Legislative Council, Parliament of New South Wales

PORTFOLIO COMMITTEE NO. 4 – INDUSTRY
Inquiry into the long term sustainability and future of the timber and forest products industry

Opening statement by Professor Philip Gibbons

Qualifications

I am a Professor at the Fenner School of Environment and Society, at The Australian National University with an undergraduate degree in science, a Master of forestry and a PhD on managing wildlife in wood production forests. I have 30 years of experience in forest policy, management and research. I am a paid external advisor to the New South Wales Natural Resources Commission.

Introduction

In this statement and my evidence I will focus on item (g) in the Terms of Reference, that is, "the environmental impact and sustainability of native forest logging, including following the 2019/20 bushfire season."

Specifically, I will focus on forest structure, fire and climate change.

Disturbances to the environment from timber harvesting should not be considered from the perspective of a single harvesting event, but as the cumulative impact of disturbances that includes roading, repeated harvesting events in space and time and the regeneration method employed after each cutting event (e.g., slash-burning) (Figure 1). These disturbances occur in addition to other potential pressures on NSW forests such as unplanned fires and climate change.

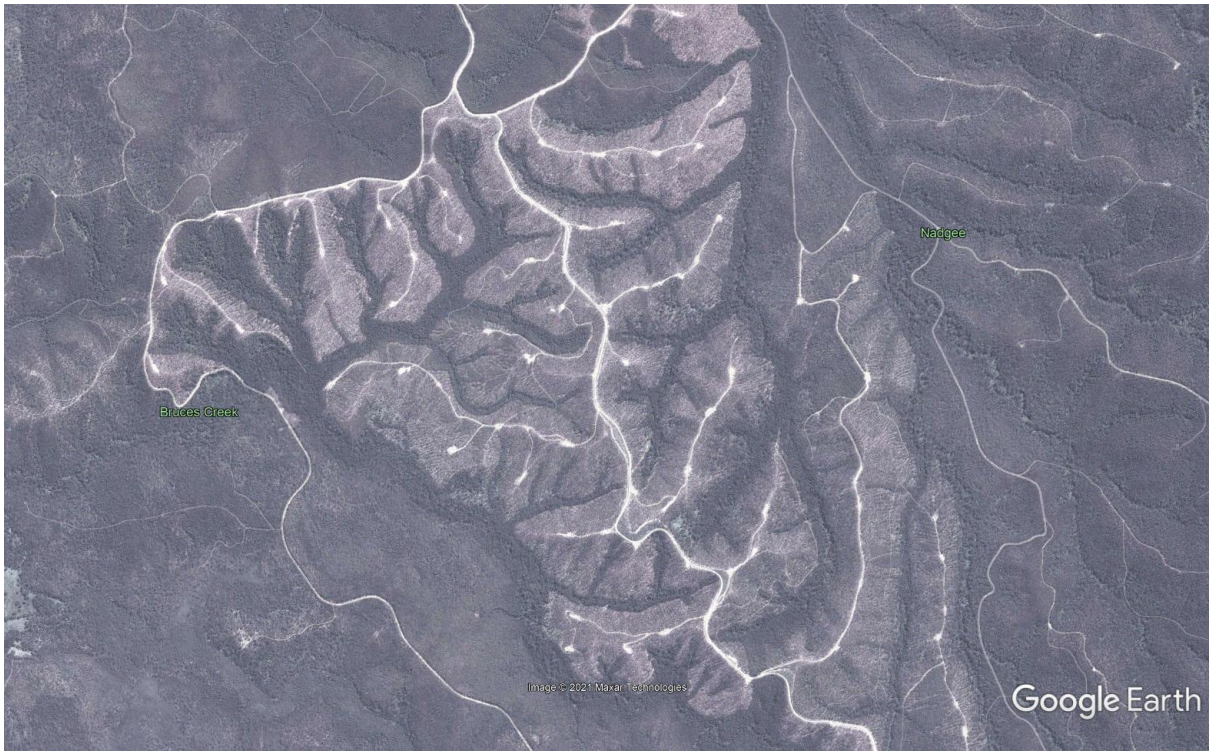

Figure 1. A harvested landscape in the Eden Region indicating the cumulative effect of roading and harvesting in space and time.

Forest structure

A key impact of timber harvesting in NSW forests with respect to wildlife is the conversion of mixed-age forests containing mature eucalypts to dense stands dominated by young trees. Eucalypts are typically harvested for sawlogs in NSW when they reach ages of 30-60 years.

In 1999, 20-34% of State Forest in northern NSW was mapped as old growth forest (compared with 66-82% in National Park estate). These data have not been updated since 1999 so it is not possible to evaluate if this has changed significantly over time.

Old growth forest contains some habitat features not found in forests managed for timber harvesting such as large numbers of hollow-bearing trees. Hollows typically occur in eucalypts that are at least 120-240 years old. Approximately 100 species of vertebrate fauna use hollows in the forests of NSW.

Within the net harvestable area of NSW public native forests, 5-8% of the area is managed as habitat clumps in which hollow-bearing trees (or habitat trees) and additional habitat recruitment trees are retained.

In the remaining 92-95% of the net harvestable area, hollow-bearing trees are retained where they still occur, but there is no requirement to replace them as they collapse.

Thus, we predicted that under current conditions the number of hollow-bearing trees will decline over time and ultimately be lost from the majority of the net harvestable area in NSW forests within 175-300 years.

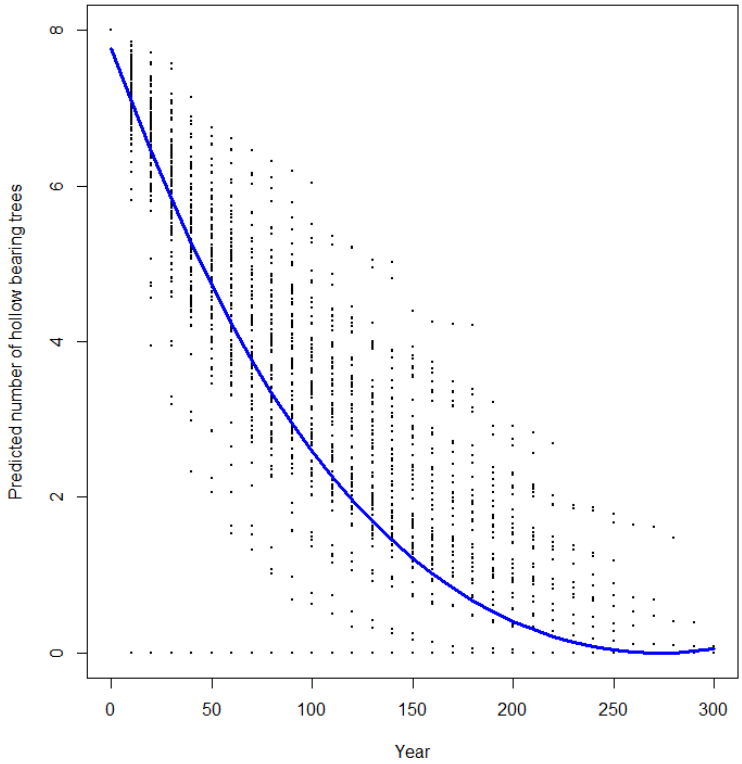

Figure 1. Predicted numbers of hollow-bearing trees that occur in the net harvestable area managed under the current tree retention condition in NSW forests (Source: Owen and Gibbons 2021. Evaluation of the Coastal Integrated Forest Operations Approval conditions and protocols relating to the retention of hollow-bearing trees. Draft report for the NSW Natural Resources Commission.).

Impacts of timber harvesting in NSW on old growth forest and hollow-bearing trees has translated to lower numbers or local extinctions of some native species.

Authors of a recent large study titled *Baselines Drivers and Trends for Species Occupancy and Distribution* undertaken for the NSW Natural Resources Commission reported that:

- Sixty-one native plant species are significantly associated with the occurrence of mapped old growth forest with 17 species (e.g., epiphytes, some rainforest species) identified as "clearly sensitive to timber harvesting".
- Of the 28 fauna species for which suitable data were available , eight species are significantly associated with the occurrence of mapped old growth forest.
- Of the 22 fauna species for which long-term trends in NSW forests can be calculated, 10 species are declining over time, including four species that use tree hollows (greater glider, yellow-bellied glider, common ringtail possum, large-footed myotis).

Fire

There is no evidence to indicate that timber harvesting in NSW forests affords communities greater protection from fire than forests managed as National Park or other tenure.

According to NSW Department of Planning Industry and Environment, 42% of State Forest 37% of National Park estate was burnt in the 2019/20 fires, suggesting neither tenure was managed in a way that made it more or less prone to fire.

This was supported by findings of the NSW Bushfire Inquiry into the 2019/20 fire season. They found (p. 245) "no significant difference between harvested and unharvested areas in the probability of elevated fire severity."

Gibbons et al. (2012) found that the likelihood of house loss during the 2009 Black Saturday fires in Victoria did not vary with the amount of land upwind from houses that was managed as State Forest or National Park; and was not reduced with the proximity to recent logging or percent of the landscape recently logged. An example of house losses during the 2019 fires just south of Bateman's Bay in relation to nearby timber harvesting is illustrated in Figure 2.

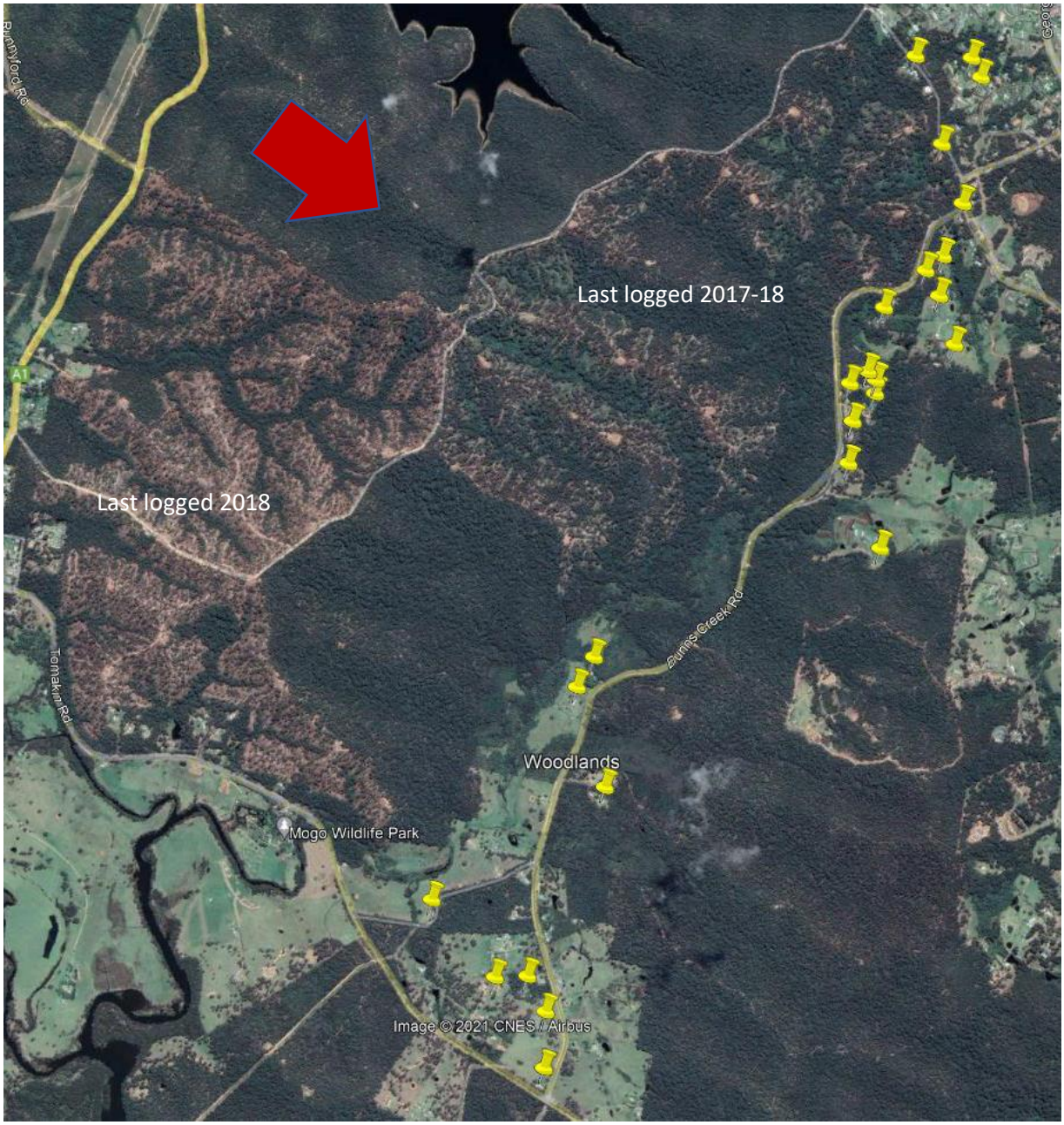

Figure 2. Houses destroyed on New Year's Eve 2019 (yellow pins) in relation to recent timber harvesting near Bateman's Bay, NSW. The wind direction at the time fire impacted this area is indicated by the red arrow.

Climate change

The Bureau of Meteorology has reported that the number of days of high fire danger and the length of the fire season are increasing in south-eastern NSW.

Temperatures and rainfall across forests of NSW were among highest and lowest recorded respectively leading up to the 2019/20 fires.

The NSW Department of Planning, Industry and Environment documented the impacts of the 2019/20 fires on the state's wildlife. Many of the state's threatened species and ecological communities had a large proportion of their known range impacted by these fires. For example, 25% of mapped koala habitat was burnt and 61% of threatened plants and four threatened fauna species had at least 80% of known records within the fire ground.

Timber harvesting in NSW exacerbates the effects of fires such as those that occurred in 2019/20 as follows:

- Fire severity is greater in some logged forest.
- Riparian areas that contain wet forest and rainforest within logged coupes are more vulnerable to drying and thus penetration by fire than would occur without harvesting.
- Hollow-bearing trees collapse at a greater rate after fire. In natural forests, hollow-bearing trees are quickly replaced with mature trees that are damaged by fires. Few trees in these mature age classes exist in net areas available for logging. Our research indicates that changing fire regimes will result in rapid declines of trees with hollows where mature potential hollow-bearing trees are absent from stands.
- Forest Corporation of NSW estimated that the 2019/20 fires reduced the supply of high-quality logs in NSW forests by up to 30% over 14 years. This places greater pressure on existing and proposed environmental protection measures. This will add to the cumulative impacts of timber harvesting in NSW forests.

In a draft report prepared under the NSW Government Saving Our Species (SoS) program, declining habitat conditions were predicted for the majority of the 78 fauna species examined with climate change and in a draft report prepared for the NSW Natural Resources Commission 58% of priority flora species were predicted to have reduced extent of suitable habitat by 2070 with climate change.

Recommendations

To address these three key issues—forest structure, fire and climate change—I recommend the following:

- A greater mix of tree age-classes across NSW forests will improve conditions for wildlife and make these forests more resilient to changes in fire regimes that are predicted to occur with climate change. To this end, conditions in the Coastal Integrated Forest Operations Approval (CIFOA) should be modified so that recruitment of hollow-bearing trees throughout the net harvestable area.
- The NSW government should provide sufficient funding for long-term monitoring, reporting and adaptive management of NSW forests. This process should include identification of thresholds of potential concern for NSW forests. When these thresholds are crossed they should trigger a review of current management.
- The sustainable yield for NSW forests should be set at a level well below maximum sustainable yield to allow sufficient opportunities for genuine adaptive management in response to emerging or new information about the status of NSW wildlife and to enable appropriate responses to wildfires and climate change.
- Forest Corporation of NSW should seek Forest Stewardship Council certification of its operations in native forests.