Great Southern Forest: an economic analysis of changing from logging native forests to forests products of more intrinsic and wider value

This paper analyses economic advantages of systemic transformation in the management of south east NSW public native forests from logging to perpetuating patterns of ecological integrity, climate stabilisation, carbon sequestration and water cycles. The native forest timber sector is declining financially and for employment while the plantation sector of the timber industry is on the increase; this far more efficient sector sees growing profits and increasing employment while addressing Australia's timber needs and export opportunities.

In contrast to the declining state of native forest logging in SE NSW, the Great Southern Forest proposal offers feasible options for these public forests which can bring steady profitability, hundreds of new full-time jobs and strengthened ecological resilience while opening the forests for greater benign use, social cohesion and community well-being.

PRESENT CONTEXT OF NATIVE FOREST LOGGING

Native forest logging in the State Forests of NSW is both uneconomic and environmentally damaging, and the longer it goes on the worse the outcomes will be.[i] It is no longer necessary as plantations provide for most wood needs and are the basis of NSW's substantial timber processing industries. The present and future for the timber industry lies with plantations. The full transition to plantations should be hastened by the Government, with announcement of an end date for native forest logging and suitable packages put in place for workers under principles of Just Transitions. The Regional Forest Agreements (RFAs) should not be renewed, modified or rolled over; productive alternatives should be enabled.

New management arrangements should be developed for the native public forests. There are sound ethical and practical reasons for putting primacy on forest rehabilitation and facilitating recovery of the range of plant and animal species that have been so depleted by so many decades of intensive, industrialised logging. Concurrent with that is the potential for opening the forests for varied, benign activities and increased economic and employment outcomes.

Contrary to much industry spin, ceasing logging will not be a disaster for regional economies - the current contribution is small. In fact such a transformation will reduce problems for some existing industries and open opportunities for new industries to develop such as the growing nature tourism sector. In the SE NSW region, tourism is the third largest regional employer after health and education. This change in orientation of forest management would enable economic benefits to be shared widely throughout the community.

Jobs in native forests have steadily declined and now are few in this highly mechanised industry. Around only 600 people are directly employed in the native forest sector in NSW. In the SE from Nowra to the Victorian border and west to Tumut, there are less than 200 jobs including 60 which are Forestry Corporation employees, and 140 without them. Many workers can be absorbed in the plantation sector and others can be prioritised for jobs within the new management arrangements. In the SE publicly owned softwood plantations

at nearby Bombala offer a ready option. The NSW Government has successfully implemented similar transitions in the past.

Native forest logging is a drain on the public purse. Between 2009 and 2014, the profitable Softwood Plantations Division of Forestry Corporation (formerly ForestsNSW) cross-subsidised native forestry logging to the order of $79 million. Average losses in other recent years have been $11 million per year.[ii] Thus, native forest logging makes no economic sense and is heavily subsidised by the taxpayer. Continued logging also makes no environmental sense with environmental damage to waterways, soils, forest ecological systems and plant and animal species, not to mention impact on other industries, hydrological systems and regional climate.

Native forest logging is fundamentally unprofitable, increasingly so. Plantations are far better suited to commodity production. A long history of over-logging in public native forests means yields have dropped sharply and logging is increasingly in regrowth and steeper forest areas to the point now of cutting "super small logs" i.e. very young trees.[iii] New and substantial investment would be needed to process smaller logs in the South East; however there is a question mark over whether there is suitable technology for this, and if so, at what cost and borne by whom. Nor will seeking out markets for biomass for electricity and biofuels make either economic or environmental sense - quite the reverse: it will maintain and arguably compound the losses from native forest logging, not to mention impact on other industries/sectors while increasing green-house gas emissions.[iv] Conversely, ceasing logging of native forests and land clearing can substantially address Australia's international climate commitments.

Native forest logging in the SE NSW is inefficient. The plantation forests in 2013 provided around 80% of NSW wood supplies. This was achieved on only one tenth of the area of native forests logged for the remaining 20%. The disproportion is likely to be higher now.[v] The inefficiency and unprofitability will increase.[1] Forestry Corporation harvest plans for the South East analysed by Ajani in 2014 showed that post 2013 twice the areas previously needed would have to be logged to maintain wood supply levels, and this made for much higher costs as well as far more environmental detriment.[2] There has also been detriment (much unacknowledged by governments) to other industries that rely on healthy forests - including water supplies, fish and oyster breeding, and eco-tourism, and regional tourism generally which is essentially based on natural beauty.

It is now clear that Forestry Corporation cannot cut costs from its native forest operations without major additional detriment to environmental amenity throughout the State, and particularly so in the South East where logging has been the most intensive since the

[1] In 2013 actual native forest productivity in the SE was 85 cubic metres per hectare and softwood plantations 480 cubic metres per hectare. On the basis of FC harvest plans the future relative productivity was calculated to be native forest 45 cubic metres per hectare and plantation 540cubic metres per hectare..The plantation forests in the SE are thus 12 times more productive than the native forests, require only a fraction of the land mass

[2] Forests are not regrowing as expected by agencies. Logging has led to soil losses and compaction. In higher areas due removal of canopy young regrowth is not protected from frost. Removal of canopy creates drier and more fire-prone forests.

establishment of the woodchipping industry at the end of the 1960s and is by far the main consumer of the forests.[3]

THE WAY FORWARD

There are major differences in the current situations of the native forest sector between the north and the south of the NSW, and the conservation movements have come to somewhat different conclusions about preferred future arrangements (though not necessarily incompatible ones). Both call for an end to the RFA regimes, an end to industrialised logging, and for new management structures. Colleagues in the north are calling for specified areas for new Koala National Parks.

In the South East we are calling for a comprehensive new management regime for all of the region's State Forests, to accommodate a variety of regimes and conditions from virtually full protection to allowing some sensitive development and activities appropriate to the condition of the particular area of forest - an approach for which there are successful overseas models. Eco-tourism, for example, in appropriate areas of State forests could take pressure off calls for developments in National Parks.

Native forest management truly requires multi-disciplinary approaches and a new management structure, preferably a less politicised one, with a new ethical base and an expanded, contemporary framework to integrate regional and planetary understandings, priorities and issues. In the Great Southern Forest proposal we are not arguing for new national parks (although this type of protection may be appropriate for some areas). We are arguing for a re-orientation of native forest management aims and parameters that can give primacy to forest rehabilitation and take far better account of the multiple values of the forests and enabling different kinds of activities and products. Extensive research and conceptual work has been done in Australia and overseas that can help identify good models appropriate to NSW and SE NSW in particular.

GREAT SOUTHERN FOREST ECONOMICS

The economic case for a paradigm change in forest management is strong, with resultant expansion in employment and significant environment benefit.

To elucidate the economics of managing our state forests in an inclusive way responsible to future generations and environment we draw on a thorough parallel study, the NOUS report (2017). [4] The NOUS report economically analyses the proposal for the Great Forest National

[3] We understand that Forestry Corporation (and possibly other agencies) see new technologies like LIDAR and other remote sensing as means of cost cutting by eliminating the need for on-ground surveys. They can make a very valuable contribution to understanding and measuring many of the wood values of the forests. But advice we have received is that their data does need to be validated by on-ground surveys. Moreover LIDAR et al cannot identify many of the environmental elements that NSW Governments (of both political persuasions) have always claimed they wanted to protect. Identification of animal species will still need on-ground surveys - of the kind conducted by NPWS for koalas when Forestry Corporation failed to find threatened species. It is not clear what contribution these technologies can make to maintaining water qualities. Certainly they cannot contribute to vital yet less tangible benefits to communities.

[4] The Nous Group is an Australian management consulting firm with over 220 staff across Australia and the UK who address complex issues facing business, government and communities. NOUS was commissioned for this study by the Wilderness Society in 2017. The methods used were international best practice.

Park (GFNP) in Victoria.[vi] The key conceptual framework is similar to the Great Southern Forest, NSW, proposal such as size, perpetual ecological integrity, connectivity to ensure climate resilience and long term economic, environmental and social benefits.[5] A key difference is that the Victorian proposal is for further national parks. The Great Southern Forest, NSW, proposal is not asking for new national parks. However, connecting corridors to address forest fragmentation and ensure the resilience of an adaptable, inter-connected landscape and for some species' movement, may require government support or acquisition. However, common-sense may indicate that certain areas warrant national park or national reserve status.

Great Southern Forest's primary aim is fundamental and systemic re-orientation of the management of SE publicly owned native forests to prioritise on-going ecological integrity while opening up appropriate areas for various benign access and use.

The NOUS report addresses the economic and employment impacts devolving from the Victorian Great Forest National Park proposal in two areas:

1 Detailed analysis of additional economic contribution, park management and visitor expenditure.
2 Ecosystem services of biodiversity preservation, water provisioning and carbon sequestration.

The analysis considers three distinct scenarios which represent different options for implementing the Victorian proposal. The analysis is conservative and based on publicly available information.

Scenario 1 *Change in tenure*: involves only a change in tenure from state forests to national parks with no other changes made to the status quo. (This scenario is not relevant for the Great Southern Forest, NSW proposal per se but provides a baseline for comparison of no government funding with the options of government or government/private investment).

Scenario 2 *Publicly funded attraction*: considers the scenario where the proposal is established with funding from the government for infrastructure and more extensive management.

Scenario 3 *Private investment*: assumes private investment is attracted to the region, contributing to it as a significant tourism destination and enabling realisation of more of its tourism potential. Private investment is in addition to government investment.[6]

[5] Under the Victorian proposal, the existing reserve system in the Central Highlands of Victoria will be expanded by approximately 353,000 hectares to create a contiguous reserve system spanning 537,000 hectares. Consultations with stakeholders identified these forests as a unique place to visit. Visitation and satisfaction data indicate that the tourism potential of these forests has not been realised under existing arrangements.

[6] Analogous case studies and research highlighted by stakeholders through the consultation process were drawn on to inform defensible assumptions and derive estimates of increased direct expenditure from proposal establishment, management and higher visitation. Estimates of direct expenditure were then integrated into economic activity (measured through Gross Value Added, GVA).

Results of NOUS economic analysis show that in the final year of the 10 year forecast period for this analysis, **Scenarios 1, 2, and 3 each generated an additional revenue and employment**.

Scenario 1: $7.5 million annually & 80 new full time jobs

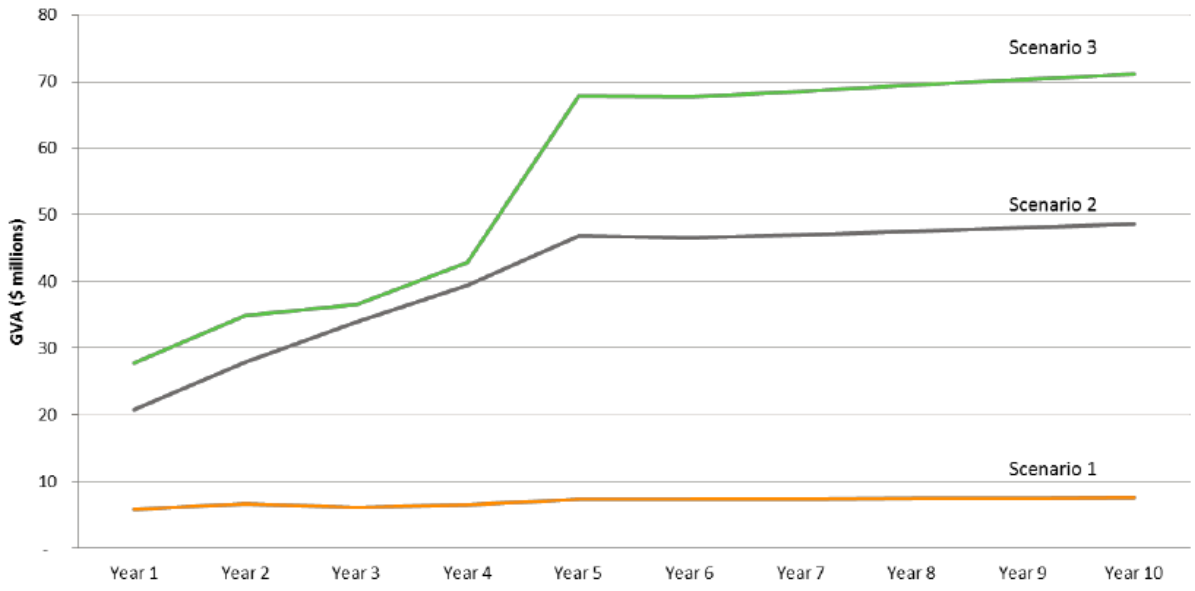
Scenario 2: $48.6 million annually & 520 new full time jobs

Scenario 3: $71.1 million annually and 760 new full time jobs

Importantly, all economic activity is new activity, as is the employment.

ECONOMIC BENEFITS OF THE THREE SCENARIOS OVER 10 YEARS (NOUS 2017 p 28, fig. 8)

Figure 8: Total GVA by scenario, Years 1-10



The three categories of expenditure considered in this analysis are establishment, management and visitor spending.

Expenditure associated with setting up provides an **initial economic benefit to the region**, contributing to both Gross Regional Product (GRP) and employment over the establishment period.

Any additional expenditure on management and the spending by additional visitors attracted to the region would result in **ongoing economic benefits for local economies.**

ECONOMIC BENEFIT OF PARK DEVELOPMENT, MANAGEMENT AND CAPITAL WORKS (NOUS 2017 P 29)

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
		Development phase					Operational phase				
Scenario 1	Direct	$2.6m	$3m	$2.9m	$3.2m	$3.6m	$3.6m	$3.7m	$3.7m	$3.7m	$3.8m
	Indirect	$3.2m	$3.6m	$3.1m	$3.3m	$3.7m	$3.7m	$3.7m	$3.7m	$3.7m	$3.8m
	Total	**$5.8m**	**$6.6m**	**$6m**	**$6.5m**	**$7.3m**	**$7.3m**	**$7.4m**	**$7.4m**	**$7.5m**	**$7.5m**
Scenario 2	Direct	$9.7m	$13.5m	$17m	$20.2m	$24.2m	$24.1m	$24.4m	$24.7m	$25m	$25.3m
	Indirect	$11.1m	$14.4m	$17m	$19.2m	$22.7m	$22.4m	$22.6m	$22.8m	$23.1m	$23.4m
	Total	**$20.8m**	**$28m**	**$34m**	**$39.4m**	**$46.8m**	**$46.5m**	**$47m**	**$47.5m**	**$48.1m**	**$48.6m**
Scenario 3	Direct	$12.2m	$16m	$18.2m	$21.8m	$35.4m	$35.5m	$35.9m	$36.4m	$36.8m	$37.3m
	Indirect	$15.5m	$18.8m	$18.4m	$21.1m	$32.4m	$32.2m	$32.6m	$33m	$33.4m	$33.8m
	Total	**$27.7m**	**$34.9m**	**$36.6m**	**$42.9m**	**$67.8m**	**$67.7m**	**$68.6m**	**$69.4m**	**$70.2m**	**$71.1m**

The proposed changed use of forests generates **new money into the regional economy** with subsequent GVA (Gross Value Added) together with on-going economic multiplier effects.

Additional benefits include recreational value by park users, environmental values and contribution to the Gross Regional Product in establishment, management and tourism.

EMPLOYMENT, DIRECT AND INDIRECT, OVER 10 YEARS (NOUS 2017 p 32)

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
		Development phase					Operational phase				
Scenario 1	Direct	30	40	40	40	50	50	50	50	50	50
	Indirect	30	30	30	30	30	30	30	30	30	30
	Total	**60**	**70**	**60**	**70**	**80**	**80**	**80**	**80**	**80**	**80**
Scenario 2	Direct	120	170	210	260	310	310	310	310	320	320
	Indirect	90	120	140	160	190	190	190	190	190	200
	Total	**220**	**290**	**360**	**420**	**500**	**500**	**500**	**510**	**510**	**520**
Scenario 3	Direct	150	190	230	270	450	450	460	460	470	470
	Indirect	130	160	150	180	270	270	270	280	280	280
	Total	**280**	**350**	**380**	**450**	**720**	**720**	**730**	**740**	**750**	**760**

Employment forecasts over the ten year period of development and operation indicate **significant new full time jobs generated directly and indirectly.**

LOCATION AND VISITATION

Location and visitation enhance economic benefit. The NOUS report identifies the Victorian Central Highlands' forests as a major tourism asset. Drivers for increased visitation include the proximity to Melbourne (90 minute drive), unique natural assets such as the tall Mountain Ash trees, the tallest flowering trees in the world together with other natural features including geological attraction such as the Cerberean Caldera, an ancient 30 kilometre wide volcano, waterfalls and ranges distributed across the eroded rim of the volcano and a diverse range of flora and fauna species.

Research shows that core drivers for visitation and positive experience are natural features and access, with enabling infrastructure such as tracks and signage. Visitors rank landscape (including natural features) as the most important aspect, then existence of services and facilities. Well designed and maintained tracks and paths, and clear and helpful direction signage rank third and fourth respectively.

The Great Southern Forest, NSW, also has major tourism assets and unique natural advantages, many due to its location. Hundreds of kilometres of magnificent coastline juxta-position forests, mountains, snow meadows, lakes, rivers, sea pools and estuaries. Much visitor infrastructure already exists with accommodation of various standards in the region which can be increased. Drivers for increased visitation include the proximity to Canberra (a day trip promoted by Tourism ACT) and the Snowy Mountains. The SE corner of NSW is a frequent stop-over for visitors en-route between Melbourne and Sydney. Visitors stay over and spread the economic benefits throughout the region.

Improved infrastructure increases visitation; increased visitors increases income and increased use by regional residents (35%). 68% of international visitors wish to engage with nature-based tourism. Cruise ships visit the port of Eden with thousands of visitors pouring ashore looking for nature-based activities. That Canberra airport is now an international destination increasing access for international visitors.

From the NOUS report, visitor expenditure analysis indicates that international visitors spend $56 for a day trip and $345 overnight and domestic visitors spend $80 for a day trip and $889 for longer stays. This is direct additional input spread across the regional economy.

SIMPLE INFRASTRUCTURE

Simple infrastructure increases visitor satisfaction and so economic benefits. Establishment costs estimates are $11/ha for tourist infrastructure.[vii]

Important visitor infrastructure include the range of activities, volunteer programs, landscape and natural features, paths and tracks, signage, staff, toilets, drinking water, shelter, information and interpretation, and waste disposal.

The NOUS report listed infrastructure changes and attractions which affect visitation rates and resultant economic benefit. Much of the infrastructure is simple and low cost; other

requires greater investment, probably private. Each feature is a building block for eco-tourism including:

- greater signage and interpretation sites in and around or adjacent;
- greater accessibility for 'grey nomads'; advertised appropriately;
- greater accessibility for people with a disability;
- increased day picnic sites;
- more signed and listed campsites;
- a zip line tour;
- multi-day and short walks;
- a treetop walk;
- eco-lodges.

GREAT SOUTHERN FOREST ASSETS AND INFRASTRUCUTRE

The Great Southern Forest, NSW, can realise all of these infrastructure activities. Existing walks include the Wilderness Coast and Gulaga walks, and the traditional path of the Indigenous owners, the Bundian Way, from the sea to the mountains is under development. The further potential for short, day and multiple day walks, access to natural campsites, picnic spots and lookouts is extensive. The rich array of tourist infrastructure in the coastal and mountain region can be expanded. Because the proposal does not seek national park status, there is far greater scope to allow more varied accommodation and activities.

The Great Southern Forest proposal embeds the scope for Indigenous partnership. From several Indigenous communities in the region, entrepreneurial ventures can build further with flow on for increased Indigenous employment. Both Indigenous and youth unemployment are high in the SE region and the Great Southern Forest proposal offers long term pathways for jobs, careers and further learning.[7] There are several funded Indigenous employment programs which enable Working on Country with the spiritual, psychological, social and economic benefits which flow from this relationship.

The field is ripe for private participation. The NOUS report indicates establishment costs for a tree walk ($1.1m), a zip-line ($1m) and an eco-lodge ($3.8 – $7m).

Under the Great Southern Forest proposal management costs are not additional expenditure but are a re-allocation of funds from existing forest management budgets to mirror the re-orientation of aims and early outcomes.

Additionally, over the past 10 years, the NSW Government paid Forestry Corporation a total of $136m in grants related to Community Service Obligations (CSOs) and to reimburse other non-operational activities such as recreation facilities, education and advisory services, government liaison and regulatory services, community fire protection, and research. So within existing arrangements costs for many activities proposed for the Great Southern Forest are already funded.

[7] New diverse jobs include horticulture, nursey work, fire management and works, road and track maintenance, pest and weed control, visitor management, research, liaison, school and tour guides etc

ECOSYSTEM SEVICES

Life, humanity and the environment are inseparable, a dynamic interactive entity. There is a growing body of research on the value of services provided by ecosystems quantifying the social, economic and personal benefits people gain from ecosystems. Some of this research extends to the beneficial monetary implications of fostering ecosystems and also the costs of damaging ecosystems including where guarantees of no harm are violated (eg consequences of the increased fire risk with logging) and where international, national and state legal agreements are transgressed.

Forests also provide many tangible services such as clean water, climate and heat regulation, nurseries for fish breeding, pollination and pest control services for agriculture and aquaculture, storm protection for coastal communities, and physical and mental health benefits for park visitors. They also provide benefits such as neighbourhood amenity, social cohesion and scientific and educational opportunities.

Ecosystem services are generally categorised into four categories per the Common International Classification of Ecosystem Services (CICES). These are:

- **Provisioning services:** Tangible goods and services that can be exchanged, traded, consumed or used directly by people e.g. provision of food, water and other raw materials.

- **Regulating services:** Ecosystem's role in controlling or modifying the parameters that define the environment; these ecosystem outputs are not consumed but affect individuals, communities and populations and their activities e.g. climate regulation; watershed regulation such as purification and flood control; and biological processes such as pest control, pollination and genetic diversity.

- **Cultural services:** Intangible ecosystem outputs that have symbolic, cultural or intellectual significance e.g. recreational services; spiritual and cultural connection; landscape amenity; health services; social cohesion and involvement.

- **Supporting services:** Services within or between ecosystems e.g. maintaining soil health and enhancing habitat for native species.

An Australian National University team applied the System of Environmental Economic Accounting, an internationally recognised statistical tool, to quantify the economic contributions to the Victorian state economy of the Victoria Central Highlands forest ecosystem services.[viii] Ecosystem Accounting incorporates both economic and environmental data to compare land use activities and trade-offs.

The thorough analysis for the Central Highlands, Victoria gives a strong equivalent comparative base for the Great Southern Forest in south eastern NSW.

These figures indicate the economic values provided by native forests ecosystems beyond simply native hardwood timber. The economic contribution of the forest ecosystem services to key regional industries in the Victorian Central Highlands are:

- Agriculture $312m
- Water supply $310m
- Tourism $260m
- Carbon $49m
- Plantation timber $30m
- Native forest timber $15m

The combined value of agriculture, water supply, tourism and carbon of $981m pa vastly overshadows that of native forest logging at $15 pa. As native forest logging in SE NSW is loss making, the difference is even more stark. In the context of expanded responsibilities required in these times clearly native forest logging makes no economic sense.

Additionally and importantly, comprehension of ecosystem services is underpinned by the understanding that ecological integrity is inseparable from Life and a positive human future. The establishment of management systems for forests that ensure on-going and improving ecological integrity are critical, both regionally and for the planet as a whole.

Mounting evidence suggests that **community health and wellbeing and economic resilience** are linked to healthy and resilient ecosystems, and the international community is becoming increasingly cognisant of ecosystem importance.[ix] Japanese university research validates the significant health benefits (eg on cardio-vascular diseases) of 'forest bathing', essentially dwelling and merging with the milieu of a forest. In Victorian, Parks Victoria and Department of Land, Water & Environment recently identified the key ecosystem services contributing to Victoria's economy and community well-being.[x] Proposals such as Great Southern Forest enable people to connect with nature and have access to diverse opportunities for outdoor recreation.

Importantly, a major benefit and ultimate responsibility is the **retention of the natural environment for future generations.**

THE CHOICE

The NOUS report states categorically that '**business as usual is deferment of the inevitable'**.

Destructive, obstructive industrial logging of native forests is facing systemic limits and failure. For SE NSW there is a deeply researched, positive alternative that offers inclusive benefits for the community and environment.

The public native forests in south eastern NSW offer a perfect coalescing of factors to pioneer a far-sighted approach to managing our forests to ensure perpetuating patterns of ecological integrity and activating the regional economy with new money and jobs.

Dr Rosemary Beaumont October 2018

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