest and Lowland Rainforest on Floodplain in the NSW North Coast Bioregion."*

The Committee also identified that: *"Lowland Rainforest, **in a relatively undisturbed state**, has a closed canopy, characterised by a high diversity of trees whose leaves may be mesophyllous* (soft leaved) *and encompass a wide variety of shapes and sizes. Typically, the trees form three major strata, emergents* (protruding above the main canopy)*, canopy, and subcanopy which, combined with variations in crown shapes and sizes, give the canopy an irregular appearance."*

The determination goes on to explain that: *"A range of plant growth forms are present in Lowland Rainforest, including palms, vines and vascular epiphytes",* and that: *"Scattered eucalypt emergents may occasionally be present."*

The Determination also identifies threats, including that *"Extensive clearing of Lowland Rainforest has resulted in fragmentation and loss of ecological connectivity. The integrity and survival of small, isolated stands is impaired by the small population size of many species, enhanced risks from environmental stochasticity, disruption to pollination and dispersal of fruits or seeds, and likely reductions in the genetic diversity of isolated populations."*

The Determination also accepts that the community can still exist even though disturbed, stating that: *"In disturbed stands of this community, the canopy may be broken".* By this, the Scientific Committee appears to accept that disturbance does not automatically disqualify Lowland Rainforest from being an EEC.

The official view of mixed forest rainforest types such as Lowland Rainforest, is that: *"This situation contradicts the generalisation that rainforests are partly characterised by the absence of sclerophyll genera (eucalypts etc).* However, to determine the status of these forests, the official view is that *"in general no eucalypt seedlings or saplings are found under the canopy".* This makes sense in an undisturbed forest where sunlight is limited. However, we believe the germination of seed from emergent *Eucalyptus grandis* is inevitable following disturbance. This has happened at Grange as a result of TSI disturbance, and would be a natural occurrence, for example, in the event of tree fall in a storm event.

Following the 2010 logging, and soil disturbance that removed much of the rainforest mid storey and ground cover, leaving virtually bare soil, weed invasion has been horrific. However, there is significant regeneration of most of the rainforest species that were destroyed, along with the Flooded Gums.

In our opinion, the exceptionally heavy logging that recently occurred at Grange State Forest, has not only destroyed the confirmed half hectare of endangered Lowland Rainforest, but has caused severe fragmentation and loss of ecological connectivity between the remaining Lowland Rainforest remnants, and also removed significant areas of disturbed Lowland Rainforest that, left alone, would likely have returned to rainforest over the long term. As it is, I believe all the rainforest, including that which was spared within stream bank exclusion zones, has been severely compromised as a result.

We estimate the investigation of the illegal logging cost the Office of Environment and Heritage well in excess of $10,000 (reports from 2 specialist ecologists, and a soil specialist, formal interviews with Forests NSW staff, along with travel costs and many staff hours). Despite this, Forests NSW was handed a paltry $3,000 penalty infringement notice. We have no idea what happened to the royalties from the huge Brushbox trees that were logged, and we understand no rehabilitation work has been ordered.

We have asked the NSW Scientific Committee, if they are able to rule on this sort of situation, and have also written to the NSW Government requesting that the recommended 20 year rehabilitation program be initiated in an attempt to prevent this sort of thing happening in the future,

Compiled by John Edwards
Honorary Secretary