

THE GREATER GLIDER AND ECONOMICS RE LOGGING NEAR THE CORN TRAIL. JAN. 2019.

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The Greater Glider (*Petauroides volans*) is the commonest arboreal native mammal in the tall *Eucalyptus* forests of eastern Australia¹. In New South Wales they weigh 1 to 1.7 kg and in colour are from dark brown to creamy white.

They live in hollow spouts of tall *Eucalyptus* trees and feed exclusively on the foliage of these trees. Night-time observations of free living gliders have confirmed that they do not feed on any other components of the trees, such as gum, sap or manna, and insect remains are not found in their stomachs². For most of the year they live alone, uniformly distributed in the mature eucalypt forests at about one adult per hectare³. Density depends on the particular species of trees and the mineral properties of the soil on which they are growing⁴.

Like the koala, the greater glider is very selective in the species of *Eucalyptus* it will eat at any particular time of the year. During the summer breeding season greater gliders only feed on species with the highest nutritional content, particularly *Eucalyptus viminalis*, and *E. fastigata*⁵ and at other times on *E. radiata*, *E. obliqua*, *E. cypellocarpa*, *E. muellerana* that are growing new shoots.

As well as selecting the most nutritious leaves, the greater glider has sharp ridged teeth with which it can cut the leaves into very small particles, which are retained in the gut for up to 50 hours. Here the cell walls are further broken down by bacterial fermentation, releasing more of the cell contents, and converting the cellulose to short chain fatty acids. However, the high content of phenolics in *Eucalyptus* foliage inhibits fermentation and so reduces the available carbohydrate from this source⁶, and detoxifying the pungent oils called terpenes uses more of the available energy so that less than half the gross energy ingested in the foliage is available as useful energy for the glider⁷.

For these reasons Greater Gliders are living very close to the line and any disturbance of their special environment is fatal to their survival. Studies done 50 years ago on the effects of forest logging on 1105 greater gliders showed that less than 6% survived and those were animals for whom part of their original habitat was still standing; no displaced gliders survived the loss of their original home⁸. This has been confirmed by later studies when radio tagged gliders were followed after logging; none moved into other unlogged forest⁹.

For all of these reasons integrity of the forest is critical for the survival of Greater Gliders; they are wholly dependent on the forest, unlike other species such as brushtail

possums and ringtail possums. In this sense the Greater Glider is a good indicator species of the health of the forest.

In Compartment 517 before it was logged the 4 species of eucalypt trees present were all favoured species of Greater Gliders and, on 283ha would have supported about 200 adult gliders; **all these gliders are now probably dead.**

Eucalyptus species and area occupied by each species in Compartment 517 before logging¹⁰:

Yellow stringy bark, <i>Eucalyptus obliqua/muellerana</i>	131ha
Brown barrel, <i>E. fastigata</i>	47ha
Ash, <i>E. sieberi</i>	105ha
Coastal dry forest	108ha
Rainforest	17ha
Total for Eucalypts	283ha

Commercial viability of native timber harvesting

The current harvesting by the Forest Corporation of New South Wales of Compartment 517, Buckenbowra State Forest, which lies adjacent to the Monga and Buckenbowra National Park and the historic Corn Trail, can be examined as a commercial activity from the harvesting plans published by FCNSW and current market prices of the five categories of timber expected to be obtained.

The compartment is 294ha from which it is estimated to harvest the following volumes of five grades of timber:

Cat 1 sawlogs	1600m ³ @ \$30 to \$100/m ³	\$48000 to \$160000
Cat 2 sawlogs,	400m ³ @ \$20 to \$30/m ³	\$8000 to \$12000
Cat 3 sawlogs,	800m ³ @ \$10 to \$20/m ³	\$8000 to \$16000
Pulpwood,	2500m ³ @ \$5/m ³	\$125000
Firewood,	2050m ³ @ \$5/m ³	\$102500
Totals	7350m ³	\$86750 to \$210750
Output	25m³/ha	\$94-716/ha

This is a very small amount of timber from such an acreage of forest (25m³/ha) and will generate such a small income that no private forest grower or Corporation that had to face shareholders would survive on this level of activity, especially if the cost of the 10km of roading required to enable the harvesting had to be offset from the income. These are

generous estimates for the several categories of timber but even if FCNSW can obtain double this estimate, it is still a derisory outcome for a supposedly commercial enterprise.

To put this in context a commercial softwood plantation near Braidwood yielded 570 m³/ha five years ago.

One argument that could be made by FCNSW is that this particular compartment had a low yield but the decision to log it was to maintain logging teams during a slow period. But this is not so; other compartments scheduled for logging in the same State Forest – Compartments 516 and 548 – have the same projected low yield of timber and this appears to be true across the native forests of NSW.

In a detailed analysis of the forestry estate the Australia Institute has shown that for the six years, 2009-2015, the native forests of NSW were harvested by FCNSW at a massive loss that was cross-subsidized by \$79 million from the Corporation's softwood plantations¹¹.

Another study by the Australia Institute¹² compared the financial benefit of continued harvesting of native forests in the Southern forest region [SFR] during the next 20 years 2014-33 with retaining all forests and claiming carbon credit offsets; the Australia Institute concluded:

Under current and likely future market conditions harvesting and marketing of native logs in the SFR is likely to generate substantial losses [-\$40 million to -\$77 million]

The aggregate net financial benefits are likely to be significantly higher if commercial harvesting is stopped and the native forests of the SFR are used to generate carbon credits [+\$222 million]

The conclusion that the native forest industry is not sustainable and is commercially unprofitable has been known for 30 years but strongly resisted by the predecessor of the FCNSW. In November 1989 the Commonwealth Government instituted the Forests and Forest Industries Inquiry charged with describing the forests of Australia, the adequacy of their conservation, the timber and timber products industries of Australia, and any conflict between them. In its Interim Report of 1990 Graeme Caughley, the Special Commissioner with expertise in matters environmental, concluded that the rate of timber cutting of native forests exceeded the rate of increase and was therefore unsustainable. His conclusion was excised from the Final Report under pressure from the then NSW Forest Service¹³.

It is surely well overdue now to question why native forests are still being logged for little or no commercial gain, when leaving the forests intact will contribute positively to

Australia's international obligations to reduce carbon emissions and financially benefit the FCNSW. This is highly pertinent in the light of current reports that Australia's *per capita* carbon emissions are the second highest in the World.¹⁴

It is hard not to conclude that the selection of Compartment 517 for logging was not a commercial decision but was specifically chosen because it is surrounded on three sides by the historic Corn Trail and the Monga and Buckenbowra National Park, which was formerly State Forest. If so, did malice play a part in the decision? This perception may have contributed to the anger and public disgust that the decision has aroused.

¹Tyndale-Biscoe, Hugh 2005, *Life of Marsupials*. Pages 221-4, 238-43

² Kavanagh RP, MJ Lambert 1990. Food selection by the greater glider, *Petauroides volans*: is foliar nitrogen a determinant of habitat quality? *Australian Wildlife Research* 17, 285-299.

³ Tyndale-Biscoe and Smith 1969a

⁴ Braithwaite LW 1984. The identification of conservation areas for possums and gliders within the Eden woodpulp concession district. In *Possums and Gliders*. Eds AP Smith and ID Hume. Pp 501-508. Australian Mammal Society, Sydney.

⁵ Kavanagh and Lambert 1990. *ibid*

⁶ Foley WJ, Hume ID, Cork SJ 1989. Fermentation in the hind gut of the greater glider (*Petauroides volans*) and the brushtail possum (*Trichosurus vulpecula*) - two arboreal folivores. *Physiological Zoology* 62, 1126-1143.

⁷ Foley WJ 1987. Digestion and energy metabolism in a small arboreal marsupial, the greater glider, *Petauroides volans* fed high-terpene *Eucalyptus* foliage. *Journal of Comparative Physiology* 157, 355-362.

⁸ Tyndale-Biscoe and Smith 1969b

⁹ Kavanagh RP, Wheeler RJ 2001. Home range of the greater glider, *Petauroides volans*, in tall montane forest of south-eastern New South Wales, and changes following logging. Proceedings of 47th meeting of Australian Mammal Society. P.59.[to be published in 2002, use for now]

¹⁰ Buckenbowra Compartment 517 estimates

¹¹ *Money doesn't grow on trees*. The Australia Institute, Technical brief No. March 2016

¹² *Logging or carbon credits*. The Australia Institute, Technical brief No. 23. June 2013

¹³ Tyndale-Biscoe, C.H. (1999). Graeme James Caughley, 1937-1994. *Historical Records of Australian Science* 12, 363-381.

¹⁴ Australia's carbon emissions report and great value of native forests as carbon sink. *The Guardian, Australia*. 6 December 2018