

# **FOREST MANAGEMENT PLAN 2011**

**GUNNS LTD FOREST PRODUCTS:  
WESTERN AUSTRALIAN FOREST MANAGEMENT UNIT**

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## **COMPANY OVERVIEW**

Gunns Ltd Limited is an integrated forest products company operating predominately in southern Australia managing more than 524,000 hectares of forest. Gunns Ltd head office is located in Launceston, Tasmania with regional offices located in Mt Gambier, South Australia and Albany, Western Australia.

Gunns Ltd' forest estate can be described as the Defined Forest Area (DFA). The DFA encompasses all land and forest over which the company has management control. The DFA is then split into five Forest Management Units (FMU's) which are discrete areas managed as such.

Gunns Ltd is committed to sustainable forest management and is focussed on transitioning into a plantation only company. Gunns Ltd is certified to the International Organisation Standard's ISO14001 for Environmental Management Systems, the Australian Forestry Standard AS 4708, Chain of Custody AS4707, FSC Controlled Wood and Chain of Custody Standards.

Gunns Ltd is currently seeking Forest Stewardship Council (FSC) certification for the forest estate managed by the Company. Gunns Ltd is committed to the process and the application of FSC principles and criteria in its forest management activities.

## **PURPOSE**

The purpose of the Forest Management Plan is to communicate management objectives and principles for Gunns Ltd Western Australian estate. The Forest Management Plan forms part of the Company's business planning, located hierarchically between the high level Gunns Ltd Forest Management Statement, Forest Management Unit (FMU) specific HCV Assessment and Management Plans, and finally the operational specific Forest Practices Plans and other operational plans (See Figure 1.).

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## 1. MANAGEMENT OBJECTIVES

Gunns Ltd' primary objective is to manage a profitable and sustainable forestry business whose principal activities are growing and selling plantation sourced forest products, whilst protecting significant environmental values and fostering communication and good relations with the community.

Sustainable management of the Defined Forest Area (DFA) is seen as vital to the maintenance of Gunns Ltd' forestry business. Gunns Ltd' corporate objectives are to:

1. *Fully utilise the DFA's potential to grow and supply plantation based forest products*
2. *Maintain, protect and enhance the area's significant environmental and social values*
3. *Foster communications and good relations with the community and government*

Measures put in place to achieve these objectives are guided by the Safety, Health and Environment (SHE) policy and management system framework adopted by Gunns Ltd for all work activities.

### ***1.1 Safety, Health and Environmental (SHE) Management System***

The intent of the SHE management system is to implement company policy and contribute towards the achievement of objectives by:

- Within the jurisdiction in which a Gunns Ltd entity operates, ensuring all legal requirements for Safety, Health and Environmental Management are met;
- Ensuring all system requirements of voluntary certification schemes against which Gunns Ltd are certified are met;
- Provide other related business management systems with a sound systematic base.

The SHE system is based on a continuous improvement model and comprises a series of linked business processes. In many cases the business processes are necessary to achieve or maintain compliance to legal requirements or implement specific company policy. In all cases however the underlying intent is to manage and mitigate SHE risks associated with undertaking business activities. The business processes are supported by a series of structured policies, procedures, plans, manuals, checklists, training and assessment tools, etc. In brief, system documentation either:

- Guides or directs staff, contractors and other people working on behalf of Gunns Ltd through the company's business processes; or
- Provides a record or evidence that the business processes were carried out.

There are a number of reference documents that are central to the system as a whole. The central documents are grouped firstly into high level Elements, supporting Performance Standards, and specific task based Procedures or Manuals.

A key element to the Gunns Ltd SHE System as listed above is Gunns Ltd' policies. Gunns Ltd' key policies relating to sustainable forest management include the:

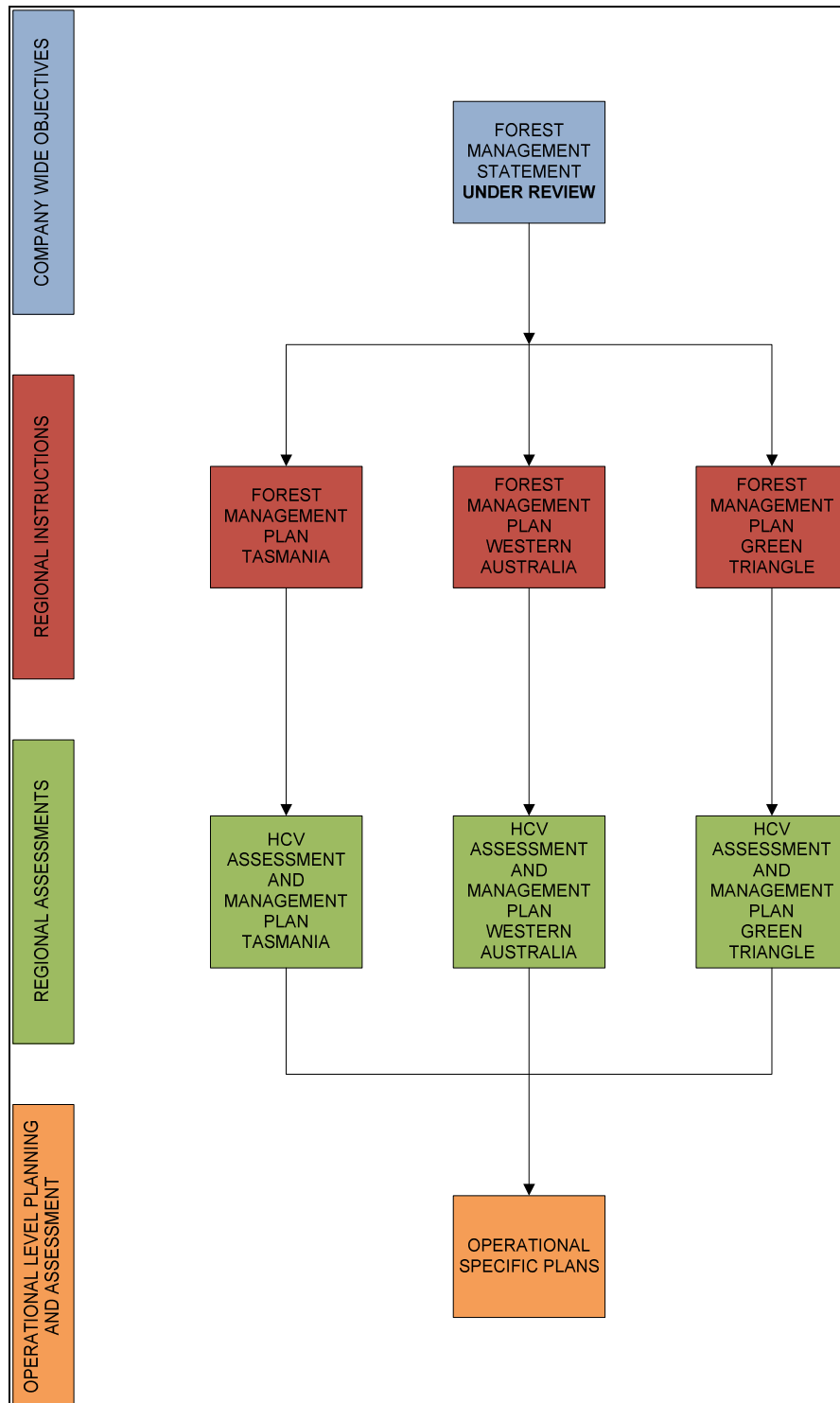
- *Environmental and Sustainability Policy*
- *Permanent Natural Forest Estate Policy*
- *Chain of Custody Policy*
- *Genetically Modified Organism Policy*

These are reproduced in Appendix 1.

Another key element of the Gunns Ltd' SHE System for forest operations involves the identification, assessment and management of SHE risks associated with the planning and undertaking of operations, specifically any identifiable environmental, social and economic aspect and impact. The aspects and impacts register ranks all identified aspects based on a systematic and traceable risk assessment methodology ensuring all significant aspects are taken into account within the SHE System.

All legal and voluntary requirements (such as Standards, voluntary agreements or policies) relating to aspects and impacts of Gunns Ltd business activities have been identified to ensure these requirements are taken into account in establishing, implementing and maintaining Gunns Ltd' SHE system.

**Figure 1. Gunns Ltd Planning and Assessment Process**



Gunns Ltd Western Australian (GWA) FMU is located in the South West and Great Southern regions (south of Bunbury and stretching to 100 kilometres east of Albany) and comprises of approximately 70,000 hectares located on 201 leased private properties (refer to Map 1). The estate currently comprises of 47,000 hectares of plantation area, 12,000 hectares of remnant native vegetation, and 11,000 hectares of non productive area. Further facts concerning the Gunns Ltd Western Australia FMU are displayed in Table 1 below.

**Table 1 – Western Australian FMU resource statistics**

Land tenure:	Freehold property – 100% externally leased
Number of plantation estates:	201 properties
Local Government Authority zones:	12
Gross GWA FMU estate area:	70,000 hectares
Net Planted Area (NPA):	47,000 hectares
Remnant native vegetation area:	12,000 hectares (~17% of area leased)
Non-plant area:	11,000 hectares
Average property NPA:	200 hectares
Plantation age:	4 to 13.5 years
Average plantation rotation length:	12 years
Current annual harvest production rate:	300,000 tonnes p.a.

***Environmental limitations***

All Gunns Ltd forest operations are undertaken in accordance with the relevant State and Commonwealth legislation, codes of practice and regulatory frameworks.

Gunns Ltd’ DFA has numerous operational constraints that arise from environmental compliance. Gunns Ltd maintains a comprehensive GIS which records information relevant to the protection and maintenance of environmental and cultural values. The GIS delineates exclusion and reserve areas and contains environmental information such as known localities of threatened species, soil types, stream catchments, geoconservation features etc. This information is used during operational planning primarily in the development of operational management prescriptions.

***Ownership Status and Land Use***

Gunns Ltd’ land is held under two principle land estate classifications, permanent and semi-permanent estate.

1. Permanent Estate:

Unlike other FMU’s, Gunns Ltd does not own any freehold land in Western Australia.

2. Semi Permanent Estate:

The semi permanent estate consists of privately owned land where Gunns Ltd retains legally definable management control. Management control for the Western Australian FMU has been established where Gunns Ltd Plantations Limited is the Responsible Entity for a managed investment schemes (MIS). Property specific lease agreements are in place defining land tenure rights, land use parameters and applicable obligations.

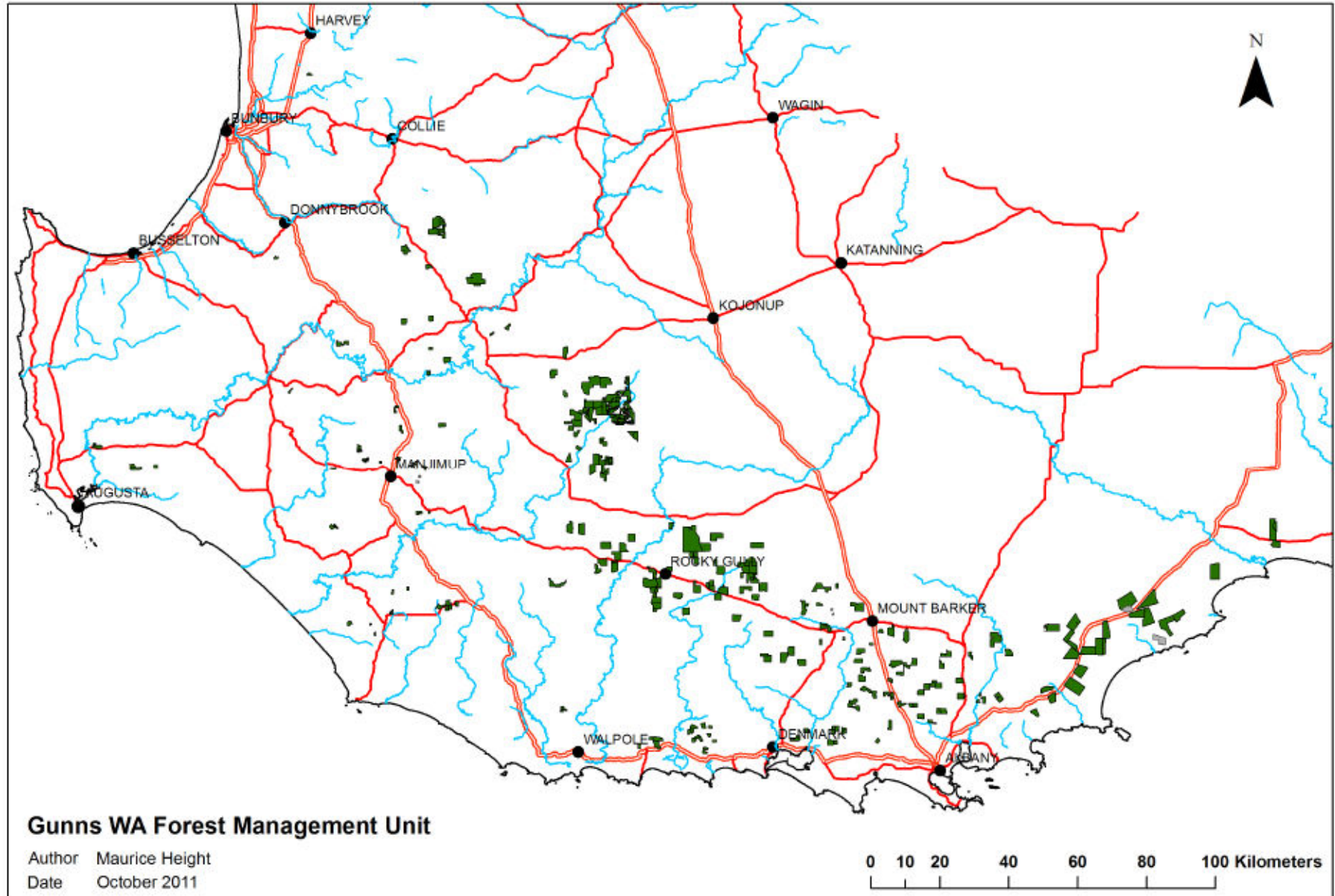
***Profile of Adjoining Lands***

Gunns Ltd manages land over a large geographic area. Land adjoining the DFA is used for a broad range of purposes, including reserves, agriculture, tourism, residential, industrial, recreation and forestry.

***Previous Land Use***

Over the past 16 years the hardwood plantation component of Gunns Ltd FMU was established and managed by managed investment scheme operator Great Southern Limited. Plantations were solely established on land previously cleared and used for livestock grazing or cropping in most cases dating back to the 1940’s to early 1980’s. There is no history of plantations being established in areas converted from natural forests after 1994.

Map 1: Western Australian FMU



### ***Current and future land use pressures***

Gunns Ltd Western Australian Forest FMU is likely to reduce over the next decade, with the rationalisation process largely aligned to harvest production rate, lease end dates – land tenure rights, and assessment of the long term economic viability of continuing to apply a forestry land use on all current sites.

Gunns Ltd ongoing association with current FMU properties will be influenced by the intentions of current land owners and negotiations between land owners and Gunns Ltd with respect to the re-leasing. Gunns Ltd will consider economic opportunities attached to re-leasing for second rotation on a property by property basis with due regard to environmental and social benefits.

It is possible land owners will convert currently forested plantation areas and re-vert the land back into a non-forestry land use. There is no mechanism in lease agreements that require Gunns Ltd to de-stump properties prior to handing back to the owner, consequently the decision to continue to apply a forestry land use or convert rests entirely with the land owner.

### ***Native Title***

There are no known conflicts relating to land tenure within the Company's estate. *The Commonwealth Native Title Act (1993)* provides a mechanism by which native titles rights can be negotiated and recognised under Australian law. Through Native Title the right for 'exclusive possession' can only be recognised over unallocated or vacant Crown Land and some areas already held by, or for Indigenous Australians. Freehold and leased land within Gunns Ltd estate does not sit within this category. Under Western Australian legislation the *Aboriginal Heritage Act 1972* applies to places (Aboriginal sites) and objects with traditional or historical association with Aboriginal people.

Gunns Ltd recognises the importance of land and traditional sites to Aboriginal people, and that Aboriginal people may have interests in the Company's estate for reasons including:

- Places of importance and significance where persons of Aboriginal descent have left traditional objects (archaeological sites);
- Sacred, ritual and ceremonial sites of importance and special significance to people of Aboriginal descent (anthropology sites);
- Places where traditional objects and resources are stored.

Gunns Ltd has a program in place to both a) identify non-registered sites of importance and significance, as well as b) protecting recognised sites.

## **3. SILVICULTURAL SYSTEMS**

The evaluation and selection of a silvicultural system will be plantation specific, based on recognised forest practices and guidelines, taking into account management objectives for the site. The primary objective in selecting a fit for purpose silvicultural system to apply is to maximise the value of wood products grown and harvested from the land whilst maintaining the long term productivity of the land.

In determining the appropriate silvicultural system, a number of factors need to be considered. These include, but are not limited to:

- Plantation management objectives
- Site environmental factors
- Natural and cultural values
- Fire management requirements
- Commercial / marketing factors
- MIS programme requirements
- Lease agreement terms and conditions
- Operational constraints
- Community expectations

Additional information, policies and procedures regarding plantation management and silvicultural systems utilised by Gunns Ltd can be found within the Gunns Ltd *Plantation Policy and Procedures Manual*.

The '*Plantation Policy and Procedures Manual*' is maintained electronically within Gunns Ltd Policy and Procedures database.

## **Eucalypt Plantations**

*Eucalyptus globulus* (Tasmanian Blue Gum) is utilised in all plantations across the Gunns Ltd Western Australian estate. Plantations are being grown for the production of high quality hardwood fibre for the global pulp and paper products industry. *E.globulus* has a naturally high pulp yield level, and typically good form that is compatible with woodchip processing and assists with producing products substantially free of defect.

Rotation length of the eucalypt plantations varies according to site quality. Most eucalypt plantations managed by Gunns Ltd are age 12 to 13 years at the time of final harvest.

## **Native forest areas on Plantation Properties**

Gunns Ltd does not support native timber harvesting on the Western Australian FMU estate. Native forest areas on Gunns Ltd managed land are managed for conservation of environmental and social values in accordance with the *Permanent Natural Forest Estate policy* (See appendix 1.). Management objectives and associated prescriptives are outlined in the *Western Australian HCV Assessment and Management Plan*.

Operationally all Remnant Vegetation areas are considered to be exclusion zones and are to be free of any activity during roading and plantation harvesting. Activities not permitted in native vegetation areas include:-

- unauthorised vehicle movement;
- removal of flora, fauna, wood, soil or produce;
- unauthorised stock grazing;
- unauthorised prescribed burning.

## **4. RATE OF HARVEST AND SPECIES SELECTION**

### ***Annual Harvest Rates***

Gunns Ltd annual harvest rates are determined in respect to the following considerations:

- Maximum sustainable harvest limits as determined by Gunns Ltd forest yield modelling;
- The market demand for the company's products;
- Meeting Managed Investment Scheme commitments; and
- Maximise the Net Present Value (NPV) of the forest resource.

The managed eucalypt plantation estate is modelled using Woodstock, a software package produced by Remsoft Inc. Woodstock models the plantation resource yield estimate over a given year period (ie, 2-4 rotations dependent on site quality) under a number of documented assumptions and constraints.

The Woodstock model has been developed to address a number of criteria which meet Gunns Ltd expectations, they include:

- Ensuring harvest levels are sustainable across each of the regions;
- Optimising NPV for MIS growers and the company;
- Managing the cost of harvest;
- Managing the silviculture of the stands;
- Managing the expectations of Gunns Plantations Limited; and
- Managing the age class distribution of the estate.

The outputs of the Woodstock model are then presented to each of Gunns Ltd FMU management teams in a two stepped approach:

### ***Step 1:***

The FMU management team is presented with a forest yield model projection of cut volumes and feed back sought.

### ***Step 2:***

Following feed back including operational optimisation, the three year harvest program is then agreed to by all parties and adopted by the FMU.

### ***Species Selection***

*E. globulus* has been selected as the single species of choice to be grown in the Western Australian FMU.

Species selection is determined by the requirement to maximise the return to the investor by matching the most economically productive species to site quality whilst giving consideration to;

- Meeting commitments to existing customers and internal processing facilities;
- Forecast market demand for differing products; and
- Minimising the financial risk to Gunns Ltd.

Species grown are also selected according to the site specific environmental objectives. There are no known issues associated with hybridisation of *E.globulus* with endemic species in the SW of Western Australia.

*E. globulus* has been subject to continual improvement through tree breeding for production values. The species is recognised for very rapid early growth and tolerance to a range of soil types and drier sites (~600mm / annum). *E. globulus* is very suitable for coppice regeneration.

The genetic improvement of plantation trees is actively pursued by Gunns Ltd as this is an area of substantial potential gains in plantation performance. Gunns Ltd participates in a number of tree breeding programs (both internal and external) to ensure optimal performance is realised from planted stock in future plantations. Gunns Ltd however, does not use genetically modified trees in any of its operations; this is clearly outlined within Gunns Ltd *Genetically Modified Organism Policy*, shown in appendix 1.

## **5. MONITORING OF FOREST GROWTH**

Gunns Ltd continually monitors the growth of its forest resource so as to ensure an accurate estimation can be made of sustainable yield. Every Gunns Ltd plantation is allocated a site quality in one of the following ways:

- MAI Calculator (MC);
- Spatial Averaging (SA);
- Estimation (ES);
- Previous Plantation Inventory (PI);
- Yield Analysis (PI); or
- Age 6 Strategic Inventory (SI).

All methods other than the SI are an estimate of what the site could potentially produce, based on factors such as rainfall, soil type and land use history. SI is an actual plantation inventory of all age 6 plantations in a given year. SI is considered the most reliable means of predicting future yields from a given plantation when combined with Gunns Ltd established growth models.

### ***Inventory***

Gunns Ltd currently conducts an age 6 inventory across all of its eucalypt plantations. Plots are randomly distributed across the entire Developed Area (DA), each plot is then measured for its Basal Area (G), Mean Dominant Height (MDH) and any other information deemed relevant to tree growth (e.g. slope, weeds, and damage).

The current sampling specifications are:

- One plot per 3 hectares; and
- Minimum number of plots per DA is 6

The results from the data collected from the field are then analysed within a database where the G and MDH are imported as coefficients into a volume equation. The result generated gives a volume for each individual plot in m<sup>3</sup>/ha of Entire Stem Volume (ESV).

Under Gunns Ltd' philosophy of continuous improvement in all areas of forest management, LiDAR derived plantation inventory will be undertaken on Gunns Ltd Tasmania plantation estate. This system has been developed, trialled and proven by Forestry Tasmania in its plantation forests. Gunns Ltd will contract Forestry Tasmania to undertake the coordination, data processing, calibration and final data delivery for this program. The 2010/11 season will be the first year Gunns Ltd will use this system.

The softwood estate is subjected to multiple inventory assessments through the lifecycle of each plantation. Inventory is based upon the simulation units utilised in the PLYRS analysis and both tree height and diameter

are measured. These measurements are then used to calculate the mean tree volume which is then divided into predicted volume assortments from 10cm top diameter onwards. The assortments are used to ensure the scheduled harvest meets the demands of the market.

### ***Permanent growth plots***

Gunns Ltd aims to have a representation of one Eucalypt Growth Plot (EGP) per 1,000 hectares that is stratified by locality boundaries. EGPs provide long term data describing how the plantation is growing through the entire rotation. EGPs are measured on a biennial basis and the data generated from the EGPs is used to validate the existing growth models, adjusting for longer term variability.

Gunns Ltd currently have a total of 179 active EGPs and 222 historic EGPs within its database spanning both the Tasmanian and Western Australia FMU's.

### ***Growth Models***

Gunns Ltd utilises a specific polymorphic growth model across the Western Australian FMU. The growth model is based on the data generated from the Gunns Ltd EGP monitoring program.

The company developed its own taper and volume equations from internal work undertaken by Gunns Ltd' Resource Information Team.

The growth models are employed to 'grow on' the plantation forest in a "virtual" sense from its initial strategic inventory at age 6 to the estimated time of harvest at age 12-13. This information is then used to derive strategic wood flows and forest valuations for each of the regions.

### ***Reconciliation***

A Yield Analysis database has been trialled, predominantly in the North West of Tasmania that compares the actual harvested volumes against the predicted volumes from any particular DA. This feedback mechanism will improve the accuracy of the resource information system in line with Gunns Ltd philosophy of continuous improvement.

### ***Carbon Accounting***

To maintain the capacity of Gunns Ltd' forests to act as a net carbon sink, the following parameters are monitored and reported annually:

#### **(1) Carbon Sequestration**

The amount of carbon stored in the forests is calculated using tree volumes obtained from inventory growth models. The tree volumes are converted to above and below ground biomass using allometric relationships developed by the Department of Climate Change (DCC) for varying plantation types. This biomass is then reported as carbon dioxide equivalents (CO<sub>2</sub>-e).

Factors considered in determining the amount of carbon sequestered include:

- Identification of whether the forests are Kyoto compliant (Kyoto Protocol Article 3.3);
- The methodology by which the National Carbon Accounting System (NCAT) measures carbon; and
- The projection of future carbon stocks via modelling.

Carbon sequestration is reported annually in the Sustainable Forest Management Report and Annual Financial Report.

#### **(2) Carbon Emissions**

To monitor greenhouse gas emissions resulting from forest management activities the *Envirochart* database is used. *Envirochart* is a customised web-based tool and can be accessed by all employees. The company's scope 1 and 2 greenhouse gas emissions are reported annually as CO<sub>2</sub>-e in the Annual Financial Report and National Greenhouse Gas and Energy Report.

Scope 1 emissions are direct emissions of greenhouse gases from sources that are owned or controlled by the reporting company, such as diesel consumption. Scope 2 emissions are indirect emissions that are a consequence of the operations of an organisation, but occur from sources owned or controlled by another company. At Gunns Ltd the primary scope 2 emission source is from the purchase of electricity for consumption.

The *Envirochart* system will also be utilised to capture and report on Scope 3 emissions. Scope 3 indirect emissions include transport related activities in vehicles not owned or controlled by the organisation, for example, air travel and waste disposal.

## 6. ENVIRONMENTAL AND SOCIAL SAFEGUARDS

Gunns Ltd undertakes environmental assessments at the landscape level and on a site or operational specific basis. The Company recognises that environmental components, such as soil, water and underlying geomorphology are an essential part of the forest and broader ecosystem and need sensitive management and safeguarding.

Gunns Ltd environmental safeguards have been developed into management prescriptions, based on a combination of company assessments, external assessments, operational experience and stakeholder engagement mechanisms. Gunns Ltd planning procedures require that each operation is individually assessed and a plan produced detailing management prescriptions.

### ***Landscape Level Assessments:***

Gunns Ltd is actively supporting the following landscape level assessment programs:

#### *Internal*

Gunns Ltd has undertaken an assessment of high conservation value forests within the Western Australian FMU. The management objective for HCV forest is to identify, maintain, and where possible enhance the HCV forest through implementation of responsible management strategies.

Using the ISO14001, AS 4708 and FSC principles and criteria, Gunns Ltd undertake an annual review of the significant environmental aspects of its forest management operations. This analysis has resulted in the production of Gunns Ltd Sustainable Forest Management (SFM) Indicators. The SFM Indicators set objectives and targets for continuous improvement of environmental performance and provide a comparable means of reporting Gunns Ltd environmental performance.

#### *External*

Gunns Ltd also conducts and is involved in scientific research into the significant environmental aspects of its forest and land management through involvement in the following natural resource management programs:

- Department of Water - Denmark River catchment hydrology study
- Murdoch University - Biodiversity research trials
- Gunns Ltd is a core partner with the Cooperative Research Centre for Forestry
- South coast NRM - participate on the South Coast NRM Land Reference Group
- Gondwana link - participated in Gondwana link Conservation Action Planning (CAP) program associated with the Stirling to Forest link.
- Gunns Ltd is currently assessing a proposal for completing a joint Timber Plantation Industry regional Aboriginal heritage work area clearance survey cultural values within SW Western Australia.

### ***Site/Operational Specific Assessments:***

Environmental assessments at a site level are an integral component of Gunns Ltd pre-operational planning program. Assessments are undertaken by individuals with sufficient expertise and local knowledge.

Site / Operational Specific Assessments involve:-

- The interrogation of internal and external spatial and tabular datasets to ascertain the presence of previously identified HCV's, significant conservation priorities or sensitive sites that require special consideration during the planning process.
- The Western Australian HCV Assessment and Management Plan is used as a primary reference point.
- An infield survey is completed to ascertain the validity of pre-existing HCV data sets, and b) the presence of new HCV's or significant environmental features.
- Relevant internal and external identification reference materials are utilised by field personnel to strengthen the integrity of the infield survey program.
- Stakeholder consultation is undertaken on an as required basis, depending on the site parameters and the likely level of disturbance of the work program.

Post completion of site / Operational specific assessments:-

- New HCV's / significant values are entered into Gunns Ltd GIS, and associated registers.
- Appropriate prescriptions are developed and integrated into the relevant operational plans e.g. Timber Harvest Plans. Where HCV's have been identified, details of the actual values are generally not revealed to non-Gunns Ltd' personnel, rather simple 'flags' are generally incorporated into operational documentation to highlight the importance of following the assigned operational prescriptions.

Findings during implementation of operational work programs:-

- Gunns Ltd operational personnel and Contractors are encouraged to report any suspected new HCV or significant environmentally sensitive findings that are identified during the implementation of operational programs.
- Operational prescriptions are reviewed and modified on an as required basis.

***Peer-review and approval of operational plan prescriptions:***

Peer review process is supported to ensure a cross check occurs of operational prescriptions assigned to maintain, protect, and where practicable enhance environmental values. The peer review process is often incorporated into the operational plan approval process.

***Stakeholder engagement:***

Gunns Ltd stakeholder engagement program is three dimensional, covering environmental, social and economic aspects and impacts through out the operational phases of planning, implementation and monitoring of work programs.

***Recognition of local stakeholder expectations***

Gunns recognises the importance of meeting stakeholder expectations including but not limited to:-

- Deterioration of regional roading infrastructure and the impact of chip / log haulage;
- Inappropriateness of plantation harvesting through the night;
- Need for best managing the location of harvesting activities during the peak tourist season;
- Avoidance of harvesting adjacent to vineyards during the grape harvest season, due to dust concerns;
- Due diligence required to ensure plantation wilding control is achieved adjacent to significant remnant native vegetation areas including Nature Reserves, Conservation Reserves and National Parks;
- Appropriate management of stream side reserves;
- Over use of chemicals;
- Hydrology issues on local environment and compounding effect of climate change;
- Community concerns over aerial spraying.

Operational controls including GIS database records, Sensitive areas and issues register, Aspects and Impacts register and work activity/property specific operational plans ensure systematic management of local stakeholder expectations.

***Buy local services and goods procurement program***

Where practicable Gunns Ltd will endeavour to procure services and goods from local businesses. Gunns Ltd recognises the importance of providing economic stimulus back into the local communities where the company has business interests.

## **7. THREATENED AND ENDANGERED SPECIES MANAGEMENT**

Gunns Ltd implements procedures within each of the FMUs for the identification and management of threatened and endangered species. Gunns Ltd maintains a GIS in which known biodiversity values, including species locations, are maintained. In addition, as a component of strategic and operational planning Gunns Ltd utilise threatened and endangered species databases that are maintained by external agencies, e.g. Government authorities, are accessed and used to identify values.

### ***Identification and Assessment of Threatened Species***

Gunns Ltd has undertaken an assessment of HCV's across the Western Australian FMU using the *Proforest Assessment, Management and Monitoring of High Conservation Values: A practical guide for forest managers (2008)*; see Gunns Ltd HCV Assessment and Management Plan for Western Australia FMU (Lotus Notes Document Distribution Library). This has resulted in a number of identified threatened species and their habitats being classified as areas of High Conservation Value Forest. Areas identified as HCVF have been included within Gunns Ltd GIS which ensures HCVF's are systematically identified during forest operations planning programs.

### ***Staff Training***

Gunns Ltd recruits qualified staff and relies on periodic training to ensure sufficient competencies are in place to identify and manage threatened and endangered species that have been positively identified or assessed as possibly being present on or directly adjacent to Gunns Ltd managed properties. Both internal and external training programs are conducted by personnel with recognised experience and expertise in relevant fields.

### ***Stakeholder liaison***

Stakeholder liaison is considered to be critical to ensuring effective threatened and endangered species management programs are developed and implemented. The Department of Conservation, regional biodiversity working groups (e.g. SC NRM, Gondwana Link), and other special interest groups offer valuable input into ensuring the currency, coverage and adequateness of management strategies, prescriptions and monitoring plans in Gunns Ltd' HCV assessment and management plan is maintained and aligns with comparable regional programs.

## **8. GEOGRAPHIC INFORMATION SYSTEM (GIS)**

The Gunns Ltd GIS enables the company to monitor and manage the forest resource and allows users to create maps and query information. Data from the Gunns Ltd GIS is used to produce various reports, including State of the Forest and SGARA (Self Generating And Regenerating Assets) financial reports. In addition, the data is used as inputs in the creation of woodflow models of the plantation estate for the creation of harvesting plans and models. The information stored in the Gunns Ltd GIS makes possible an accurate and timely response to any management queries regarding the forest resource.

### ***Resource Information Team***

The system is administered by the Resource information Team (RIT). The RIT are located across Gunns Ltd FMU's. The RIT group are considered high end GIS users and use a combination of ArcGIS9.3 and ArcView3.3 with a SPARQS (Spatial Planning and Resource Query System) extension.

### ***SPARQS (Spatial Planning and Resource Query Extension)***

SPARQS has been developed in house and allows technical and non technical people to use GIS to perform specific tasks, for example, create Forest Practices Plan maps, create burn plan maps, develop neighbour notifications based on cadastre or perform resource updates. SPARQS is very fit for purpose for the operational forestry environment. As such, the SPARQS extension has been sold to other forestry companies.

### ***Key Datasets***

The RIT is responsible for maintaining, updating and auditing all datasets within the GIS. There is detailed documentation (metadata and procedures) available for all datasets and processes. Data within the GIS is either created internally or sourced from external agencies. Examples of externally sourced datasets include; threatened species, cadastre, state roads, rainfall information etc. Gunns Ltd has data licences and agreements in place for the sharing of data; both into and out of the company. Gunns Ltd supplies data to a variety of external sources including federal & state government, consultants and NGO's.

Key internally developed and maintained datasets include

- Resource;
- Roads;
- Freehold management zones; and
- Freehold titles.

#### Resource layer

- Contains information on productive forest resource, data includes:
  - Plant year;
  - Species;
  - Location;
  - Unique identifier;
  - Mean Annual Increment (MAI); and
  - Harvesting regime.
- Updated on a continual basis with auditing and archiving quarterly
- Data from this layer is supplied to federal and state government agencies

#### Roads

- Contains roads built by Gunns Ltd.
- Includes information:
  - Date road built;
  - Surface type; and
  - Road class.
- Updated when new road built.

#### Freehold management zones

- Contains information for non-productive or reserved areas on freehold estate only.
- Includes areas such as;
  - Reserves flora, fauna, social, cultural heritage, streamside etc;
  - Inaccessible areas or non commercial areas; and
  - Utility areas – easements, quarries roads.
- Updated on a continuous basis and audited on a quarterly basis.

#### Freehold Title

- Contains cadastre record of land that Gunns Ltd managers.
- Includes information such as
  - address detail of properties;
  - ownership;
  - acquisition date; and
  - sold date (archived layer).
- The layer is updated when property is either leased or the lease expires.

## 9. HARVESTING EQUIPMENT AND TECHNIQUES

Timber harvesting is performed by specialised contractors who have the appropriate skills, experience and machinery to perform the required operations. The *Plantation Policy and Procedures Manual*, provides the basis of outlining the company's harvesting and roading standard requirements, as well as applicable standard operating procedures.

Value recovery is imperative to the success of a harvest operation. Within plantations, stump height and harvest inspection report assessments are used as mechanisms to monitor value recovery.

### ***Ground-based Harvesting Systems***

Ground based harvesting systems can consist of a number of different combinations of machinery and personnel dependant on forest type and levels of production.

The typical harvesting system used in the Western Australian FMU is an excavator based felling machine that falls the plantation trees and leaves the trees in bunches through the harvested area; a skidder picks up the bunches of trees and transports the trees in whole tree form to roadside (compartment edge); the stockpiled trees are processed by passing through a mobile flail system then into a mobile chipper; and the chip material is loaded directly into a road train trailer bin, for transport to the nearest shipping facility. Residue from the operation is returned and distributed over the harvest area. In this way, biomass is retained onsite aiding nutrient retention.

In-field chipping provides for efficiency gains in transport costs (more end-product per cubic metre, no requirement to transport residue off site) and the retention of residue on site.

### ***Chip handling, stockpiling, and ship loading***

Gunns Ltd is currently harvesting woodchip material from plantations located within 150 kilometres from Albany. A service agreement is in place with Elders Forestry to provide chip receipt, stockpiling, handling and ship loading services to Gunns Ltd at their terminal (trading as Plantation Pulpwood Exports) located at the Albany Port.

Woodchip material exports via Bunbury Port, is scheduled to commence during 2013-2014.

### ***Inventory control***

Gunns Ltd maintains an inventory control (chain of custody) system. The system has been designed to meet the requirements of applicable voluntary forest certification schemes, which enables Gunns Ltd the ability to offer customers both traceability and non-controversial wood (controlled wood) assurances.

## **10. PRODUCT PROCESSING AND MARKETING**

### ***Export of Wood Fibre***

Gunns Ltd export wood fibre in the form of wood chips, due to there currently being no domestic options for the sale of substantial volumes of wood fibre. Wood fibre is considered an international commodity and as such is commonly traded in an international market place. Both the Chinese and Japanese pulp and paper industry are important wood fibre markets for Gunns Ltd.

### ***The Relationship Between Yield Modelling and Sales***

The market demand for Gunns Ltd wood products is an important factor within the calculation of annual harvest rates of Gunns Ltd forest resources. Other important factors considered in the calculation include the maximum sustainable harvest limits and the need to maximise the Net Present Value of the forest resource. A combination of all three factors leads to a determination of the allowable annual harvest volume.

### ***New or Future Market Opportunities***

Gunns Ltd plans to build a world class pulp mill. A pulp mill extends the local processing chain adding substantial value to Gunns Ltd wood fibre resource. Gunns Ltd pulp mill will meet the most stringent of environmental conditions relating to planning, construction and operation of the pulp mill.

The developing carbon market holds many potential benefits for Gunns Ltd. As such, Gunns Ltd maintains a market ready position of monitoring and measuring carbon sequestration and carbon emissions. Carbon sequestration and emission is measured via a recognised protocol (*GHG Protocol: A Corporate Accounting and Reporting Standard*).

## **11. ESTATE PROTECTION**

### ***Fire Protection***

Bushfires are considered an extreme risk to Gunns Ltd plantation management programme. *E.globulus* has a low tolerance to fire, and customers of high quality hardwood fibre for the global pulp and paper products industry have a zero tolerance to charcoal contamination.

Fire management is recognized as an integral part of our business. Gunns Ltd is committed to:

- Minimising adverse impact on the health and safety of Gunns Ltd employees, other fire fighters and the wider community.
- Comply with all applicable fire legislation requirements, Codes of Practice, Insurance and other external and internal policies and procedures.
- Minimise fire impact to Gunns Ltd and Investor assets. This can lead to loss of resource and downgrade in quality which can have a negative financial impact. These factors can considerably effect wood flows and have long term ramifications on Gunns Ltd and the industry as a whole.
- Minimise adverse impacts upon the environment; specifically protect biodiversity and other conservation values in natural vegetation reserves on or adjacent to Gunns Ltd managed properties.
- Ensure a risk management framework underpins regional fire management programs.
- Have an annually updated operational fire plan in place for all Gunns Ltd FMUs.

- At a FMU level, consult and form cooperative working alliances with fire authorities, service providers, neighbours, traditional owners, applicable industry groups and the wider community. Gunns Ltd will, where practicable, actively contribute to managing fire at a landscape level.
- Ensure an appropriate level of fire awareness and readiness is integrated into all operational programs.
- Effectively respond to all fire incidents that are either on Gunns Ltd managed land or threatening Gunns Ltd and investor assets.

The *Bushfire Act 1954* provides the key legislative requirement for fire management in Western Australia. The Fire and Emergency Services Authority (FESA), facilitate the development and maintenance of bushfire management arrangements for the State. The *Emergency Management Act 2005* enables FESA to delegate responsibility to Local Government Authorities (LGA's) to ensure effective local bushfire management arrangements are prepared and maintained within its district. Operationally Gunns Ltd works in conjunction with LGA Brigades.

The key components of the fire protection strategy for all Gunns Ltd Forest Management Units are:

#### Prevention

The majority of assets are enclosed with firebreaks and are accessed via comprehensive road networks. Firebreak maintenance programs are conducted to keep these effective for the control of fire. Fuel Reduction burning programs are also undertaken which can help contain the spread of fire, reduce intensity and allow more efficient and effective suppression. Other vegetation management such as grazing and slashing also contributes to minimising the build up of fuels and potentially causing greater fire potential.

The choice of either of the above methods is based on the cost effectiveness of each measure at reducing the number of fires, the area burnt, the damage to assets and predicted fire suppression costs.

During periods of high fire danger, Gunns Ltd operations are also subject to fire weather "shutdown" procedures to ensure compliance with LGA vehicle movement and harvest bans, as well as having specified minimum fire suppression equipment requirements for each operational type.

#### Monitoring

A combination of fire monitoring techniques are implemented in the Western Australian FMU during the fire season. These consist of, but are not limited to LGA and DEC fire reports, notification from Company staff and contractors, other industry members, spotter plane flights and importantly the general public.

#### Fire Plans

Gunns Ltd Western Australian FMU has an operational Fire Management Plan. The function of these plans are to provide a reference document which details the procedures relating to responsibility, preparedness, the detection and suppression of fires, and available resources for fire management.

Sections covered include, but are not limited to, fire policy, company procedures, roles and responsibilities, communications, fire detection measures, inter agency protocols, fire permits, contractor guidelines, fire law, duty teams and rosters, personnel skills lists, available resources and incident and reporting forms.

#### Fire Equipment

Appropriate equipment for fire suppression activities is purchased and maintained to comply with *FESA Plantation Fire Protection Guidelines (1998)*.

#### Training

Gunns Ltd employees and contractors are appropriately trained in fire suppression techniques and procedures and in the operation of machinery in fire fighting situations.

#### Cooperation & Liaison

A high degree of consultation, cooperation and information sharing with other stakeholders occurs in relation to fire management. Gunns Ltd is a signatory to the "Plantation Managers' fire agreement", which is in place to promote effective fire incident response and reporting between managers with plantation interests located in SW Western Australia.

#### ***Plantation Health***

Gunns Ltd employ a range of forest management programs to ensure that plantations remain in good health and whereby growth is not restricted by factors that can otherwise be easily controlled.

This integrated pest management program includes;

- An advanced tree breeding program that aims to deploy selected genotypes that demonstrate resistance to natural pests and diseases within the deployment environment;
- During the establishment phase expert field officers monitor young seedlings for nutrition deficiencies, weed competition and browsing from vertebrates and invertebrates;
- Throughout the life of the plantation each property is formally inspected at least annually to monitor plantation health including nutrition and identify remedial actions where required;
- During vulnerable periods of plantation growth formal monitoring is conducted on browsing insect populations as well as natural predators. Where natural predators have been unable to maintain normal levels of browsing insects remedial control techniques are sometimes employed;
- In forest management regimes involving thinning or pruning careful consideration is given in operational planning to maintain stand vigour and integrity; and
- During periods of fire danger the estate is monitored for incidences of wildfire and company resources are deployed where required.

These programs combine to ensure that Gunns Ltd' managed estate performs optimally in each management region. Where required Gunns Ltd will employ remedial actions in a safe and environmentally responsible manner.

## **12. PLAN REVIEW**

Gunns Ltd' Forest Management Plan will be reviewed annually, or following significant change to silvicultural, environmental, social and economic conditions. The next scheduled review date is April 2012.


Gunns Ltd' Certification Fire and Services Manager is responsible for the production and review of Gunns Ltd Forest Management Plan.

## **13. TRAINING TO IMPLEMENT THE PLAN**

Training in regard to Gunns Ltd Forest Management Plan will be recorded on the appropriate training plans and registers. These documents are managed within the individual FMU's.

## 14. Appendix 1.

### Gunns Ltd Company Wide Policies



**ENVIRONMENTAL AND SUSTAINABILITY POLICY**

**1 Purpose**

Gunns is committed to sustainability and the responsible management of the environment.

Gunns respects and acknowledges the rights and interests of all those who live and work in the communities in which it operates. Gunns will consult with and provide feedback to stakeholders, who are affected by or have interest in its business to achieve a balance between economic viability, social contribution and environmental responsibility.

**2 Scope**

The Environmental and Sustainability Policy applies to all operations of Gunns Limited.

**3 References**

- Gunns Sustainable Forest Management Reports
- Gunns Annual Reports
- Gunns website www.gunns.com.au

**4 Definitions**

AFS: Australian Forestry Standard.

ISO14001: A family of internationally recognized standards for environmental management systems that is applicable to any business or organisation, regardless of size, location or income.

PEFC: Program for the Endorsement of Forest Certification Schemes.

FSC: Forest Stewardship Council.

**5 Procedural Principles**

Gunns is committed to continuous improvement of its environmental performance and to demonstrate this commitment Gunns will:

- Only produce wood products from responsibly and sustainably managed wood sources. Gunns shall choose independent, recognised and credible certification systems that can measure and audit its processes to verify this, including maintaining certification to PEFC recognised AFS and ISO14001, and actively pursuing FSC certification.
- Implement systems that trace the origins of our forest products to legally and sustainably managed resource.
- Ensure suppliers and contractors share Gunns' commitment to sustainability and responsible environmental management.
- Provide appropriate training of employees in its sustainable management procedures and provide industry leadership to drive toward best practice systems, practices and products.
- Reserve a significant portion of Gunns' owned estate for conservation values, recreational and educational purposes.

- Manage its estate for conservation values that are present including: soil, water and air quality, biological diversity, threatened and endangered species, wildlife habitat, old growth forest and cultural heritage.
- Implement and manage a robust integrated management system that delivers high standards and complies with internationally recognised standards.
- Set challenging objectives and targets relating to resource sustainability and environmental policy which will be regularly reviewed as Gunns strives to continually improve environmental outcomes.
- Minimise pollution and the generation of waste.
- Minimise the use of chemical pesticides and fertilisers.
- Facilitate carbon capture and manage efficient energy use.
- Communicate its environmental performance to employees, contractors, directors, shareholders and community stakeholder on a regular basis.
- Engage third parties to assess its performance against commitments made in this policy.
- Comply with all legislation, codes of practice and regulatory frameworks.

**6 Revision History**

This document is identified as 'Environmental and Sustainability Policy'. A new version will be issued whenever significant changes occur.

Version	Changes	Date
V1.0	Original	June 2006
V2.0	Revised	January 2009
V3.0	Revised	May 2010
V4.0	Revised	October 2011

Author:	Suzette Weeding
Authorisation:	Greg L'Estrange
Signature:	
Revision Date:	October 2012



## PERMANENT NATURAL FOREST ESTATE POLICY

### 1 Purpose

Gunns supports the maintenance of a permanent natural forest estate as part of our commitment to sustainability and the responsible management of the environment.

Gunns will not undertake conversion of natural vegetation to plantation and in addition, will not undertake natural vegetation clearance to non-forest uses unless required for infrastructure development and maintenance.

Gunns will strive to optimise the economic value of forest products which have met the requirements of our certification systems in order to enhance long-term social and economic benefits, while minimizing impact on the environment.

### 2 Scope

The Permanent Natural Forest Estate Policy applies to Gunns Forestry Division.

### 3 References

- Gunns Environmental and Sustainability Policy
- Gunns Sustainable Forest Management Reports
- Gunns High Conservation Value Assessment and Management Plans

### 4 Definitions

Natural Vegetation – Naturally occurring native vegetation communities that consist of native flora species.

Plantation – Managed stands of trees, established for commercial purposes, created by the regular placement of seedlings.

Infrastructure Development and Maintenance – Includes ancillary infrastructure related to the objectives of forest management, such as roads, fire breaks, quames, and fences; and infrastructure required by legislation or regulation, such as powerlines.

### 5 Procedural Principles

Gunns is committed to the maintenance of a permanent natural forest estate and to demonstrate our commitment Gunns will:

- Only undertake natural vegetation clearance to non-forest uses for infrastructure development and maintenance.
- Not undertake conversion of natural vegetation to plantation.
- Maintain a significant portion of Gunns permanent estate as natural vegetation.
- Not undertake commercial tree harvesting of natural forest on Gunns' permanent estate, unless required as a consequence of infrastructure development and maintenance.
- Comply with all legislation, codes of practice and regulatory frameworks.

### 6 Revision History

This document is identified as 'Permanent Natural Forest Estate Policy'. A new version will be issued whenever significant changes occur.

Version	Changes	Date
V1.0	Original	July 2010
V2.0	Revised	December 2010
V3.0	Revised	June 2011
V4.0	Revised	October 2011

Author:	Suzette Weeding
Authorisation:	Greg L. Estange
Signature:	



## GENETICALLY MODIFIED ORGANISM POLICY

### 1 Purpose

The use of Genetically Modified Organisms (GMO's) has become an issue of significant community concern. The GMO policy defines Gunns' position on the use of GMO's within its forest estate.

### 2 Scope

The GMO policy applies to all operations of Gunns Limited.

### 3 References

- The Australian Commonwealth *Gene Technology Act 2000*
- The Tasmanian State *Gene Technology Act 2001*

### 4 Definitions

**Genetically Modified Organism (GMO)** means:

- an organism that has been modified by gene technology; or
- an organism that has inherited particular traits from an organism (the **initial organism**), being traits that occurred in the initial organism because of gene technology; or
- anything declared by the regulations to be a genetically modified organism, or that belongs to a class of things declared by the regulations of the Commonwealth *Gene Technology Act 2000*, to be genetically modified organisms.

**Gene Technology** means any technique for the modification of genes or other genetic material, but does not include:

- sexual reproduction; or
- homologous recombination; or
- any other technique specified in the regulations of the Commonwealth *Gene Technology Act 2000*.

### 5 Procedural Principles

Across its entire business, Gunns will not use GMO's or research technology into the use of GMO's, as defined by the Commonwealth *Gene Technology Act 2000*.

### 6 Revision History

This document is identified as the '**Genetically Modified Organism Policy**'. A new version will be issued whenever significant changes occur.

Version	Changes	Date
V1.0	Original	December 2010
Author:		Leon Savage
Authorisation:		Greg L'Estrange
Signature:		



## CHAIN OF CUSTODY POLICY

### 1 Purpose

Gunns Limited is committed to Chain of Custody certification in order to demonstrate to our customers and stakeholders that wood products processed by our company have originated from sustainably managed forests.

### 2 Scope

Processing and exporting sites of Gunns Forest Products and Gunns Timber Products.

### 3 References

- Gunns Chain of Custody Manuals
- Gunns Policies and Procedures
- Relevant Australian Forestry Certification Scheme (AFCS) Standards
- Relevant Forestry Stewardship Council (FSC) Standards
- Gunns website – [www.gunns.com.au](http://www.gunns.com.au)

### 4 Definitions

Chain of Custody is the process of tracking wood and forest products originating from sustainably managed forests through all phases of ownership, transportation, manufacturing, and delivery to customers.

### 5 Procedural Principles

Gunns Limited will maintain Chain of Custody certification through application of the following principles:

- Avoiding trading and sourcing wood or fibre from (i) illegal harvested wood; (ii) wood harvested in violation of traditional and civil rights; (iii) wood harvested from forests in which high conservation values are threatened by management activities; (iv) wood harvested from areas being converted from forests and other wooded ecosystems to plantations or non-forest use; (v) wood from forests in which genetically modified trees are planted
- Maintaining systems and processes to demonstrate traceability of all forest product inputs to its processing sites across the Gunns Forest Products and Gunns Timber Products divisions
- Ensuring that sufficient resources and training are in place to implement and control the Chain of Custody system
- Maintenance of a system to enable credible and valid use of logos or other certification marks on wood products
- Ensuring continuous improvement in the Chain of Custody system underpinned by regular review and revision
- Ensuring compliance with the laws and regulations covering environmental impacts of the manufacturing facilities.

The Chain of Custody system will be independently audited by third-party certification bodies to verify and report on its performance.

### 6 Revision History

This document is identified as 'Chain of Custody Policy'. A new version will be issued whenever significant changes occur.

Version	Changes	Date
V1.0	Original	Oct 2004
V2.0	Revised	Sep 2006
V3.0	Revised	Feb 2009

Version	Changes	Date
V4.0	Revised	Aug 2010
V5.0	Revised	Dec 2010

Author:  
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