

Contents

1.	Executive Summary	5
2.	Terms of Reference.....	10
3.	Background	11
4.	Approach taken.....	11
5.	Factors considered in the development of options.....	12
5.1	Current Management and land use	12
5.2	Verification of resource estimates and assumptions used.....	13
5.3	Socio-economic factors	14
5.4	Environmental factors	16
5.5	Views of Stakeholder Groups	17
6.	Option elements.....	19
6.1	Environmental gains that reduce log supply.....	20
6.2	Ameliorating Factors	21
6.3	Old-growth forest analysis.....	23
7.	The options for timber harvesting.....	27
7.1	Description	27
7.2	Detailed assessment of the impacts and implications.....	28
7.3	Additional factors considered as having a value to industry stakeholders.....	32
7.4	Analysis of Options	33
8.	Certification	37
9.	Glossary	38
10.	Acknowledgments	41
11.	Commissioned Research.....	41
11.1	Executive Summary: Options to increase sawlog production from regrowth forests in East Gippsland. Executive summary. Mike Connell and John Raison August 2006	41
11.2	Full Report:The potential to actively manage regrowth forests to increase sawlog production in East Gippsland. Mike Connell and John Raison August 2006.....	41
11.3	A socioeconomic impact of the timber industry on the communities within East Gippsland FMA, Victoria. MBAC Consulting August 2006	41

12.	Appendices.....	42
12.1	Media Release from Minister re EGFIIP.....	42
12.2	Summary of assumptions/resource information	42
12.3	Victorian Forests - The Key Issues. Institute of Foresters of Australia. August 2006	47
12.4	Reference to Eucalypt Plantations for Solid Wood Products in Australia – A Review. Forest and Wood Products Research and Development Corporation, Australian Government 2005.....	47
12.5	Industry Stakeholder Option VAFI, CFMEU, VFHHC May 2006.....	47
12.6	Key comments from tour with P Steedman and G Gooding, 15 th March 2006. VicForests	47
12.7	Shire of East Gippsland motion	47
12.8	Choosing a Future for Victoria’s Forests Victorian Forest Alliance June 2006	47
12.9	Victorian Forests: The Green way Forward Australian Greens Victoria 2 June 2006	47
12.10	East Gippsland FMA Rainforest and Land status Victorian Rainforest Network 2006.....	47
12.11	Rainforest Sites of Significance Victorian Rainforest Network July 2006	47
12.12	TWS Stated Position (the words were agreed to by TWS).....	47
12.13	Environment East Gippsland Position Paper April 2006	47
12.14	Environment East Gippsland’s position points and comments on changes to EG logging industry 2006.....	47
12.15	Zoning Scheme.....	47
12.16	Other groups.....	47
12.17	Notes on clearfelling	47
12.18	Resource Data for EGFIIP.....	47

Figures

Figure 1: Socio-economic factors.....	5
Figure 2: EGFIIP has adopted 130,000 m ³ /yr D+ (lower risk) as the base for comparison	15
Figure 4: Net harvestable area East Gippsland FMA.....	16
Figure 5: Net harvestable area for key forest types (Ecological vegetation communities)	16
Figure 6: Patch and Corridor Retention method used in VicForests coupe trials.....	20
Figure 7: Old-growth forest definition	24
Figure 8: Harvestable areas (ha.).....	25
Figure 9: Impacts of buffer zones on old-growth volumes.....	25
Figure 10: Map of fragmented old-growth forest	26
Figure 11: Size distribution of old-growth forest stand size in GMZ/SMZ.....	27
Figure 11: Protection of old-growth forest under each option.....	29
Figure 12: Timber jobs.....	29

Figure 14: Timber turnover (\$)	31
Figure 14: VicForests Mill Door Sales	31
Figure 15: Assistance packages.....	32
Figure 17: Draft IFPS runs illustrating impact of thinning (in Appendix 12.2).....	45

Tables

Table 1: Summary of resource impacts for D+ sawlogs (deductions or additions to 130,000m ³ /yr)	8
Table 2: ESR, licence and harvested volume (m ³ gross) levels in 2004-05	12
Table 3: Area harvested 04/05	13
Table 4 Timing of regrowth availability - Impact on sustainable harvest of current mature wood	21
Table 5: Option 4 - Cease old-growth harvesting by 2008, 2010 or 2014, immediate impacts	30
Table 6: Option combinations and impact analysis.....	33
Table 7: Analysis of options.....	34
Table 8: Area statement	42
Table 9: Net merchantable and available State forest EGFMA (Mature and Regrowth)	42
Table 10: Old Growth Forests in East Gippsland FMA.....	42
Table 11: Sustainable yield considerations.....	43
Table 12: IFPS assumptions.....	44
Table 13: Impacts of excluding old-growth forest	46

Maps

- Map 1: East Gippsland Local Government Areas/FMA
- Map 2: Old-growth forest in East Gippsland FMA
- Map 3: Sub-catchment Protection of old-growth forest in East Gippsland
- Map 4: Protection of selected contentious areas in East Gippsland
- Map 5: Forest Management Zone changes to release timber
- Map 6: Victorian Forest Alliance Proposed Reserves

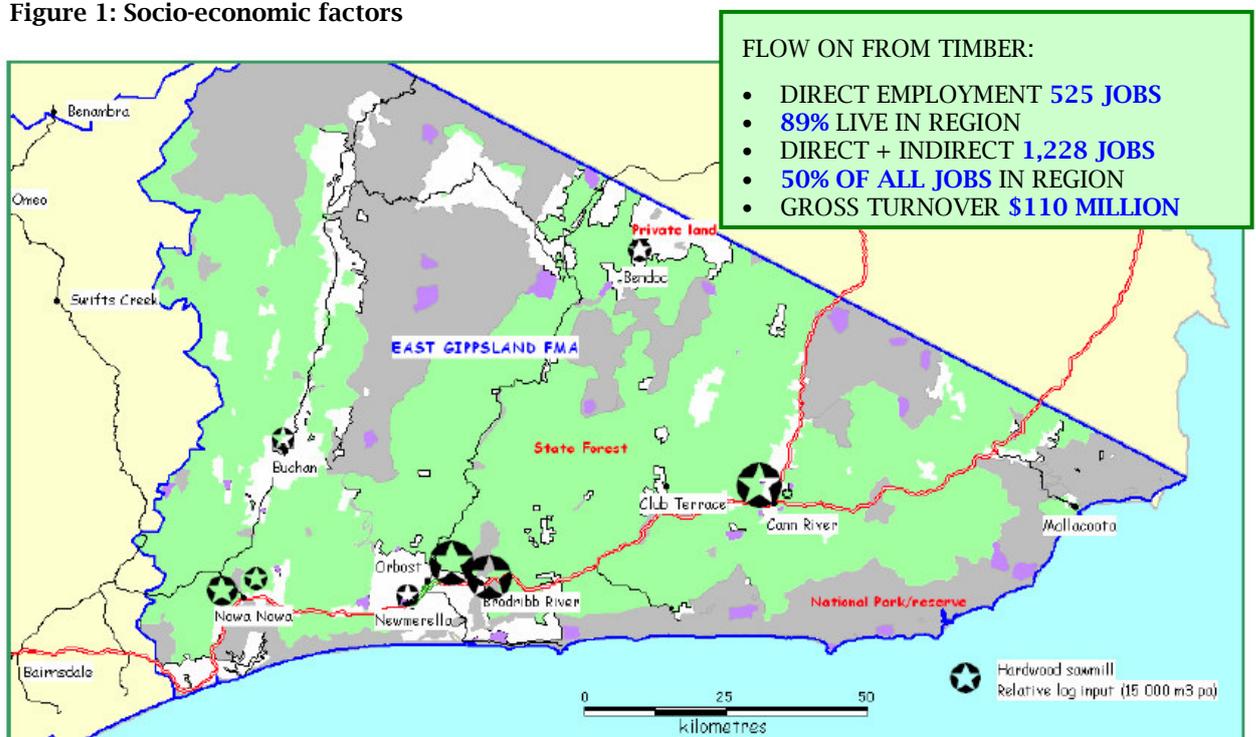
1. Executive Summary

Objective

The objective of this report is to determine how the hardwood timber industry in the East Gippsland Forest Management Area will address old-growth issues and work towards internationally recognised certification of forestry activities on public land. The project aims to verify timber availability and develop a range of options to enable the government to negotiate outcomes with industry and community stakeholders.

The currently available timber (sawlogs and pulpwood from public native forests) in East Gippsland Forest Management Area (FMA) generates direct employment of around 525 people in harvesting and processing. The industry currently directly and indirectly supports around 1,228 full-time jobs¹ or around 50% of all full-time jobs in the region. The gross value of output (turnover) is \$110 million. (see section 5.3)

Figure 1: Socio-economic factors



Old-growth forest definition and area

Old-growth forest is defined as “ecologically mature forest where the effects of disturbances are now negligible.” Within 1.05 million ha of public land in East Gippsland there are 170,000 hectares of old-growth, of which under 9% is available for timber production.

Despite most of the old-growth forest in East Gippsland being protected in areas unavailable for harvesting, the old-growth harvesting that does take place is still a highly contentious activity. This issue has adversely affected, and will continue to adversely affect the future operating environment for the industry and VicForests, leaving a substantial part of their businesses exposed to significant risk. As a result, the industry stakeholders have actively sought to find an innovative solution. They have also sought to engage with the Government and environmental non-government organisations (eNGOs) on the proviso that the net level of timber harvesting activity could be safely and viably sustained or preferably improved, given the recent reductions in industry activity due to mill closures and industry rationalisation.

¹ Current level is at a point in a cyclical market downturn. Harvesting at current sustainable level would generate 1312 direct and indirect jobs

This project has come about in large part as a response to these industry initiatives. EGFIP was able to get all the industry stakeholder organisations (VAFI, CFMEU, VFHCC) to unanimously agree to a written position that they would accept an outcome that was of equivalent value to the production levels as indicated in *Our Forest Our Future* reports or an outcome of equivalent value. They were flexible as to how this value equivalence was achieved, for example less sawlogs, but greater security. Some of the possible additional values are discussed below.

Socio-economic model for EGFIP Options

EGFIP has developed a range of options which are analysed in detail in the report. However finding a solution to old-growth harvesting that provides an improved outcome that does not impact severely on at least one element of the Triple Bottom Line (Social-Economic-Environment) is extremely challenging. This is particularly so given the social and economic implications for a region that is highly reliant on timber production. To analyse the options for the future of the timber industry in East Gippsland, EGFIP engaged consultants² to assess the current socio-economic position and to provide a socio-economic assessment model. Their full report is attached.

Factors to consider in framing the options

The regional community has a high economic dependence on timber production and they have suffered considerable disruption in recent years during the introduction of measures to protect the environment.

East Gippsland's supply also needs to be considered in context with reduced supply available in adjacent areas, such as Tambo FMA, which is also part of the East Gippsland Local Government Area. These amendments follow improved data and factoring in the impact of the 2003 fires.

Currently 4.6 million m³ of standing mature D+ sawlogs are available to harvest over the 35 years period before regrowth comes on stream. This equates to around 130,000 m³ gross/yr. EGFIP notes that the figures could be between 130,000 and 150,000 m³, depending largely on the timing that regrowth sawlogs become available. Given these options remove real wood (current mature) and rely in part on virtual wood (projections regarding thinning impacts on the regrowth), EGFIP considers it is prudent to adopt the low end of this range until further work is done on the regrowth yield projections. This is to avoid a re-occurrence of the past where optimistic assumptions have led to wood shortfalls (e.g. Wombat Forest).

Pulpwood associated with the harvesting of that sawlog volume equates on average to at least 2.5 m³ of pulpwood for each m³ of sawlog.

Proportion of sawlog supply in East Gippsland reliant on old-growth forest

Old-growth forests provide 20% of the sawlog volume. However due to the fragmented nature of the old-growth forests within timber production areas, if old-growth harvesting immediately ceased, access to adjacent areas would also be reduced due to likely constraints such as restrictions on falling trees into protected stands, buffering and access to stands that have become isolated. The overall impact of a withdrawal of all old-growth forest would be to reduce sawlog supply by 30 - 40%. Based on the socio-economic report commissioned by EGFIP (see Appendix 11.3) if implemented by 2008 this would remove 164 direct jobs (409 with indirect) equivalent to 18.9% of all full time jobs in the area, reduce VicForest Mill Door Log Sales by \$11 million and reduce direct and indirect outputs by \$58 million. (see *Figure 12*). Such a reduction may push the industry and VicForests below critical viability levels and the impact may be more severe. Industry responses during EGFIP consultation suggest that all options that reduce supply may have a greater impact than shown in this report if it is perceived by industry as another step in a "death of a thousand cuts".

² MBAC Consulting Group

Management challenges

A commitment to cease all old-growth forest harvesting would be difficult to manage as the boundary on the ground is hard to identify (see detailed definition section 6.3). It would be likely to invoke a high level of outrage from industry stakeholders and associated community groups. The Federal Government would also have a keen interest in the socio-economic outcomes for the region, given the Regional Forest Agreement.

Options presented in this report in regard to the East Gippsland Forest Management Area:

Option 1. Under current public land use, **91.5% of the old-growth forest is excluded** from harvesting. The available land is estimated to sustain 525 direct timber related jobs (1312 with indirect jobs). The timber products annual turnover is worth \$110 million (\$242 million total with indirect flow-on effect). **(This is the base for comparison)**

Option 2. With additional thinning of regrowth forests to improve sawlog productivity, the current available forests could immediately sustain 542 direct timber related jobs (1355 with indirect jobs). The timber products annual turnover is worth \$113 (\$248 million total with indirect flow-on effect). No additional old-growth forest is reserved for biodiversity under this option. **(Change direct and indirect +42 jobs, +\$6M)**

Option 3. This option includes sub-options that include a range of combinations including additional reserves for old-growth and other values (including an Errinundra/Snowy national park link), expanded thinning of regrowth plus adjustments to land management zones to increase availability of timber resources in non-old-growth forest areas. The total area of old-growth forest excluded from harvesting is increased to **93 – 95%** and under various options the immediate effect is to sustain 494 - 526 direct timber related jobs, (1235 - 1315 with indirect jobs). The timber products annual turnover is worth \$105 - \$110 million (\$231 - \$242 million total with indirect flow-on effect). **(Change direct and indirect +3 to -77 jobs, +\$0 to -11M)**

Option 4. This includes sub options involving the phase out of all old-growth harvesting in East Gippsland FMA. Factors that ameliorate the loss in supply are considered, such as thinning regrowth, Forest Management Zone changes and delaying the phase out until up to 2014. The total area of old-growth forest excluded from harvesting is increased to **98 – 100%** and under various options the immediate effect is to sustain 361 to 455 direct timber related jobs (903 - 1138 with indirect jobs). The timber products annual turnover is worth \$84 - \$99 (\$184 - \$217 million total with indirect flow-on effect). **(Change direct and indirect -176 to -411 jobs, -\$25 to -58M)**

Option 5. The Forest Alliance Plan prepared by TWS, ACF, EEG and other environmental groups (attached) involves the reservation of some 70% of the available mature wood supply in East Gippsland. WWF is notably absent from this group. The total area of old-growth forest excluded from harvesting is increased to **100%** and the immediate effect is to sustain up to 147 direct timber related jobs (368 with indirect jobs). The timber products annual turnover is worth \$47 million (\$103 million total with indirect flow-on effect). **(Change direct and indirect -945 jobs, -\$139M)**

Industry stakeholder target. This is not a specific option, but it provides a benchmark for comparison. The Industry Stakeholder Position Statement (attached) proposed a benchmark level which needed to be met for any alternative proposals that reserved additional old-growth forests to be acceptable to them. This benchmark is based on the job and dollar outcome from the projected supply when the *Our Forest Our Future* policy was announced in 2002. This would generate 655 direct timber related jobs (1638 with indirect jobs). The timber products annual turnover is worth \$157 million (\$288 million total with indirect flow-on effect). **(Change direct and indirect +325 jobs, +\$131M)**

For all options that include expanded thinning operations, additional jobs and turnover to those shown above are created over the next 5 years.

Additional forest protection measures included in options: (see section 6.1)

- excluding larger stands of old-growth from harvesting by sub-catchment protection, which is easier to manage in terms of boundary issues,
- reservation of some contentious areas such as Goolengook and a link between the Snowy and Errinundra National parks,
- more sensitive management that retain patches and corridors of the stand when harvesting old-growth forest.

Measures to ameliorate resource losses: (see section 6.2)

- Phase out over a longer period (say up to 2014)
- Expanding the thinning of regrowth forests to improve sawlog and other forest product yields. This has an immediate and medium term benefit in sawlog supply and job creation.
- Amending Forest Management Zones (where no old-growth forest exists) by using the prescribed process in the Management Plan to reflect the increased reserves above, such as changing the prescriptions in Special Management Zones where current harvesting is allowed but more restricted. These areas could remain Special Management Zones.
- A range of measures considered of value to industry stakeholders. Improved resource security (e.g. a 20 year Allocation Order, improved social licence through appropriate Government communications, FSC/eNGO agreement), a market for low quality pulpwood (Biofuels-Charcoal), further manufacturing flowing from greater security and/or assistance measures perhaps via a Latrobe Valley Task Force type approach)

Table 1: Summary of resource impacts for D+ sawlogs (deductions or additions to 130,000 m³/yr)

Loss of timber resource/Environmental gain	sawlogs m3/yr	Gain in timber resource or 'value' for industry stakeholder	sawlogs m3/yr
Reserve Contentious areas (e.g. Goolengook, Snowy-Errinundra Park link) (10,000 ha gross area all forest)	-7300	FMZ changes (maintain areas as SMZs but adjust harvest plans to reflect new reserves) (Gross area 18000 ha – area contains 350 net ha of old-growth forests which is excluded from the sawlog volume*)	5000
Reserve larger stands of old-growth forest in sub-catchments (28,000 ha gross area all forest)	-6900	Thinning (Allocation Order can be set higher due to improved future regrowth productivity)	5000 ³
More sensitive harvesting method in old-growth forests where safe and practical – retains 30% in patches and corridors (Net area old-growth forest 2700 ha)	-5070	Thinning – small sawlogs from the thinning (5% of 100,000 m3/yr of thinning wood by 2012)	5000 (by year 2012)
Cease all Old-growth harvesting immediately (impact reduces by 1/35 th for each year implementation delayed) (Net area old-growth forest 14,000 ha)	-39000 to -52000	Other factors of value to industry stakeholders: Security, Social Licence, Market for low quality pulpwood (Biofuels-Charcoal), FSC, Further manufacturing, Latrobe Valley Task Force type approach	
Reserves advocated by TWS, ACF w-etc (Victorian Forest Alliance)	Removes 70% of the net merchant-table forest		
Plus the pulpwood associated with the above			

Unless otherwise stated, all volumes of logs mentioned in this report are in gross m3.

These option elements are analysed in detail (Table 6 - Table 7 and Figure 11 - Figure 15)

³ Thinning increases supply from 130,000 to 135,000m³ gross due to the shortened period before regrowth becomes available. Thus losses also increase by the ratio (4%) when combined with thinning.

Observations

- This project does offer a rare opportunity. It is the first time the industry stakeholders have taken a unanimous position on such a matter. Furthermore they have genuinely been trying to find an innovative solution for Government and to build bridges with eNGOs with FSC a possible outcome. An imposed outcome may in fact undermine that effort. Rather than settling down the dispute, adopting the 'cease all old-growth' option may lead to a costly long-running dispute over each fragment of old-growth scattered throughout the timber production areas with claims old-growth is still being harvested which will be hard to prove or disprove given the definition. Implementation, communication and timing will be key factors for consideration by the Government after they determine which option or options to adopt.
- It should be remembered that under the OFOF policy of 2002 there was a need to cut timber harvesting in the EGFMA by 43% down to 168,810 m³ gross D+ sawlogs (see *Table 2*). At the time it was a common view inside and outside the industry that the figure for sustainability was considerably lower. The Industry Transition Taskforce [ITT] recommended taking out an additional 20,000 m³ net D+ sawlogs in the buy back process, contributing to the lower base currently operating in the EGFMA.
- Information about mature sawlog resources has greatly improved through the measures initiated since the OFOF policy was announced in 2002. However, regrowth yield projection needs further work to improve the predictions about the timing and availability of future sawlogs. This report in part outlines options that include relatively accurate resource reduction estimates while providing alternative supplies options based on projected virtual sawlogs from future regrowth forests. Accordingly, we have tended to be conservative in our estimates. Further work on regrowth and the influence of thinning is warranted. However, this does not need to slow the introduction of expanded thinning which should proceed as a matter of urgency if it is going to be used as a means of providing alternative supplies to reduced mature sawlog supplies. EGFIP considers that with the information provided by DSE and VicForests it would be reasonable to adopt at least 135,000 m³/yr (an extra 5000m³) as the base from currently available forest if thinning was expanded as discussed in section 5.2.
- There is limited public awareness of the major environmental achievements of this Government (and past Governments) in regard to forest management. In communicating the outcome of the Government decision on this matter it would be worthwhile reinforcing that any improvements are from a management system that is already of a high standard.
- It is important to note that there is a 15 year Allocation Order in place under the new arrangements with VicForest in respect to the allocation and harvesting of timber in eastern Victoria. ESR levels have been translated to an area allocated for harvest. DSE allocates timber to VicForests in the forest stands defined in the Allocation Order. VicForests is permitted to harvest up to the area specified in each of three 5-year periods of the Allocation Order. Accordingly, ultimately it is up to VicForests what volumes that they sell off those areas and how they schedule the areas within the limitations of the Allocation Order. The options outlined in most cases would need a renegotiation of the Allocation Order. The mere fact that this project includes the consideration of options that are substantially different from the current Allocation Order is fuelling industry stakeholder concerns about the adequacy of current resource security measures (i.e. the security of the currently Allocation Order system.)

2. Terms of Reference

Using industry knowledge to plan for East Gippsland's forest future

On Monday 27th February 2006 the Environment Minister John Thwaites announced that Pete Steedman and Graeme Gooding had been appointed as contractors to undertake a six month consultancy to review the best way forward for the timber industry in East Gippsland. The media release announcing the consultancy is attached as Appendix 1.

Under the terms of reference the contractors are to undertake the following tasks:

- 1. Building on outputs from existing Government initiatives, consult with timber industry and associated community stakeholders groups, including those in the East Gippsland region, to determine how industry will address old-growth issues in the region and work towards internationally recognised certification of forestry activities on public land.*
- 2. To participate in the verification of timber resource availability in the region.*
- 3. To develop options for the future of the timber industry in East Gippsland for consideration by the Government no later than 1 September 2006.*

The contractors will be provided with full access to timber resource information and the methodology used to determine future timber resource availability in the region to assist the development of options and analysis of implications.

Pete Steedman is the former Chair of the Our Forests Our Future Industry Transition Taskforce. Graeme Gooding is the former executive director of the Victorian Association of Forest Industries

The consultation process is separate to the Victorian Environment Assessment Council's (VEAC) existing investigation into the Goolengook forest block in East Gippsland.

3. Background

Old-growth forest is defined as “ecologically mature forest where the effects of disturbances are now negligible”. There are 170,000 hectares of old-growth in East Gippsland, of which under 9% is available for timber production.

Despite most of the old-growth forest in East Gippsland being protected in areas unavailable for harvesting, the old-growth harvesting that does take place is still a highly contentious activity. This issue has adversely affected and will continue to adversely affect the future operating environment for the industry and VicForests, leaving a substantial part of their businesses exposed to significant risk.

As a result, the Victorian Association of Forest Industries (VAFI) put forward a comprehensive project proposal to consider the phasing out of current intensive harvesting practices for old-growth forest in East Gippsland to the Victorian Government, and separately to the Commonwealth Government. The proposal included alternative management practices to support some continued old-growth harvesting into the future.

VAFI also sought to engage the World Wide Fund for Nature (WWF) which is associated with the Forest Stewardship Certification (FSC) program, initially on an informal basis. This was on the proviso that the net level of timber harvesting activity could be safely and viably sustained or preferably improved, given the recent reductions in industry activity due to mill closures and industry rationalisation. This would predominantly be achieved through the development of alternative woodflows (i.e. future wood supplies of at least the same magnitude as those currently available from old-growth).

This general position was supported by other key industry stakeholders (CFMEU, VFHCC and TCA), although they were less enthusiastic about engaging WWF prior to obtaining a clear understanding of the feasibility of the alternative options for future supply. Environment Minister John Thwaites subsequently wrote to the VAFI agreeing with aspects of their proposal. Some trials of alternative harvesting were subsequently undertaken through a joint DSE, DPI (lead agency), VicForests project. However, the trials lacked stakeholder buy-in and on 27th of February 2006, Pete Steedman and Graeme Gooding were appointed to undertake the East Gippsland Forest Industries Project (EGFIP).

4. Approach taken

Since February, EGFIP has undertaken extensive consultations with a wide range of stakeholders, within government, industry, the community and the environment movement. EGFIP was able to obtain a unanimous view from the industry stakeholders and views of other stakeholders have been recorded in this report or in the appendices.

The future availability of regrowth sawlogs effectively limits the rate that mature logs can be harvested, and is therefore a critical factor. EGFIP commissioned research into the contribution that forest thinning could make in East Gippsland to additional sawlog resources for industry, in part to offset the potential loss of sawlogs arising from the protection of old-growth forests. The report “Options to increase sawlog production from regrowth forests in East Gippsland” was produced by Mike Connell⁴ and John Raison⁵ and is attached - including a summary report.

Research was also commissioned on the socio-economic implications of various options. To achieve this, the current benchmark needed to be determined and a model developed to assess socio-economic impacts based on timber volume changes. The report was produced by MBAC Consulting

⁴ Eumoyini Options Pty Ltd, Forest Research and Management

⁵ Ensis, Forests and Environment

Pty Ltd selected for its experience in producing a similar earlier report for the Gippsland Private Forestry Inc funded by the Victorian Private Forestry Council. The report is attached as Appendix **Error! Reference source not found.**

The Department of Sustainability and Environment (DSE) provided support for the options analysis through the provision of timber resource data, using the latest Statewide Forest Resource Inventory (SFRI) data and new information about the extent and location of old-growth forests in the region. Old-growth forests were previously mapped in the early 1990s using data of variable quality. The new SFRI information provides improved data to identify and model the distribution of old-growth, particularly the regrowth areas. (Note the definition of old-growth forests allows up to 10% regrowth crown cover).

EGFIP has endeavoured to include all options put forward by the organisations consulted.

5. Factors considered in the development of options

5.1 Current Management and land use

As a result of the *Our Forests, Our Future: Balancing Communities, Jobs and the Environment* (OFOF) policy (2002), new arrangements have been implemented with respect to the allocation and harvesting of timber in eastern Victoria.

In March 2002, the Victorian Government released revised sawlog availability figures for all Forest Management Areas (FMA), excluding Bendigo FMA. These Estimates of Sawlog Resources (ESR) (2002) resulted in an estimated 43% decrease in sawlog availability in East Gippsland FMA.

In August 2004, VicForests was established as a state owned enterprise, responsible for the harvest and commercial sale of timber in the forests of eastern Victoria. With the establishment of VicForests, ESR levels are of less importance as a regulating mechanism in the east of the state as DSE now identifies the timber resources available to VicForests on an area basis through the Allocation Order. This is based on a Sustainable Timber Resource Plan, which documents the data, processes and assumptions used to develop the Allocation Order. VicForests is permitted to harvest up to the area specified in each of three 5-year periods of the Allocation Order.

It should be noted that the current Allocation Order is still largely based on ESR information, which has known limitations. New datasets and models are currently being used to develop a revised Allocation Order for VicForests.

DSE and VicForests will continue to meet the remaining licence commitments that expire between 2005 and 2010. During this period, licences will be supplied from FMAs best able to supply the timber. As these licences expire, VicForests will determine the volume of timber to be sold based on the area allocated by DSE.

Table 2: ESR, licence and harvested volume (m³ gross) levels in 2004-05

FMA	ESR level (m ³ net)	ESR level (m ³ gross)	Licence level (m ³ gross)	Harvested D+ sawlog (m ³ gross) ²		
				Total	Green	Salvage
East Gippsland	143,000	168,810	132,948	122,335	118,346	3,989

Source: DSE Monitoring Annual Performance Report 2004/05

- ESR levels are published as net volumes. Gross ESR levels were calculated based on the gross to net ratio of volumes harvested in each FMA in 2004-05.
- Harvested sawlog volumes may exceed licence levels by up to 30% under existing licences conditions.

Table 3: Area harvested 04/05

FMA	Area harvested (ha) 04/05		
	Ash	Mixed species	Total
East Gippsland	102	2,394	2,496

Source: DSE Monitoring Annual Performance Report 2004/05

5.2 Verification of resource estimates and assumptions used

Part of EGFIP's terms of reference was to contribute to the verification of timber resource availability in the region. However, it is simply not practical for EGFIP to verify every analysis done by DSE.

This analysis of options is therefore based on information and numerous data sets and analyses supplied by DSE.

One of the data sets used in this analysis is revised old-growth information. The original old-growth data set was compiled in 1994. Since that time additional information in the form of the Statewide Forest Resource Inventory (SFRI) has been collected and DSE has recently prepared a revised data set that is not yet complete. As such, it is an interim dataset that may be subject to minor changes before finalisation.

The timber yield estimates used in this report are based on detailed inventories and analyses to provide a current estimate of the available timber resources in the East Gippsland region. The estimates for mature forest have been improved in line with the recommendations of the Expert Data Reference Group (EDRG). At the time of writing the timber yield models based on increased thinning were still being adjusted and fine tuned, as was the modelling of scheduling options for mature forest.

The estimates of regrowth yield and timing of harvest have a large impact on the current allowable harvest, as the current mature forest must sustain the harvest until the regrowth becomes available. The regrowth projections require further work to reduce the level of uncertainty. As a result, the authors have adopted a conservative approach in their use of resource projections.

Based on the data supplied by DSE, the East Gippsland Forest Management Area is 1.2 million hectares in size (1.05 million being public land). Of this total area only 210,000 ha of State forest is of currently merchantable quality and is available for timber production. There is a total area of 170,000 ha of old-growth forest in East Gippsland on public land, of which 14,000 ha is the net area of old-growth forest currently merchantable and available to be harvested. Of the total merchantable and available area of all forest, 83,000 ha is mature (including old-growth) and scheduled to be harvested over the next four decades. This area has a standing D+ sawlog volume of 4.6 million m³ gross. The balance of the merchantable and available area, 130,000 ha, is growing stock of various ages. Of this area, 61,000 ha are expected to be able to be thinned from below or selectively harvested to retain potential future sawlogs.

The interim reanalysis of old-growth forest and mature area and sawlog volume figures are current to 1 July 2004. The numbers are interim as the old-growth reanalysis has only been modelled with minimal ground checking. The IFPS runs and the available areas are all still in draft form and these will be the subject of an on-going discussion between VicForests, DSE and other relevant Departments. This may not be fully resolved for some time, probably beyond this year and certainly outside the period of this report.

5.3 Socio-economic factors

To analyse the options for the future of the timber industry in East Gippsland, EGFIP engaged consultants⁶ to assess the current socio-economic position and to provide a socio-economic assessment model. Their full report is attached as Appendix 11.3. The Report clearly indicates that the social fabric of the region (the schools, facilities, clubs and so on) in the East Gippsland FMA relies heavily on maintaining the economic activity generated by timber production.

Discussion with industry stakeholders in the region revealed that confidence amongst industry and associated community stakeholder groups is fragile following a series of reforms and speculation about the outcome of this project. However, discussions with one company⁷ indicated that they were prepared to provide substantial investments in further processing and that there are significant opportunities for industry investment to capture market opportunities. Despite the current cyclical downturn there appears to be international and domestic demand for natural hardwood products from East Gippsland.

In summary, based on the findings and analysis by EGFIP (see footnotes), the following is concluded:

- The currently available timber (sawlogs and pulpwood from public native forests) in the East Gippsland Forest Management Area (FMA) generates direct employment of around 525 people in harvesting and processing⁸, of whom about 89% work in the FMA. The industry currently directly and indirectly supports around 1,228 full-time jobs. This employment currently represents around 50% of all full-time jobs in the region.
- The gross value of output (turnover) is \$110 million, of which 70% is captured within the FMA⁹.
- Substantial mill closures and amalgamations have occurred recently. This is following the requirement under the State Government's *Our Forest Our Future* (OFOF) Policy to reduce sustainable yields in the East Gippsland FMA by 43% as well as on-going industry rationalisation.
- Based on improved timber resource data from DSE and VicForests, and considering the impact of the 2003 fires, the sustainable yield in East Gippsland FMA from the currently available forest may be 130,000 m³ to 150,000 m³/yr—a further 9 to 23% lower than that prescribed in OFOF, depending on the assumptions used. In the time available, EGFIP was not able to verify the higher levels to its satisfaction and has adopted the lower more conservative figure of 130,000 m³ as the basis of its analysis as shown in *Figure 2*. DSE and VicForests may choose to adopt a different figure following further discussions and analysis, but it is likely to remain within this range¹⁰.

6 MBAC Consulting Group

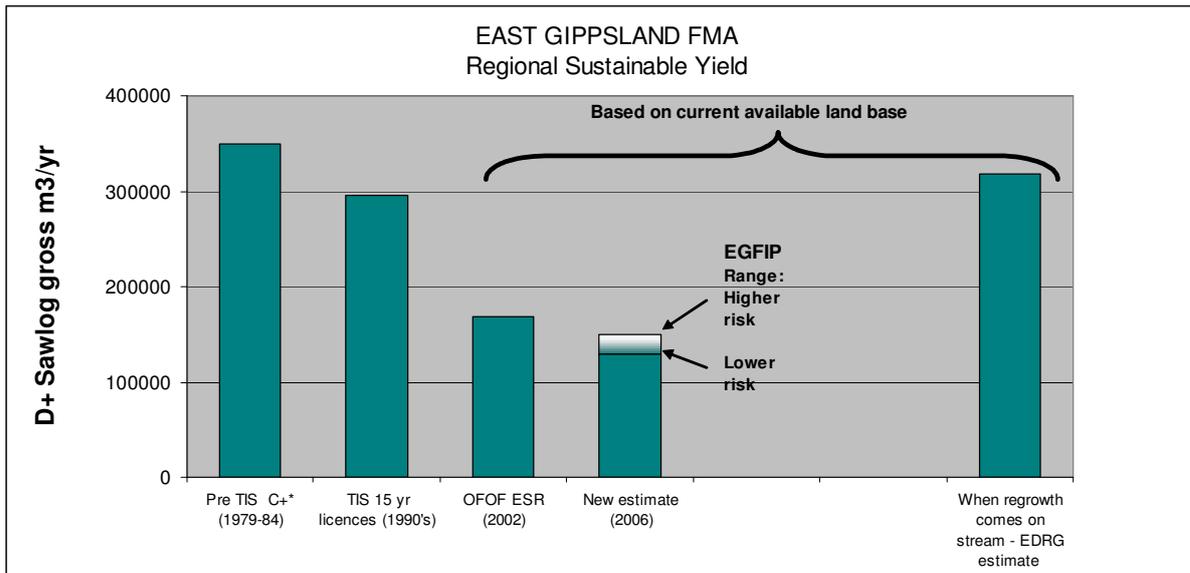
7 Auswest Pty Ltd

8 Based on current available areas and a harvest level of 130,000 m³ of sawlog per annum. Currently: the industry is cutting below this level, due to the cyclical market downturn. Current employment is therefore actually 491 jobs (34 jobs below this figure).

9 As above, current actual is approximately \$5 million lower

10 EGFIP findings

Figure 2: EGFIP has adopted 130,000 m³/yr D+ (lower risk) as the base for comparison



- The greatest impact of mill closures is on smaller communities that are more highly dependent on the forest and the forest products industry for employment and flow on benefits.
- Almost all towns in the East Gippsland FMA are struggling to maintain community services due to the timber industry rationalisation. This is particularly so for Cann River, which has only one of five sawmills remaining, and less so for Orbost.
- East Gippsland Local Government Area has one of the highest proportions of indigenous people in Victoria. The timber industry has been a source of jobs for indigenous people particularly in harvesting and sawmilling. The hardwood sawmill at Newmerella has a very high proportion of indigenous employees. The population of the Moogji community around Orbost has declined as members have left, seeking work outside the area. There are 30 to 40 indigenous workers around the Orbost area that are presently working in the timber industry. Members of the community have had difficulty finding work in Orbost because of limited jobs in the town.
- The social disadvantage index for small communities in the East Gippsland FMA is already low relative to the rest of Victoria.
- Maintenance of commercial forestry activities is critical for ongoing fire control and management.
- Additional jobs and value of output could be generated with further downstream processing in the timber industry (i.e. flooring/furniture) or using lower value pulplogs for biofuel or energy production.
- Any new investment in the timber industry will require appropriate resource security and pricing (this is assuming this is the outcome). EGFIP is aware that one timber company is willing to invest \$5 million in further processing subject to clarification and certainty regarding the Government's plans in relation to access to future supplies in the EGFMA and other contractual matters¹¹.

¹¹ Auswest Pty Ltd - Orbost

5.4 Environmental factors

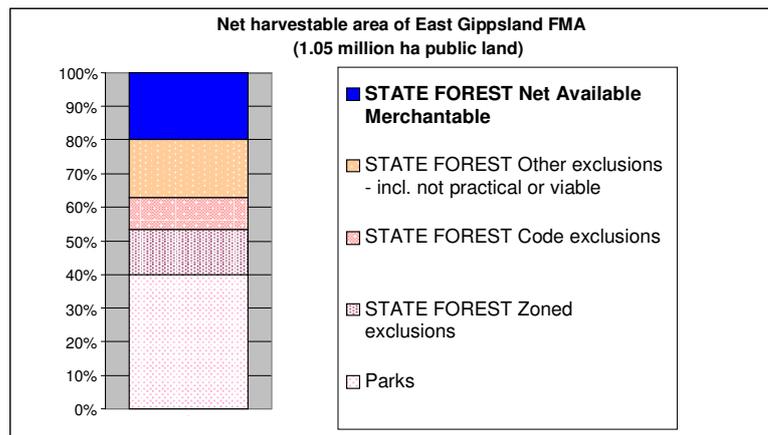
DSE has developed an Environmental Policy for Victoria's State forests that reinforces the need to consider forests from an environmental, social and economic perspective. The Environmental Policy reflects international, national, state and organisational commitments to sustainable forest management. DSE also systematically identifies and manages any environmental impacts from forest management activities through the implementation of an Environmental Management System (EMS) for State forests. Monitoring and measurement of performance is made against a set of scientifically sound criteria and indicators for sustainable forest management in State forests.

The East Gippsland area has been through a range of processes over the last 30 years that have sought to achieve a balance between utilisation of the forest for timber production and conservation. The most recent being the Regional Forest Agreement (RFA) process and the *Our Forest Our Future* policy.

Figure 3: Net harvestable area East Gippsland FMA

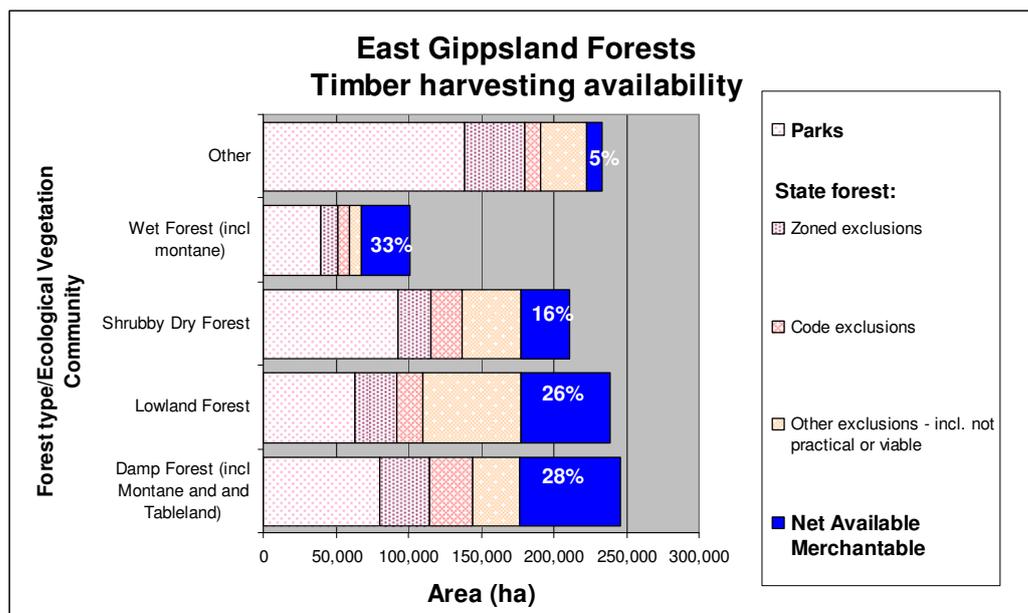
Following extensive analysis and consultation, a Comprehensive Adequate Representative (CAR) reserve system under RFA has been established.

There are significant regulatory requirements and existing controls that apply to harvesting in native forests in East Gippsland. Practices are audited periodically and the results provide transparency for stakeholders.



93% of the land base in the East Gippsland FMA still retains a native vegetation cover.

Figure 4: Net harvestable area for key forest types (Ecological vegetation communities)



The old-growth issues are discussed in section 6.3. It should also be noted that environmental stakeholders —TWS, ACF and EEG — considered the current measures inadequate as discussed below. This in turn, was disputed by the industry stakeholders and other groups.

5.5 Views of Stakeholder Groups

Industry stakeholders

EGFIP was able to obtain an agreed unanimous written position from the industry stakeholders (VAFI, VFHCC and the CFMEU). This is attached as Appendix 12.5.

In broad terms their position is as follows:

- They will consider any option that reduces reliance on old-growth forest provided that it is viable, safe and the overall outcome involves delivery of at least the equivalent of 143,000 m³/yr of D+ nett sawlogs (which is the sustainable yield from the East Gippsland Forest Management Area (FMA) determined through the OFOF/Expert Data Reference process) along with the associated residual wood).

They were flexible about what the equivalent value might be, provided it didn't involve further funded exits from the industry. Given past unexpected reductions, they prefer options that will deliver growth. A range of measures considered of value to industry stakeholders that might compensate for a lesser sawlog figure might include:

- improved resource security (e.g. a 20 year Allocation Order — rather than 15) which in turn allows improved security for industry contracts
 - improved social licence to harvest through appropriate Government communications about the current high standards of forest management and/or an FSC/eNGO agreement
 - a market for low quality pulpwood (Biofuels/Charcoal)
 - further manufacturing (flooring plant, furniture components plant) flowing from greater security
 - other assistance measures, perhaps via a similar approach to the Latrobe Valley Task Force some years ago
- All industry stakeholders are firm that the gains need to be validated as viable, safe and agreed and secured prior to implementation of any other parts of this proposal, particularly related to old-growth forest. It is a major concern to the stakeholders that resource figures that underpin these elements may not be able to be fully validated until regrowth yield projections are improved and a Government decision may precede this event.
 - The Union supports the industry stakeholder position “subject to being convinced that the State Government will abide by an agreement that can be reached. The Union’s scepticism on this matter is based on many years of broken agreements by past Governments”.

To test its benchmark, EGFIP ran the OFOF ESR figures through the socio-economic model developed by MBAC (see *Table 6*). Given that estimated supply from the currently available areas is below the OFOF 2002 level, EGFIP was unable to find an option that could reduce reliance on old-growth forest and maintain the required equivalence in terms of log volumes.

However, several of the options do reach the industries dollar turnover benchmark by 2012 when thinning is scaled up. Job projections are not reached. However, industry stakeholders may accept one or more of these options if the factors such as security, further processing, biofuels, etc are added.

Environmental Non Government Organisations (eNGOs)

In addition to industry groups, EGFIP consulted with a range of eNGOs including The Wilderness Society (TWS), Australian Conservation Foundation (ACF), World wildlife Foundation (WWF), Environment East Gippsland (EEG) and Victorian Rainforests Network (VRN). Three of these groups

have since provided a detailed position under the unified banner of the Victorian Forest Alliance. Notably WWF is not part of this Alliance.

The Forest Alliance has subsequently prepared a detailed Plan attached as Appendix 12.7. The Alliance's preferred option advocates a transition to plantations, suggesting industry would be able to source sawlogs from hardwood plantations. (Refer EGFIP's investigations re plantations in Section 6.2)

The Institute of Foresters of Australia have critiqued the Forest Alliance proposal, concluding there are in their opinion some deficiencies in the arguments raised in the VFA Plan. The critique is attached as Appendix 6.

Some of the reasoning behind the Victorian Alliances proposal warrant more investigation and discussions. For example, they list long footed potoroo as one of the endangered species used to justify the large reserves whereas recent DSE and Parks Victoria research into that species suggests it may be not need such large reserves and it can cope well with disturbance¹². The Alliance also suggest a transition to plantations is possible due to supplies of hardwood sawlog plantation – see EGFIP's comments on plantations (page 23)

Other interested parties

EGFIP also met with a range of other group representatives including:

- the farming community – issues focussed on the potential for scarce farmland being converted to plantations
- Timber Communities Australia – agreed with the industry stakeholder position
- members of CFA brigades – expressed personal concern about loss of members (declining workforce) and reduced contractor equipment/expertise for firefighting
- East Gippsland Council – concern about the social and economic fabric of area as a result of the declining timber industry
- Indigenous groups – many employed in the timber industry.

Agreed statements that were provided are shown in Appendix 12.16.

No discussions were held with the Federal Government, although it is aware of the general thrust of the project, having previously been briefed by the industry stakeholder groups prior to the initiation of EGFIP. However, it is sure to have a keen interest in the outcome to see if the socio-economic factors are adequately addressed and the principles of the Regional Forest Agreement are adhered to.

EGFIP worked closely with relevant DSE and VicForests staff and regularly liaised with the EGFIP Steering Committee members¹³

Public views

Decisions on forest management are strongly influenced by public opinion and need to be considered in framing any options for forest management in East Gippsland, particularly old-growth forest. The industry stakeholders have understood that old-growth forests are a contentious public issue and, as discussed earlier, have sought to find an innovative long-term sustainable solution that provides a balanced win for the environment, the economy and the community. Accordingly, public opinion is an essential consideration as to which options will be acceptable to Government and the community. Furthermore, an understanding of opinions will be important to how this complex issue is communicated.

¹² The Effects Of Timber Harvesting On The Long-Footed Potoroo (Potorous Longipes) Final Report to Forest Management R. Chick 1, 2, S. Henry 2, P. Kambouris 2, 3, P. Tennant 2

¹ Fauna Ecology, D.S.E., Arthur Rylah Institute, Heidelberg

² Flora and Fauna Group, D.S.E., Gippsland Region, Orbost

³ Parks Victoria, East Gippsland District, Bairnsdale

¹³ Ian Miles (DSE), PatGroenhoust (VicForests)

6. Option elements

EGFIP has developed a number of options that are assessed against two benchmarks:

1. Production levels available from current available land based on the latest data. As noted earlier, EGFIP has chosen 130,000 m³/yr as that benchmark. However, the likely range is between 130,000 and 150,000 m³/yr.
2. The OFOF ESR level of 168,800 m³ (gross). This is the industry stakeholder benchmark which is a 43% reduction on the previous level. They seek an outcome of equivalent value and are flexible as to how this is delivered. (see Appendix 12.5) For example, a lower sawlog harvest could be agreed to if other initiatives were made that were considered of equivalent value. Examples include alternative markets for low grade pulpwood (biofuels, charcoal), expanded thinning of regrowth, further processing and improved security of supply. On the latter point, there are a number of ways the security of supply can be improved through changes to the Allocation Order or through improvements in the social licence to harvest timber and produce wood products. This is discussed in further detail in section 6.2.

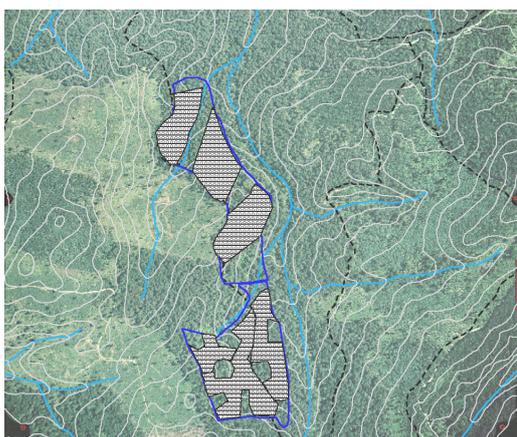
The option elements are discussed below.

6.1 Environmental gains that reduce log supply

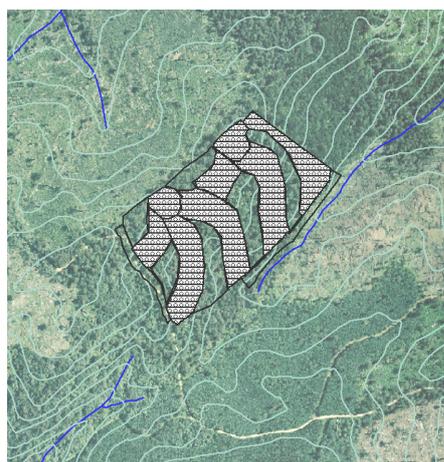
Use of more sensitive harvesting systems when harvesting old-growth such as Variable Retention Harvesting in old-growth coupes.

Figure 5: Patch and Corridor Retention method used in VicForests coupe trials

Little River Coupes, completed in trial



Playgrounds coupe, under VicForests control



Stippled areas are harvested while green areas on 30% of the coupe are retained. Harvested areas are mostly within 1 tree height of retained forest

Variable Retention Harvesting of old-growth forest will require ground assessment at the time of harvesting to determine the 30% retention of old-growth forest stands within the coupe. While this does create some difficulties given 70% will be harvested, there is less likely to be the same level of debate as would occur if all old-growth forest was excluded.

Professor David Lindenmayer is currently undertaking an experiment into Variable Retention Harvesting in the ash forests in the Central Highlands. While this is outside East Gippsland it is relevant to note that he describes the benefits of producing a multi-age outcome within a coupe for some species¹⁴.

Additional Impacts for VicForests include (rough estimates only):

Costs of Variable Retention Harvesting (using “30% Patch and Corridor Retention” — other system are likely to be more expensive):

Additional Harvesting (snigging distance, OH&S costs, roading etc) (assumes additional \$3/m ³ @ 150m ³ /ha)	\$450/ha
Additional Site Preparation (Fire trails and some mechanical disturbance of area harvested. Assumes that you would still use burning as site prep on >50%)	\$300/ha
Additional coupe planning, marking and supervision	\$150/ha
Total	\$900/ha

¹⁴ “While clearfell harvesting has obvious negative impacts on wildlife, some forest disturbance is actually beneficial if it occurs in the appropriate way. For example, the endangered Leadbeater’s Possum favours areas that are multi-aged—i.e. that contain a combination of old trees with hollows with new regrowth forest (highest abundance occurs in 15-50 year re-growth forest.” Except from the website of Professor David Lindenmayer.

Note: This does not include any of the volume of timber forgone. Depending on the exact system used the exact figure could be +/- \$500/ha. Therefore, if 65% of the 14,000 ha of old-growth forest was harvested using Variable Retention Harvesting the extra cost would be \$8.2 million +/- 50% or say \$250,000 per year over 35 years or pro rata if the available old-growth forest is less.

Excluding harvesting from selected contentious areas.

Further protection of contentious areas have been identified, including key rainforest stands, old-growth forests, threatened species habitat, mature forest areas for future old-growth recruitment including Goolengook and a link between the Errinundra and Snowy national parks either by zone or formal reserves (Map 4: Protection of selected contentious areas in East Gippsland)

Excluding harvesting from areas of old-growth

- In total by prescription by 2008, 2010 or 2014

or

- Protect larger stands of old-growth forest by sub-catchment. (see Map 3: Sub-catchment Protection of old-growth forest in East)

Excluding areas from harvesting as advocated by the Victorian Forest Alliance

See Map 6: Victorian Forest Alliance Proposed Reserves

6.2 Ameliorating Factors

Thinning of regrowth to enhance productivity

- The current harvest rate is limited by the period over which mature logs can be harvested before regrowth becomes available. Thereafter supplies increase substantially. Regrowth thinning will improve sawlog productivity and timber yield. It can immediately increase the sustainable harvest of currently mature sawlogs .

Table 4 illustrates the impact.

Table 4 Timing of regrowth availability: Impact on sustainable harvest of current mature wood

Theoretical number of years until regrowth sawlogs are millable	Sustainable harvest of 4.6 million m3 of standing mature D+ sawlogs
Approx 35 years	Approx 131,000 m3/yr
Approx 34 years	Approx 135,000 m3/yr
Approx 31 years	Approx 148,000 m3/yr

- Thinning from below in regrowth stands removes the smaller stems (which would ultimately die out from competition) providing an immediate supply of logs and, due to less competition for water and nutrients, the retained trees grow to become sawlogs sooner. This is largely a commercial operation which pays for itself. However some assistance with roading infrastructure may be warranted. This would need to be discussed with VicForests.

- Thinning from above and/or group selection in uneven-aged forest will retain advanced growing regrowth stock to be available as sawlogs in the next few decades. This is more expensive than single harvest (clearfelling or seed tree), but it has the advantage of providing future sawlogs in the critical period. There are approximately 5000 to 6000 net hectares of uneven-aged forests that are considered currently suitable to treat for which the residual wood would likely be saleable. If there are no markets for the residual wood, the costs would be prohibitive. The timing of these treatments would start now and spread over the next 15 years or so. The sooner this could be done the better so that the productivity of the retained advanced regrowth can be improved to reach millable age sooner. The maximum additional area treated per annum would likely be:
 - ash, shining gum, plus alpine mixed species=50 ha/yr,
 - coastal, foothill, plus mountain mixed species=1000 ha/yr

Preliminary data from the harvesting trials suggests the harvesting and management of these uneven-aged forests may incur an additional cost compared to current practices of almost \$500 per ha (much of which is related to extra burning preparation and implementation costs). It would also incur an opportunity cost of some \$300 per hectare in forgone residual log sales i.e. the retained trees could yield small RL today or future sawlogs in the period near the end of the mature harvest period (2035-40) (Jan Radic DSE pers comm – East Gippsland 2005/06 trials)

Total extra costs of around \$3 million over 15 years (an average of \$200,000 per year). Note: These are rough figures and discussions would need to be held with VicForests.

- Normal thinning from below will get progressively less easy and more costly until large areas of 1983 regrowth become available. This is due to increasing roading costs, haulage distances, slope and overwood as the easiest and best stands are completed first. If thinning is to influence sawlog supplies in the critical period, it is essential that the 1960s and 1970s stands are thinned and not skipped over in favour of the 1980s stands. This may need some support for VicForests especially in relation to roading infrastructure costs.
- Allows an increasing supply of high quality regrowth pulpwood from the thinnings, of which a small proportion of (at least 5%) may be millable. The projected potential increase in logs from the expanded thinning operations is 100,000 m³/yr of which 5000 m³ could be small sawlogs.

Adjustments to forest management zones to reflect additional reservations elsewhere.

Special Management Zones already allow limited harvesting. These limitations , Adjustment to the plans (see appendix 12.15 summary of zone change process and Map 5: Forest Management Zone changes to release timber)

Improved utilisation.

This would involve Improved utilisation by opening up new markets such as Biofuels/Charcoal for available low grade pulpwood which is not desirable for paper manufacture.

Plantations

In Gippsland, despite the Forest Alliance proposal being underpinned by a transition to plantations, there are no expanding supplies of hardwood plantations suitable for sawlogs for the foreseeable future¹⁵.

- If these were established now the plantations would come on stream around the same time (35 years) the plentiful supplies of available regrowth become of millable age. There are 10 year old blue gums (several thousand m³ per year) logs being processed into structural grade products through a hew saw in Tasmania¹⁶ The hew saw operation needs 100,000 m³/yr throughput or more to be viable. To gain the desired volume throughput this Tasmanian operation is processing large volumes of radiata pine with this hew saw (i.e. hardwood is a small part of the throughput) Industry sources suggest that while this may have some potential, its viability as a stand alone hardwood plantation sawlog operation is yet to be proven.
 - There is limited cleared land available (93% forested in East Gippsland FMA) and farmers are already anxious about the loss of scarce farmland and the impact on the farming communities.
 - There were some limited supplies from the Strzelecki Ranges in South Gippsland, but these were already sourced by closer mills. Future hardwood sawlog plantation supply will further reduce if other nature reserves are established, as for example, detailed in the Cores and Links proposal. These mills were in fact reducing the plantation log intake as the logs were not considered economically viable.
 - The competitive advantage of native forests is the natural attributes of the timber, whereas plantations tend to service large volume commodity markets.¹⁷
 - Plantation establishment does provide immediate employment. If the Government adopts an option that results in cutbacks that threaten VicForests viability, funding VicForests to develop hardwood sawlog plantations may be worth considering. However that development would likely be outside the East Gippsland FMA given the lack of available cleared land.
2. Other factors that have a value for industry stakeholders - as mentioned above including improved resource security, social licence, certification (FSC).

See *Table 1: Summary of resource impacts for D+ sawlogs (deductions or additions to 130,000 m³/yr)*

6.3 Old-growth forest analysis

Based on the latest DSE mapping (2006) old-growth forest represents approximately 17% of the 1.05 million hectares of public land within the East Gippsland Forest Management Area - See *Figure 8*.

¹⁵ FWPRDC Report (see appendix 12.4)

¹⁶ A hew saw can process small logs in one pass through a series of saws and chipping blades. It is capital intensive requiring large volume throughput.

¹⁷ Glen Kile, former CSIRO head of forest products, current Executive Director FWPRDC—JFA Editorial (see appendix)

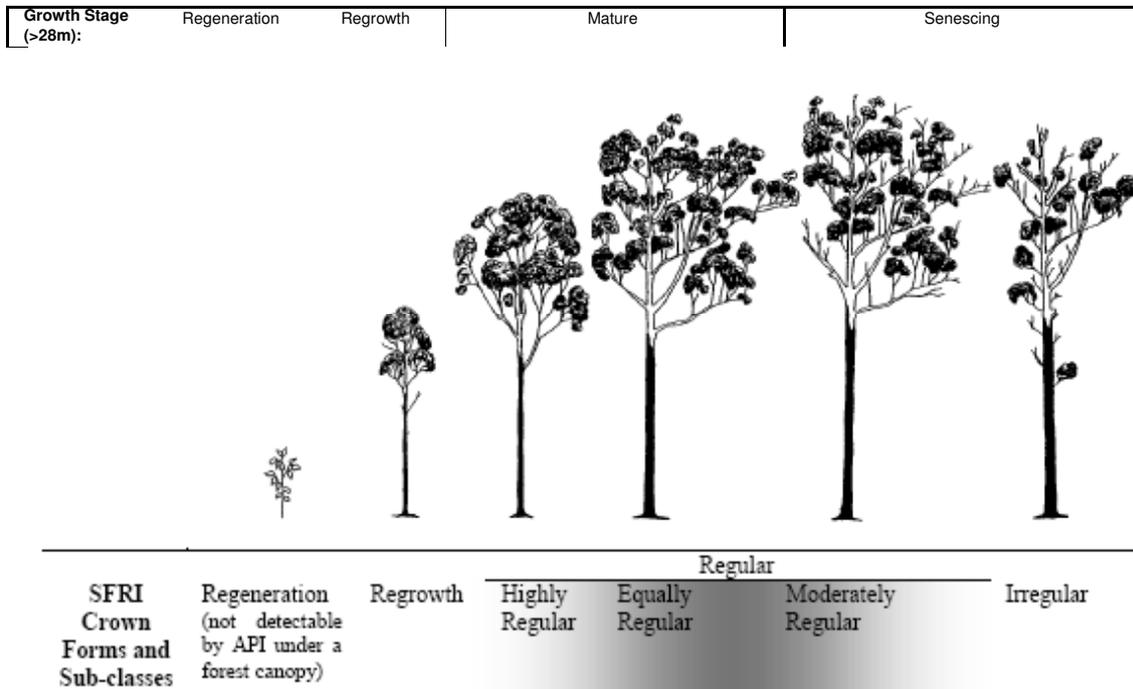
Old-growth forest is defined as “ecologically mature forest where the effects of disturbances are now negligible”.

- DSE modelling developed in 1994 and subsequently updated and reanalysed using new Statewide Forestry Resources Inventory (SFRI) information in 2006 interprets this as having at least 10% crown cover of senescent trees¹⁸ (i.e. 250 - 300+ years old)
- having 10% regrowth and up to 90% mature tree crown cover
- having negligible evidence of past disturbance (i.e. 5 years after fuel reduction burning, 20 years after less severe wildfire where trees have recovered)

Based on the 2006 mapping¹⁹ there are 170,000 hectares of old-growth forest in East Gippsland, of which under 9% is harvestable for timber production.

Figure 6: Old-growth forest definition

The old-growth mapping is modelled data that is a snap shot in time. The areas will vary on a yearly basis as areas recover from disturbance or are disturbed (e.g. by fire).



The stands of old-growth forest within areas available for harvesting are mostly small and scattered throughout the State forest- (see *Figure 7 and Figure 8*) and *Figure 8*). The larger consolidated areas of old-growth forest are already mostly excluded from harvesting.

18 The study by Woodgate et al in 1994 undertook some limited tree aging studies of Damp Forest in the Cobon Block, the most extensive EVC in the FMA. The mature forest stage sampled was between 158 and 171 years of age. The report suggested these trees may reach the senescent stage in about 80 years time. Senescing trees in the oldest growth stage were found to be between 260 and 311 years old.

19 DSE interim 2006

Figure 7: Harvestable areas (ha.)

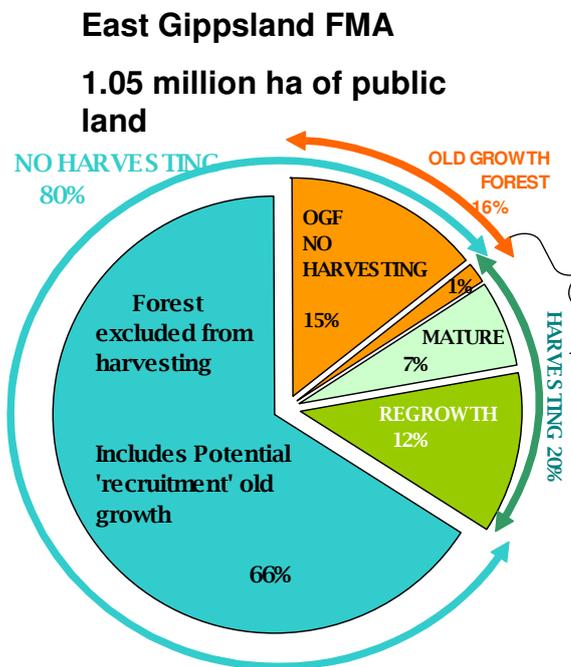
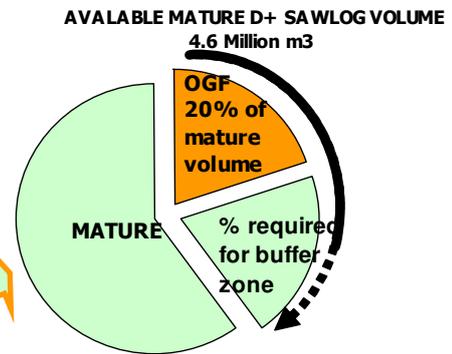


Figure 8: Impacts of buffer zones on old-growth volumes

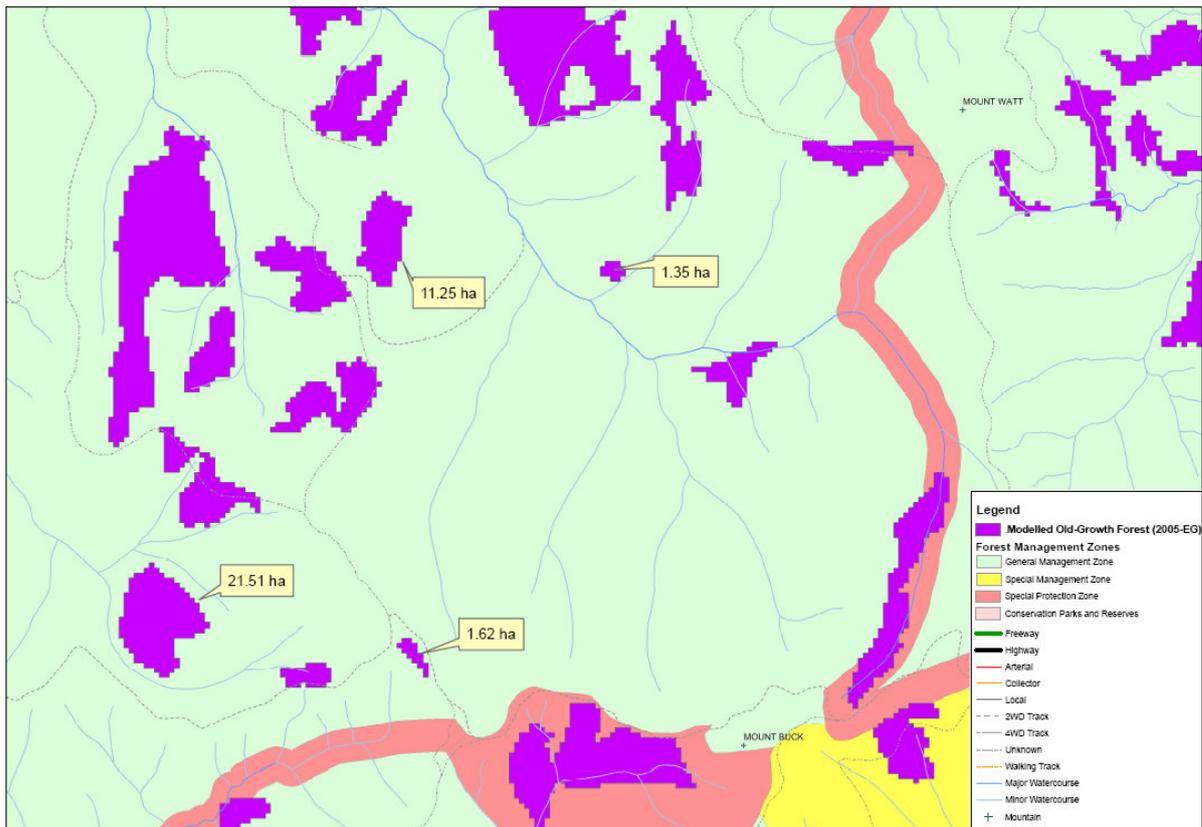


The harvestable area of old-growth forest represents 20% of the available mature sawlog volume in East Gippsland.

The exclusion of old-growth forest from harvesting would likely also remove an additional similar area due to restrictions and access impacts on harvesting forest adjacent to old-growth stands. The volume of timber lost is difficult to calculate but it is likely to be 50% to 100% of the old-growth forest volume, i.e. the net effect would be 30% to 40% loss of available EG FMA mature sawlog resource. Further, given the above definition, it is very difficult to discern the boundary on the ground between old-growth forest and other forest.

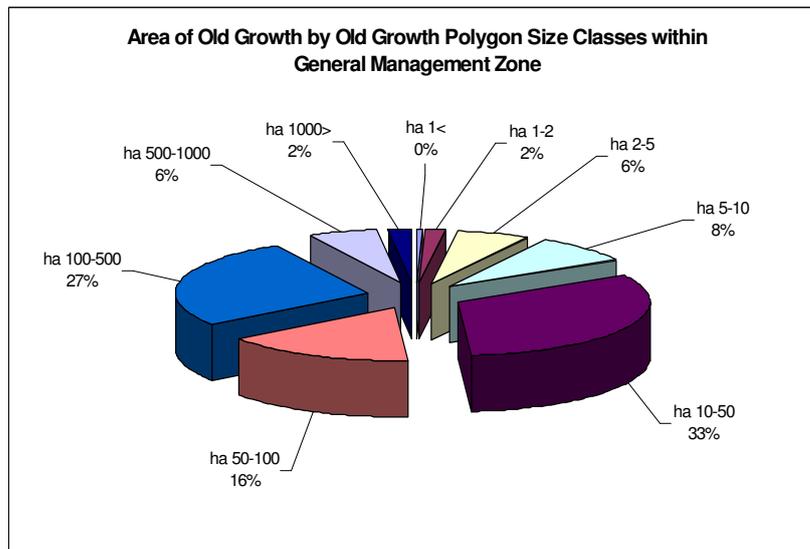
As a result, finding the right option to address old-growth forest harvesting issues is challenging.

Figure 9: Map of fragmented old-growth forest



Old-growth forest (shown in purple) mapping by DSE is a modelled dataset. It is appropriate for use in strategic level decision-making and reservation of larger consolidated areas. However, if management options involve measures for every old-growth forest stand within the General Management Zone (Green), a substantial amount of further work on the ground will be required to attempt to determine the exact boundaries. This raises a significant range of issues including disputes over definitions. Rather than settling down the dispute, adopting the 'cease all old-growth' option may lead to a costly long-running dispute over each fragment of old-growth scattered throughout the timber production areas, with claims old-growth is still being harvested which will be hard to prove or disprove given the definition.

Figure 10: Size distribution of old-growth forest stand size in GMZ/SMZ



The gross areas (ha) of old-growth forest by size class in the General Management Zone and Special Management Zones within State forest.

New mapping outputs

The See Map 2: Old-growth forest in East Gippsland FMA.

Long-term implications for old-growth forests

Intergenerational equity is an important consideration – and it is worth noting that in 50 to 100 years:

- Sawlog supplies from regrowth are projected to greatly exceed the current sustainable yield.
- Notwithstanding current harvesting, the area of old-growth forest could significantly expand provided fire does not damage mature and late mature stands which have been placed in the reserve system. The biggest threat to old-growth is wildfire.

7. The options for timber harvesting

7.1 Description

EGFIP has endeavoured to analyse as wide a range of options as possible. *Figure 11 to 15* illustrate the social, economic and environmental cost/benefits of the options in terms of the level of protection of old-growth forest, direct and indirect jobs, product turnover affected, and assistance measures that may be required if job losses occur. The selection of options is detailed below. *Table 6: Option combinations and impact analysis* shows the analysis of all options.

Option 1 – Current practice: This option is based on current availability using new SFRI data with a sustainable yield baseline of 130,000 m³ of sawlog per annum.

Option 2 – Current + Extra Thinning: This option is based on current availability with additional thinning and treatment of uneven-aged forest to hasten regrowth and improve sawlog productivity. As a result short and long-term sawlog and roundwood availability will be improved with woodflow doubled by 2012. No additional old-growth forest is reserved for biodiversity under this option.

Option 3 – Combinations

3A Combination + Thinning/VRH. Extra thinning of regrowth together with more sensitive harvesting practices such as Variable Retention Harvesting (VRH) where practical and safe in the scattered smaller old-growth forest. This would be progressively implemented through to 2012. The most appropriate method of Variable Retention Harvesting is Patch and Corridor Retention (PCR) which excludes from harvesting 30% of net harvestable old-growth forest delivering a biodiverse outcome of mixed old-growth forest and regrowth. Variable Retention Harvesting is discussed in more detail in Section 6.1

Option 3B Combination+reserves/catchments: This option includes a package of measures which are:

- Protection of the larger old-growth forest stands/clusters where practical sub-catchment boundaries can be determined.
- Further protection of contentious areas, including key rainforest stands, old-growth forests, threatened species habitat, mature forest areas for future old-growth recruitment including a link between the Errinundra and Snowy national parks either by zone or formal reserve.²⁰
- Actions to address reduced timber availability. These include increased thinning of regrowth, plus adjustments to land management zones to increase availability of timber resources in non- old-growth forest areas. Example 1: Some SPZs were specifically reserved for old-growth forest, whereas new more detailed mapping indicates it is not old-growth forest. Example 2: Special Management Zones currently permit restricted harvesting and those restrictions could be relaxed, given increased old-growth forest reservations. Areas possibly could remain SMZ with changed plans to permit say 90 to 80% of the net merchantable areas to be harvested.

Option 4A, B and C - All old-growth excluded from harvesting by 2008, 2010 or 2014:

This option involves the cessation of all harvesting of old-growth forest from the nominated date. Depending on the prescribed approach, the impact of excluding small stands of old-growth forests will involve the exclusion of significant areas of forest that is not old-growth. This is discussed in further detail below. The option shown assumes medium buffers. Actions to ameliorate reduced timber availability (as per Option 3) are not shown due to the complexities. See *Table 6* for details of the full range of actions.

Option 5 – Forest Alliance Plan (Prepared by TWS, ACF, EEG and other environmental groups): This option involves the reservation of some 70% of the available mature wood supply in East Gippsland. WWF is notably absent from this group.

Industry benchmark. This provides a benchmark for comparison with all of the options.

Note: The Industry Stakeholder Position Statement proposed that this level (based on the ESR levels from OFOF) was the benchmark which needed to be met in any alternative proposal for it to be acceptable to them. However that level of D+ sawlog harvesting is not sustainable based on the new data. Given this, industry stakeholders may adopt a lower sawlog harvesting benchmark of ‘equivalence’ and seek other added value factors as outlined above. These could include improved security by increasing the Allocation Order to a 20 year period (allowing VicForests to offer longer term contracts) and encouraging manufacturing plants that produce charcoal, flooring, furniture components, low grade log peeling (for container floors) or biofuels using resources that are currently available. Further dialogue with industry stakeholders would be required to see if they would accept any of the other options with such added value factors.

All options can be compared against the “Industry Benchmark” outlined in the Industry Stakeholder Position Statement.

7.2 Detailed assessment of the impacts and implications

Assessment of the Options

A selection of the options and the impacts on a range of factors is detailed shown below using a socio-economic model (see *Table 6*) developed by MBAC Consulting as part of its socio-economic report (Appendix 11.3).

²⁰ The impact of loss of regrowth has not been assessed - particularly during the important period immediately after current mature available supplies are fully harvested. One option would be to zone the area as SMZ and allow on-going access to harvesting regrowth for thinning and future harvest.

Figure 11: Protection of old-growth forest under each option

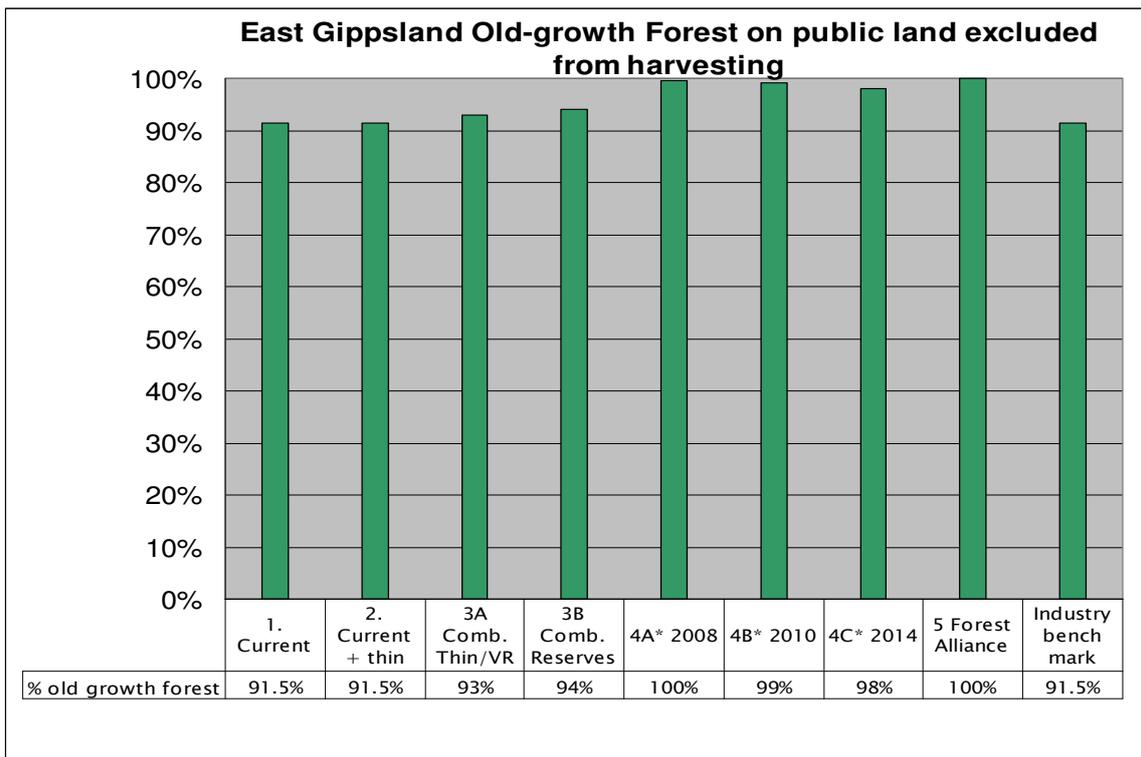
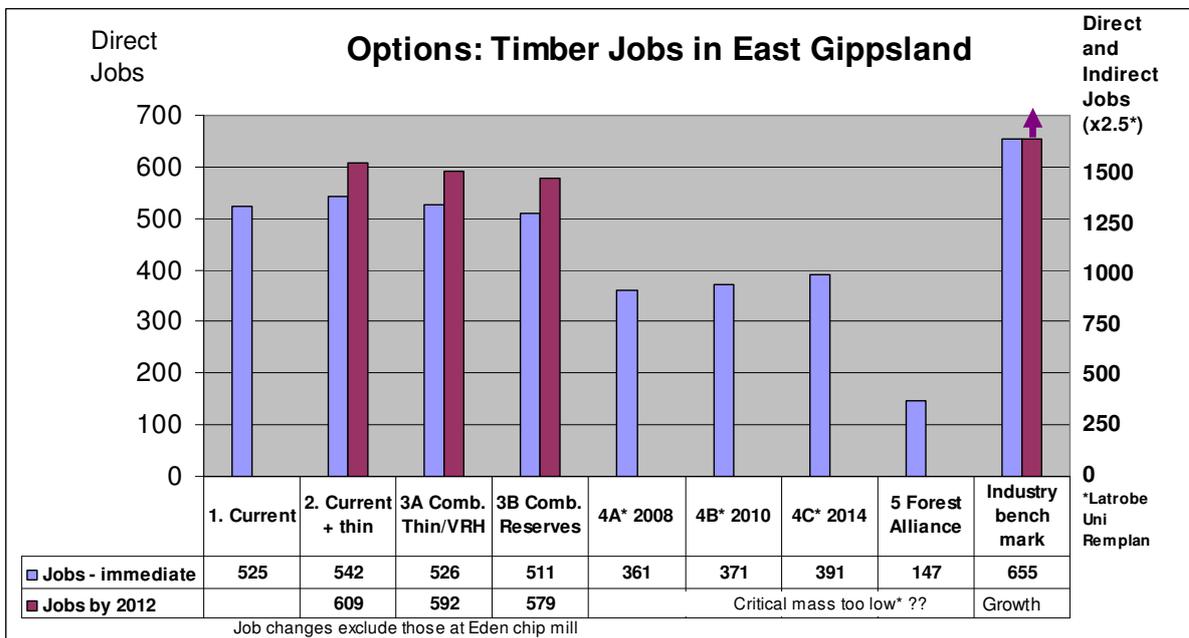


Figure 12: Timber jobs



Explanatory Notes

Options 3, 4 and 5 assume an immediate move down to the sustainable yield level. However, this would require a change to the Allocation Order. This would involve negotiations with VicForests and its customers. Alternatively, overcutting could be permitted for a period, but the eventual reduction would then be more severe.

The model assumes pro rata increases or reductions in all factors in the FMA. In reality there are critical/economies of scale mass issues, which for the severe cuts could see the scale back being even more. In addition the wood is to be auctioned and it does not necessarily stay within the FMA. Given state-wide reductions from the OFOF levels are projected (particularly in the adjacent fire effected Tambo FMA), any cut back will result in existing job losses. Further significant cut backs would likely see consolidation to one mill in Orbost, and remote/marginal areas becoming unviable to harvest. A single Orbost mill would face competition in the auctions for the wood at either end of the FMA from mills at Eden and Bairnsdale.

“Current” (Option 1) is based on current available areas and a harvest level of 130,000 m3 of sawlog per annum. In 05/06 the industry cut below this level, due to the depressed nature of the industry and employment over that period is 491 jobs and \$105 million turnover. This lower level is due to a cyclical market downturn.

In *Figure 12* above), option 4 is based on 4(iii) below. For a full impact analysis of a range of options see *Table 6: Option combinations and impact analysis* .

Table 5: Option 4 – Cease old-growth harvesting by 2008, 2010 or 2014, immediate impacts

IMMEDIATE IMPACT	Option4(i) Minimal buffers. No extra thinning. No exchange			Option 4(ii) Minimal buffers. Scale up thinning by 2012. Allow FMZ change			Option 4(iii) Medium buffers. No extra thinning. No exchange			Option 4(iv) Medium buffers. Scale up thinning by 2012.. Allow FMZ exchange	
	A(i) 2008	B(i) 2010	C(i) 2014	B(ii) 2008	B(ii) 2010	C(ii) 2014	A(iii) 2008	B(ii) 2010	C(iii) 2014	B(iv) 2010	C(iv) 2014
Job Change	-123	-116	-101	-94	-86	-70	-164	-154	-134	-126	-105
Total Timber Jobs	402	409	424	431	439	455	361	371	391	399	420
Total direct output value (turnover) \$M	-19.7	-18.5	-16.1	-15.1	-13.8	-11.3	-26.3	-24.7	-21.5	-20.2	-16.8
VicForests Mill Door Sales \$M	-8.0	-7.5	-6.5	-6.1	-5.6	-4.6	-10.7	-10.0	-8.7	-8.2	-6.8

Figure 13: Timber turnover (\$)

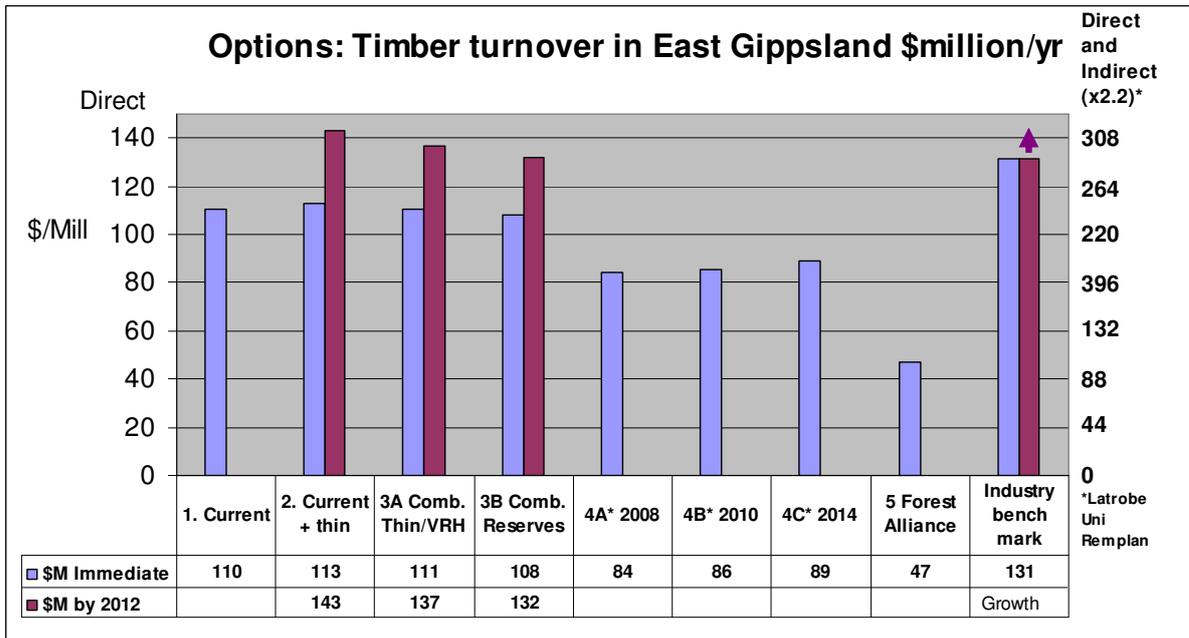


Figure 14: VicForests Mill Door Sales

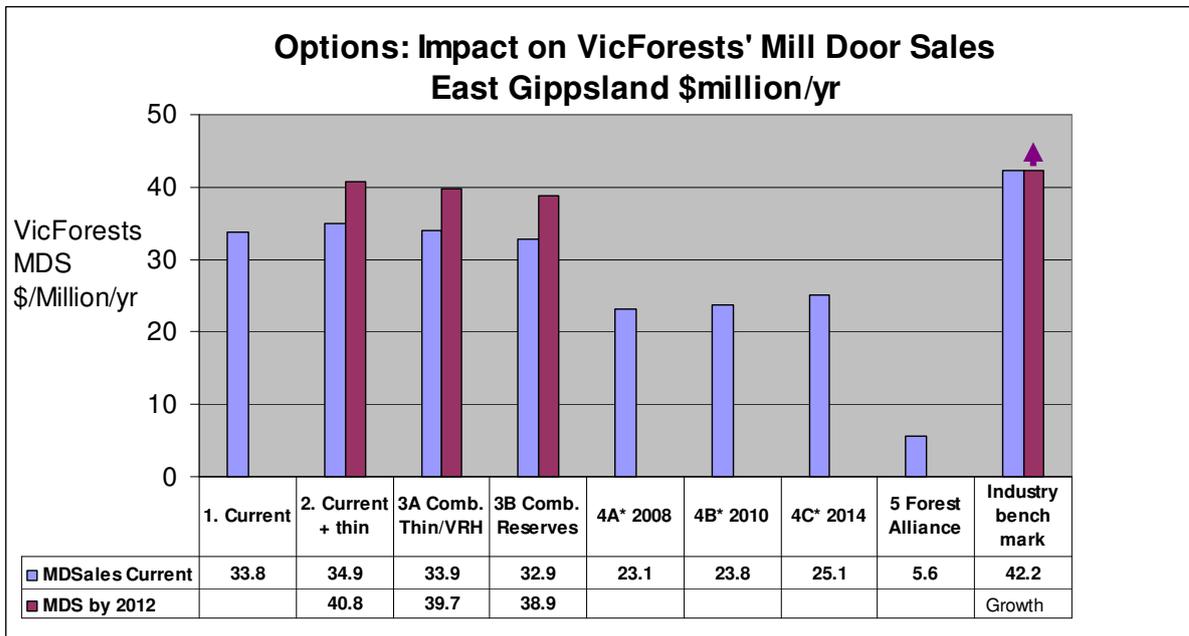
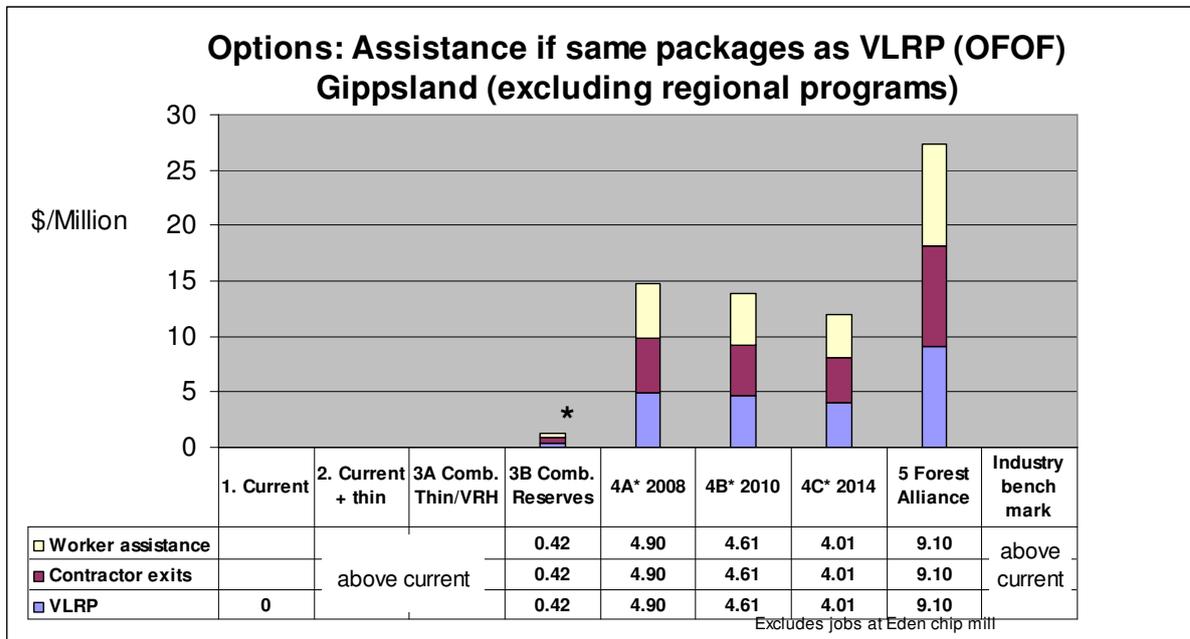


Figure 15: Assistance packages

If the government determines that it is going to reduce harvesting levels in East Gippsland, there will be consequent job losses. Under OFOF, the Government achieved reduction through a package of measures. The costs to government, if it were to adopt the packages offered as part of the OFOF program, are shown in the figure below.



*Scale up of thinning would mean contractor losses could be made up in next 1 to 2 years.

7.3 Additional factors considered as having a value to industry stakeholders

- Many industry stakeholders view industry investment security as a critical factor. This has a value to industry that cannot be measured in the model in terms of cubic metres. Options include increasing the Allocation Order to 20 years (rather than 15) to allow VicForests to provide longer contracts for customers. Most other States provide contracts for at least 10 years, often with a further option on a further 10 years). Currently a significant portion of the auction lots are likely to be less than 10 years in tenure. To encourage investment in a small sawlog processing plant a suitable tenure will need to be provided.
- Security would also be improved by achieving improved public acceptability through Certification AFS or FSC (see Section - 8) or through greater promotion of sustainable forestry and the high management standards that apply.
- Assistance to generate markets for low grade logs that can be used for biofuels, charcoal, peelers for containers floors.
- Assistance to encourage investments in further processing. (e.g. flooring plant or furniture components).
- Other assistance measures perhaps; via a similar approach to the Latrobe Valley Task Force some years ago.

7.4 Analysis of Options

Table 6: Option combinations and impact analysis

Table 7: Analysis of options

Options for Change from the Current practice	Strength	Weakness	Opportunity	Threat
Option 1 - Current				
Option 2 - Current + Extra Thinning	<p>Socio-economic growth in an area that is disadvantaged and has already suffered substantial cut-backs.</p> <p>Almost meets industry stakeholder objectives of achieving the ESR equivalence.</p>	<p>Does not address the desire of all parties to pursue a solution to the old-growth forest issue.</p> <p>Would need considerable effort to communicate the current management plans that address the Triple Bottom Line.</p>	<p>Could generate a vibrant industry sector with numerous investment opportunities in value adding.</p>	<p>The opportunity unlikely to be achievable given on-going pressure regarding old-growth unless extensive communication campaign undertaken.</p>
Option 3 - Combinations	<p>Some of these combinations provide a win for all parties, although well below the 'equivalence' sought by industry stakeholders. (see detail) Also some of the gains may take 5 years to confirm.</p> <p>Options include additional protection of the larger old-growth stands, a link between the Errinundra and Snowy national parks, further protection of contentious areas, including key rainforest stands, threatened species habitat. Clear boundaries can be established for the areas being protected, based on topographic features. Ease of future management, reduction in disputes about what is and is not old-growth.</p>	<p>A level of complexity that needs well thought out communication and timed delivery. From an environmental perspective, not as easy to communicate as 'cease all old-growth forest harvesting'. From a socio-economic perspective, it relies on forest regrowth stand improvement works to deliver higher sawlog productivity - and the results are not yet proven.</p>	<p>Given well thought out communication and timed delivery it could lay the foundation for a sustainable future and gain the support of industry and community stakeholders. FSC may be a possibility - even though well short of the Forest Alliance proposal, it could be explored with WWF.</p>	<p>Given the complexities, if not handled carefully it may upset all stakeholders and just be seen as another cut in an on-going 'death of a thousand cuts' for the associated industry and the regional communities.</p>

Options for Change	Strength	Weakness	Opportunity	Threat
Option 4 – All old-growth excluded from harvesting by 2008, 2010 or 2014	Simple message – ceasing all old-growth harvesting by 2008, 2010 or 2014.	<p>Significant negative impact on both the socio-economic base of the region that is already disadvantaged and VicForests’ business. Industry investment confidence severely affected – may become terminal.</p> <p>Very hard to administer on the ground as there is no clear boundary between old-growth forest and non- old-growth forest which is scattered throughout areas in 1 to 100 ha+ stands.</p>	Opportunity to send a simple environmental message. FSC may be a possibility, but giving up the old-growth forest upfront in the process may actually impede the process as any industry bargaining power has already been given up.	An ongoing costly and protracted dispute to exclude ‘ old-growth forest’ is likely. Claims old-growth forests continue to be harvested will be difficult to prove or disprove. Major conflict with region/ industry/ union and Federal Government likely. Impact even more severe if industry perceives this as on-going death of a thousand cuts and planned investments cease. May make FSC even harder to attain as demands given upfront rather than during the process.
Option 5 – Forest Alliance	Removes the conflict with eNGOs, but at major social and economic cost	As above, but more severe. Forest Alliance is likely to have ambit in their demands. Fundamental flaw in their claimed transition to plantation hardwood sawlogs. There are none available for the foreseeable future and if available, likely to be outside the FMA.	Opportunity to resolve the conflict with environmentalists.	There is no hardwood sawlog plantation to transition to. Armageddon for industry? – will it be below viable levels leading to management from outside the region and bidders from adjacent areas (Bairnsdale/Eden) taking wood outside the region?

Industry Option – Industry target of equivalence to ESR OFOF level.	Essentially same as Option 2 This level of equivalence can not be met (for jobs) from the available resource even with expanded thinning – it is not sustainable to cut sawlogs at the OFOF level based on new estimates. To achieve the industry stakeholder’s equivalent value, Option 2 would need to be adopted with other additional factors such as improved security, encouragement for biofuels and manufacturing.
--	---

8. Certification

DSE's website describes forest certification as the voluntary, independent assessment of an organisation's forest management activities and operations undertaken for a particular area of forest. Independent forest certification has been developing since the early 1990s, driven by market requirements for quality assurance, community concerns about sustainability issues and policy makers seeking to balance environmental, social and economic considerations in natural resource management. Once a forest has been awarded certification, its wood products can be identified as being sourced from a sustainably managed forest. Producers and manufacturers can then attach a product label so that customers can choose forest products based on information about the sustainability of forest management practices.

Certification schemes typically require forest management practices that are more stringent than provided for by law alone, and encourage forest managers to place greater emphasis on their sustainability credentials. Certification of a forest area is carried out by an independent accredited organisation that undertakes a compliance audit to assess whether the organisation has complied with the forest certification scheme requirements.

There are many international forest certification schemes, with the two largest being the Programme for the Endorsement of Forest Certification Schemes (PEFC) and the Forest Stewardship Council (FSC). Both schemes provide a product label for products sourced from forests certified under these schemes, in the same way that the 'Made in Australia' brand provides assurance that a product has been produced in Australia. In 2002, Federal and State Governments jointly established the Australian Forestry Standard (AFS). The AFS was developed as a national standard for wood production in Australia. It is based on internationally agreed criteria and includes environmental, social, economic and cultural requirements. AFS is intended for use by accredited independent certification bodies and can be applied to any defined forest area being managed for wood production in Australia

VicForests is pursuing certification to the Australian Forestry Standard (AFS) for a range of reasons:

- To assist customers in retaining their existing markets.
- To demonstrate publicly that operations are conducted on a sustainable basis
- To lead to a more systematic approach to operational activities
- To have a framework for continual improvement
- AFS was selected because it is a comprehensive standard and because certification by the FSC (the only other certification scheme available in Australia) did not appear possible within the timeframe.

Their progress towards certification is well advanced with the certification audit scheduled for December 2006. VicForests Board has also committed to pursuing FSC.

The State Government's Our Environment Our Future 2006 Sustainability Action Statement includes reference to both certification schemes under the sustainable forestry section:

We will make sure Victoria's sustainable harvested timber is accredited with the highest possible environmental standards to maximise sales in the international market. Victoria has reduced its native timber industry by 30 per cent to be on a more sustainable level and we need to make sure this timber gets the highest credit through the international certification regime.

Victoria will progress with achieving both the Australian Forestry Standard (AFS) and Forest Stewardship Council (FSC) certification standards. Having accreditation under both programs will maximise our international advantage.

This initiative will be kick-started with a \$500,000 investment in appointing a forestry expert to work with government and industry stakeholders on accelerating the process towards achieving FSC and AFS certification across Victoria's native forests.

There will also be more long-term monitoring across the forest estate as part of this project.

This project does offer a rare opportunity. It is the first time the industry stakeholders have taken a unanimous position on such a matter. Furthermore, they have genuinely been trying to find an innovative solution for Government and to build bridges with eNGOs with FSC a possible outcome. An imposed outcome may in fact undermine that effort. Rather than soothing the dispute, adopting the 'cease all old-growth' option may lead to a costly long running dispute over each fragment of old-growth scattered throughout the timber production areas with claims old-growth is still being harvested which will be hard to prove or disprove given the definition. Implementation, communication and timing will be key factors for consideration by the Government.

TWS and ACF have adopted a position (Victorian Forest Alliance) that removes 70% of the net available merchantable forest. While this position is maintained FSC is not a possibility if consensus is required. The Forest Alliance have also announced that they reject AFS certification.

WWF have a different approach and tend to view the Australian and Victorian forestry scene from a global perspective. To successfully gain FSC certification, it is likely WWF and the Government will need to take a proactive role. As noted above, imposing an outcome on industry, particularly without any ownership from relevant eNGOs, may undermine the efforts of industry and make FSC more difficult. It will not be easy. Government and/or WWF would need to take an active role to bring the parties together. Benchmarking Victorian operations against other countries/organisations that have already achieved certification may assist.

9. Glossary

Age Class Stands of timber originating at a defined time i.e. wildfire or harvesting disturbance.

ACF Australian Conservation Foundation.

Allocation Order The legal instrument by which VicForests is given access to timber resources and permission to undertake authorised activities.

AFS Australian Forestry Standard

Code of Forest Practices for Timber Production A set of principles and, in some cases, minimum standards for the conduct of timber harvesting and associated works in forests in Victoria.

Concerned Residence of East Gippsland (CROEG)

Coupe An area of forest of variable size, shape, and orientation from which logs for sawmilling or other processing are harvested.

Coupe Information System (CIS) A web based program which enables textual and spatial attributes to describe coupe information.

Clearfelling A silvicultural system used to harvest and regenerate particular forest types. The system involves harvesting a coupe whereby all merchantable trees, apart from those retained for wildlife habitat are removed.

CFMEU Construction Forestry Mining Energy Union - in all instances this refers to the Forestry & Furnishing Products Division

EEG Environment East Gippsland Inc

EGSC East Gippsland Shire Council

eNGOs Environmental Non Government Organisations. These include organisations such as TWS, ACF and WWF.

Estimates of Sawlog Resource (ESR) Prepared as part of a licence renewal process established by the Minister for Environment and Conservation in March 2001.

Expert Data Reference Group (EDRG) A group appointed by the minister to review the ESR data used to estimate the available volumes.

Forest Management Areas (FMAs) The basic units for forest planning and management in Victoria. Currently Victoria is divided into 14 FMAs.

Forest Management Plans (FMPs) A plan developed to address the full range of values and uses in State forest by Forest Management Area.

Forest Management Zone An area of similar physical capacity of forest value to which a particular DSE strategy and specific prescription may apply. There are three zones: the Special Protection Zone (SPZ), Special Management Zone (SMZ), and the General Management Zone (GMZ).

Forest Stand Used to define areas in the Allocation Order, defined in the *Sustainable Forests (Timber) Act 2004* as “a group of trees within a State forest that share common characteristics relating to eucalypt species, composition and age”.

FSC Forest Stewardship Certification

Forest Type A classification of forests according to their life form, height of the tallest stratum and the projected foliage cover of the tallest stratum.

General Management Zone (GMZ) Delineates the area to be managed for the broad range of forest values available in the area.

Integrated Forest Planning System (IFPS) A spatially-based modelling system used to evaluate the impacts of alternative management strategies on future forest condition and to estimate resource availability.

Logsales The department's accounting and recording system for logs and some other invoiced forest produce.

Merchantable Used to describe trees suitable for processing into forest produce and for which a market exists.

MONAP the Merchantable, Operational, Net Available Productive area used in the ESRs.

Our Forest Our Future (OFOF) The State Government Policy on Forests addressing the sustainable yield shortfalls.

Patch and Corridor Retention (PCR) A form of Variable Retention Harvesting that has already been practices in East Gippsland where patches and corridors are retained

REMPPLAN Regional Economic Modelling and Planning tool developed by the La Trobe University for the East Gippsland Shire and supplied to EGFIP by EGS.

Residual Log Wood that does not meet the quality specifications for sawlogs because it is too knotty, crooked, rotten or small to be sawn.

Resource Analysis (RA) Spatial Dataset Spatial dataset for strategic level IFPS modelling used as the basis to determine area allocation to VicForests. It includes adjustments for “operational factors”, low merchantability species and small isolated areas.

Sawlog A log that is suitable for sawing into widths and lengths for use in such things such as house frames and furniture. Depending on quality they are generally graded from A to D.

Seedtree System All live trees are felled apart from a number of uniformly distributed trees retained to provide seed, and those required for environmental purposes.

Silviculture The theory and practice of managing forest establishment, composition, and growth to achieve specified objectives.

Single Tree Selection A silvicultural system used to harvest and regenerate particular forest types. Trees are harvested singly at relatively short intervals indefinitely. Regeneration is established continually in the gaps produced and an uneven-aged stand is maintained.

Special Management Zone (SMZ) Delineates an area to be managed to maintain specified values, such as flora and fauna habitat or catchment values, while catering for timber production under certain conditions.

Special Protection Zone (SPZ) Delineates an area to be managed for the conservation of natural or cultural values and where timber harvesting will be excluded.

Statewide Forest Resource Inventory (SFRI) The strategic level inventory of forest resources on State forest in Victoria.

Sustainable Timber Resource Plan (STRP) Summary of data, processes and assumptions used to develop the Allocation Order, developed by DSE in conjunction with VicForests.

TCA Timber Communities Australia

Triple Bottom Line (TBL) An approach that considers the equivalent of a financial bottom line report for social, environmental and economic factors.

TWS The Wilderness Society

Thinning The removal of trees in a forest stand for a given silvicultural objective.

Timber Release Plan (TRP) Developed by VicForests to identify the location and timing of proposed

Variable Retention Harvesting (VRH) A variety of differing harvesting systems that retain trees within the coupe. (see PCR)

VAFI Victorian Association of Forest Industries

VFHCC Victorian Forest Harvesting and Cartage Council

VicForests Commercial entity with the responsibility for the harvesting and sale of timber resources from public native forest and for associated management activities.

VRN Victorian Rainforest Network

Wood Utilisation Plan (WUP) Details the area to be harvested and the type of wood to be produced from an FMA in any one year and provisionally for the succeeding two years, together with the allocation of timber to licences.

WWF World Wide Fund for Nature

10. Acknowledgments

We would like to acknowledge the assistance of a range of stakeholders, DSE and VicForests staff during this project, including during regional visits and field inspections.

11. Commissioned Research

- 11.1 Executive Summary: Options to increase sawlog production from regrowth forests in East Gippsland. Executive summary. Mike Connell and John Raison August 2006**
- 11.2 Full Report: The potential to actively manage regrowth forests to increase sawlog production in East Gippsland. Mike Connell and John Raison August 2006**
- 11.3 A socioeconomic impact of the timber industry on the communities within East Gippsland FMA, Victoria. MBAC Consulting August 2006**

12. Appendices

12.1 Media Release from Minister re EGFIP

12.2 Summary of assumptions/resource information

Table 8: Area statement

Total area of East Gippsland FMA	1.2 million hectares
Total area of Public land EGFMA	1.05 million ha
Net merchantable and available State forest EGFMA	210,000 ha

Table 9: Net merchantable and available State forest EGFMA (Mature and Regrowth)

	Mature (including old-growth forest)	Regrowth
Area	83,000 ha	126,000 ha. (Of this area, 61,000 ha is expected to be able to thinned from below or, in the case of suitable mixed age forest, selectively harvested to retain advanced regrowth as future sawlogs.)
Volume of sawlogs	4.6 million gross D+ sawlog (m3) harvested over the next four decades	Sawlogs (under current practice) not available until after 2035/40
Harvest rate	130,000 m3 per year if harvested over 35 years (2400 ha per year)	After mature wood is harvested (in 30-40 years) – harvest rate varies, but generally similar area
Sawlog yield per ha	56 m3/ha of sawlog	Not yet available but over 100 m3/ha on maturity
Residual wood	Approximately 2.5 times the sawlog yield	Thinning now can generate around 100 m3/ha of residual log and potentially a limited volume of small sawlogs and/or poles (say 5%)

Table 10: Old Growth Forests in East Gippsland FMA

Old Growth Forest EGFMA on all public land	170,000 ha	17% of all forest
Net merchantable Old Growth Forest in State forest		
Net area	14,000 ha	9% of all OGF
Standing mature D+ Sawlogs (as at 2005)	920,000 m3	20% of all available merchantable standing mature volume
Harvest rate (assuming harvest in equal proportion)	26,000 m3/yr	20% of the 130,000 m3/yr if harvested over 35 years (see discussion in table below)
D+ Sawlog Yield per ha	76 m3/ha	Associated residual wood varies. Over the last 4 years the average residual wood harvested in the high yield areas has been approximately equivalent to the sawlog yield.

Table 11: Sustainable yield considerations

Considerations	Lower risk estimate	Higher risk estimate	Comments
Period until regrowth is millable	35 years from 2005 (2040)	30 years (2035)	EGFIP has viewed a range of draft IFPS runs. The thinning run (9 th) is shown below (153,000 m ³ /yr). The information is still considered to be in draft form and the subject of on-going discussions between VicForest and DSE with a view to resolution possibly in 2007. It is understood that the Allocation Order was developed with the expectation it would deliver at least to the licenced level based on the ESR data. However it has not produced these yields and the data has been refined. DSE and VicForest staff consulted during this project agree that it would be prudent at this stage to adopt the lower risk estimate (130,000) as the base until the matter is resolved. The data related to the regrowth t requires more analysis well beyond the time frame of this report.
Sustainable yield until regrowth millable (m³/yr gross D+)	Approx 130,000	Approx 150,000	
% that is old-growth Forest	20% (26,000 m ³ /yr)	20%+	
% Loss of non- old-growth forest supplies that would occur due to protection by prescription (eg buffers)	An area equivalent to 50 to 100% the size of the OGF stands i.e. an extra 13,000 to 26,000		The protection and/or exclusion of patches of old-growth will make other forest inaccessible. An analysis by DSE indicated that a 20 metre buffer on stands removes approximately 23% of net merchantable.. The impact creating isolated/fragmented stands that are no longer viable/accessible will probably remove a similar volume. Restriction on felling trees that might fall into old-growth stands will mean, to avoid a breach of the Code of Forest Practices, a tree length (40 m or more) may end up being excluded even if there was no formal buffer prescribed. The boundaries will be hard to determine and eNGO/public pressure will be applied to edge the boundaries further out. Even if the Government opted for a smaller buffer or no buffer today, history suggests the buffers will become larger over time e.g. the rainforest protection measures.

The comparative charts with areas and volumes for thinned and unthinned IFPS runs are shown in Figure 16 —series of charts). Note the difference in the mature volumes from 2005-2040 is very similar with only 3200 m³/yr difference. The impact of thinning is limited by the areas available for further thinning. The assumptions on timing of regrowth readiness to harvest for sawlogs in these IFPS runs are as follows:

Table 12: IFPS assumptions

IFPS assumptions	Forest Type and Site Quality						
	AAS	ASH	AMS	MMS	FMS - high site quality	FMS - low and medium site quality	CMS
IFPS 'business a usual' run							
<i>Current Rotation Age</i>	70	70	100	70	70	80	100
<i>Next Rotation</i>	80	80	100	80	80	90	100
IFPS 'indicative' thinning run							
<i>Thinned (subtract 10 years)</i>	60	60	90	60	60	70	90
<i>Unthinned</i>	As above						

This compares with Mike Connell and John Raison findings regarding thinning potential (see 11.2) as shown in their Table 7 “Effect of site quality and stand treatment on the time (stand age in years) to produce small sawlogs (50 trees ha-1 reaching a mean diameter of 65 cm DBHOB).” Based on their analysis it would suggest the above thinned stand rotation ages are similar. However the unthinned stands in these IFPS runs are much shorter for the lower quality stands. This supports the decision of EGFIP to adopt a more conservative sustainable yield figure until the regrowth/thinning predictions can improved.

From Table 4 of the Report commission by EGFIP (see (see 11.2))

<i>Site Quality</i>			
	Low (< 20)	Medium (20-25)	High (>25)
<i>Unthinned</i>	>200	110 - 191	66
<i>Thinned (50%)</i>	130	51 - 90	50
<i>Thinned (75%)</i>	93	46 - 79	45
<i>Thinned (50%) and fertilized</i>	84	50 - 76	50

Figure 16: Draft IFPS runs illustrating impact of thinning (in Appendix 12.2)

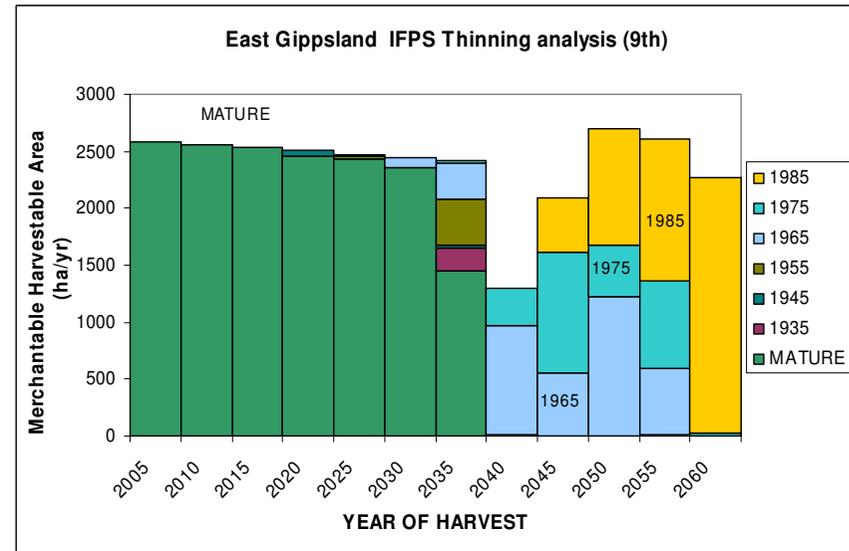
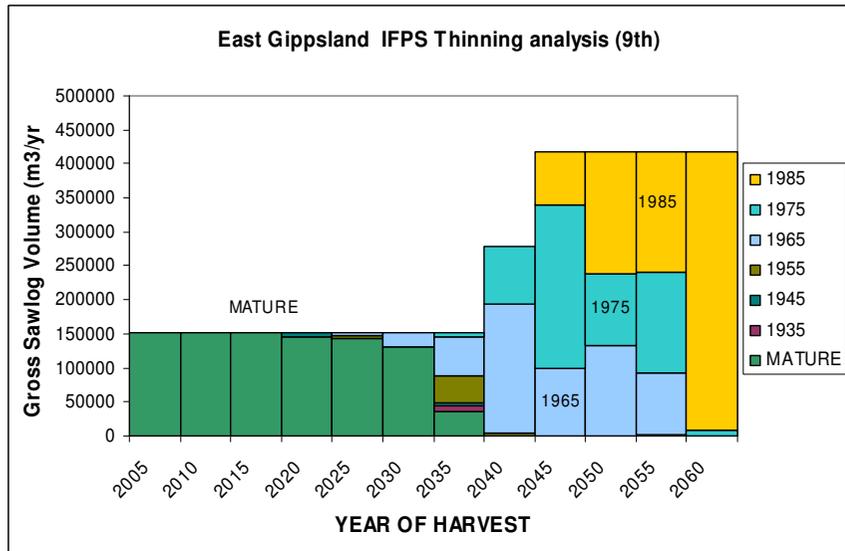
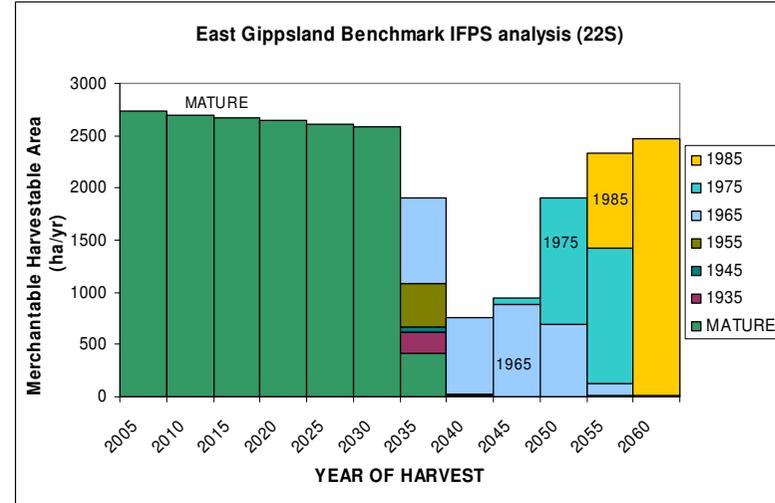
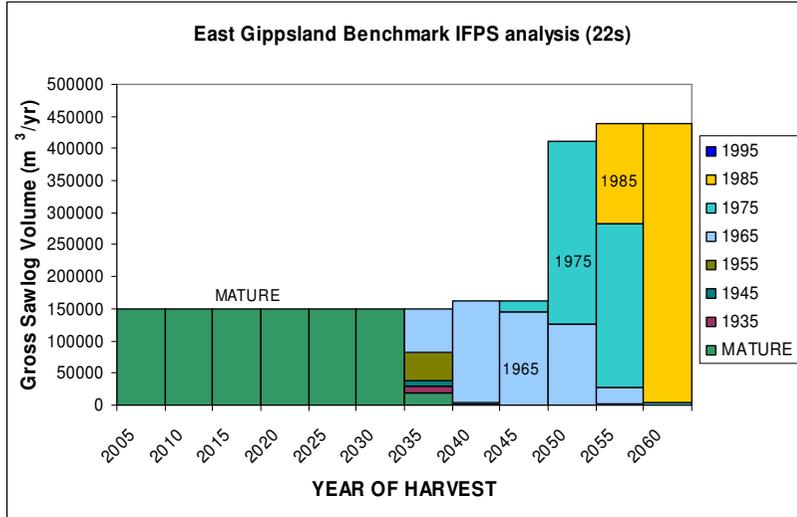


Table 13: Impacts of excluding old-growth forest

Methods of excluding Old-growth Forest from harvesting	Potential impact on non-OGF resource access.	Assumption used in the options	Comments
<p>Adopt a Variable Retention Harvesting (VRH) system that retains a portion (say 30% net) of the areas of OGF within the coupe e.g. "Patches and Corridor Retention" subject to safety and practical constraints.</p>	<p>Little or no impact on non-OGF timber resources if administered subject to safety and practical constraints.</p>	<p>No impact on non-OGF.</p> <p>Net merchantable OGF reduced by 30% (due to retention) in 65% of coupes (due to slope)</p>	<p>30% net retention of OGF is a practical target, but the target level can be varied. Depending on the objectives.</p> <p>VRH may not be practical and safe in some 30-40% of coupes due to steepness (say 35%)</p> <p>Regeneration implications. Increased costs in harvesting. Reduced yield from subsequent regeneration. May need to accept ecological regeneration.</p>
<p>Select suitable larger stands/clusters of OGF greater than 100 ha and protect by sub-catchment</p>	<p>.42 m3 loss of non- old-growth for each cubic meter of old-growth forest</p>	<p>As per impact prediction</p>	<p>Impact on non- old-growth is more limited as the areas are consolidated and the boundaries clear. With scattered smaller stands the impact is likely to be higher due to pressure not to breach the commitment to cease all harvesting and protect old-growth stands. Boundary issues would become a point of constant dispute.</p>

- 12.3 Victorian Forests - The Key Issues. Institute of Foresters of Australia. August 2006**
- 12.4 Reference to Eucalypt Plantations for Solid Wood Products in Australia – A Review. Forest and Wood Products Research and Development Corporation, Australian Government 2005**
- 12.5 Industry Stakeholder Option VAFI, CFMEU, VFHHC May 2006**
- 12.6 Key comments from tour with P Steedman and G Gooding, 15th March 2006. VicForests**
- 12.7 Shire of East Gippsland motion**
- 12.8 Choosing a Future for Victoria’s Forests Victorian Forest Alliance June 2006**
- 12.9 Victorian Forests: The Green way Forward Australian Greens Victoria 2 June 2006**
- 12.10 East Gippsland FMA Rainforest and Land status Victorian Rainforest Network 2006**
- 12.11 Rainforest Sites of Significance Victorian Rainforest Network July 2006**
- 12.12 TWS Stated Position (the words were agreed to by TWS)**
- 12.13 Environment East Gippsland Position Paper April 2006**
- 12.14 Environment East Gippsland’s position points and comments on changes to EG logging industry 2006**
- 12.15 Zoning Scheme**
- 12.16 Other groups**
- 12.17 Notes on clearfelling**
- 12.18 Resource Data for EGFIP**