



**2016/17  
Forest Management  
Plan**

**September 2016**



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## 1. Forest Management and Stewardship – Purpose, Policy and Planning

### Purpose

The purposes of this plan is to:-

- Outline the Stewardship and Management policies that HVP adheres to.
- Outline the scope and objectives of management.
- Describe the estate, harvest rates, species selection and silvicultural regimes.
- Provide a summary of HVP's Management System and how it works.
- Present the planned operational area and volume for the financial year (table 2).
- Present this information to the public for the purposes of input and feedback which can be used to modify the existing plan or in the development of the subsequent year's plan. This is done by publishing the Forest Management Plan on the HVP website with a link sent to a wide range of stakeholders requesting their review and input.

### Forest Stewardship Policy

***HVP Plantations strives to manage the forest assets of the Company to deliver optimal value to our investors and responsible stewardship of the forest for economic, environmental and social benefits.***

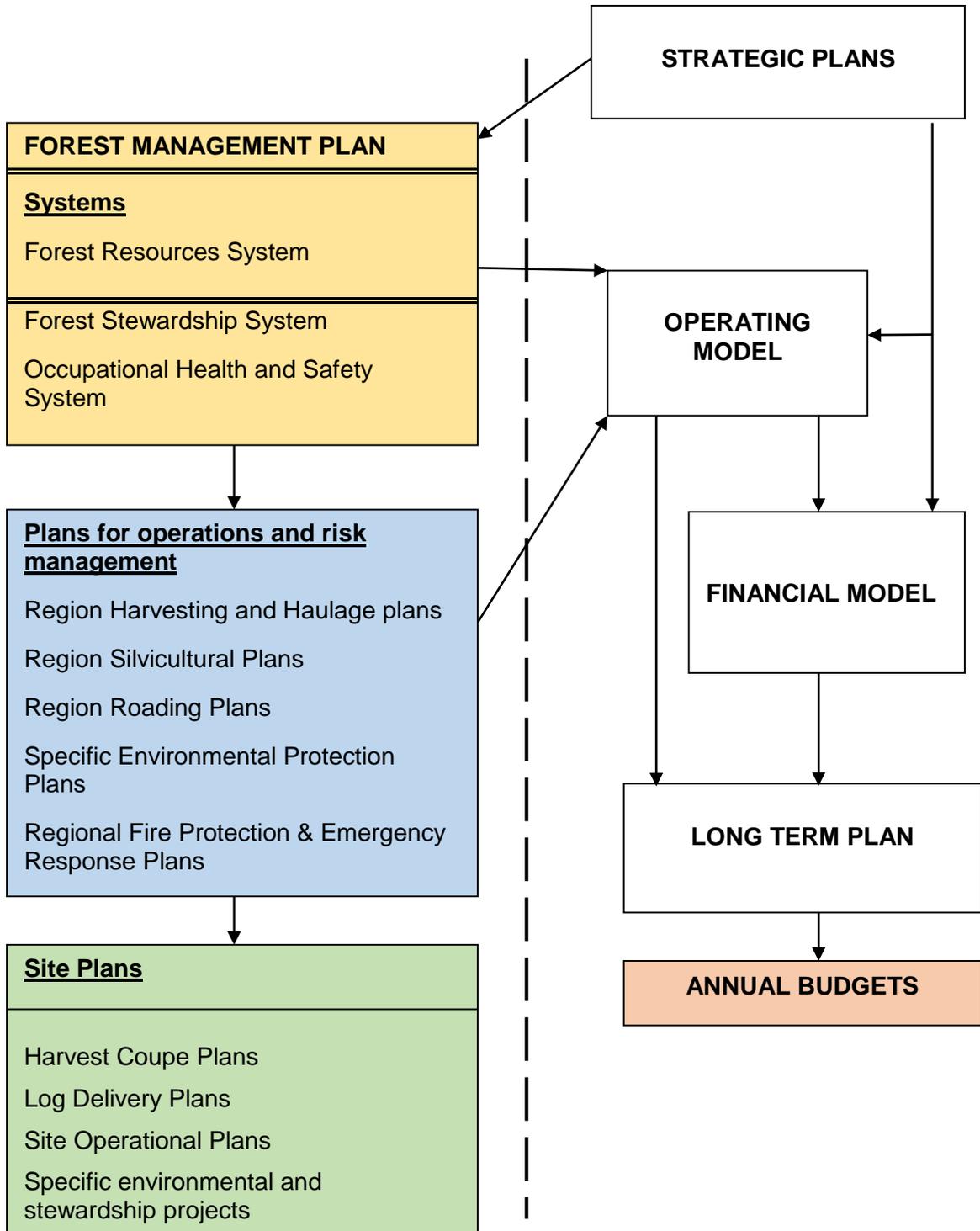
*As stewards of the land, the company will:*

- 1.** *Manage the forest estate according to all statutory requirements including the Code of Practice for Timber Production and other forest management requirements as outlined in the Forest Management System.*
- 2.** *Incorporate performance indicators into the Forest Management System and Forest Management Plan including a framework for setting and reviewing forest management objectives.*
- 3.** *Promote the development of employees and the use of appropriately skilled contractors with emphasis on scientific excellence in relation to forest management, the environmental value of the estate and sensitivity to stakeholder views.*
- 4.** *Maintain forest ecosystem health and vitality by protecting Company forest from fire, pests and diseases through long-term resource sustainability strategies and short-term integrated pest management programs with minimal environmental impact.*
- 5.** *Consider the public resources of the forest – its water, soil, biological diversity, cultural heritage, landscape amenity and recreational values – and manage them with a long-term sustainable perspective and the prevention of soil and water pollution.*
- 6.** *Implement programs to better understand the capacity of the forest to act as a net carbon sink and develop practices to reduce green house gas emissions of forest management activities.*
- 7.** *Contribute long term social and economic benefits to the community from Company forest management activities through the use of integrated forest management procedures and planning.*
- 8.** *Consider the views of stakeholders in the development of the Forest Management Plan and to address social and environmental issues arising from management of the forest estate.*
- 9.** *Conduct research to maintain the productive capacity of the forest land and monitor environmental, economic and social aspects of forest management.*
- 10.** *Provide adequate resources to implement and maintain the system and to facilitate continual improvement of forest management performance.*

**Karl Kny**  
**Chief Executive Officer**  
 18<sup>th</sup> January 2016

**Forest Management Plan**

This Forest Management Plan forms one part of the Company's business planning as shown in the diagram below.





Within the Forest Management Plan the 3 principal management systems are:

1. The **Forest Resources System** accumulates resource data (wood and carbon), site productivity, spatial data and relevant financial information on both revenue and costs. This enables the Company to model plantation growth which provide the basis for business valuation, development of the business plan and for the production of harvesting and forest management operational plans (See Appendix 1).
2. The **Forest Stewardship System (FSS)** is based on a standard environmental management system structure and specifically includes:
  - a legal register
  - identification and assessment of the significance of environmental, social and commercial aspects and impacts of company activities
  - management objectives and targets
  - a monitoring process
  - operating conditions and controls in a series of Best Management Practices (BMPs)
  - a process for internal audit and review
  - a process for managing non-conformance and corrective actions to drive continual improvement
3. The **Occupational Health and Safety System (OHS)** which is based on a structure which mirrors the Forest Stewardship System and covers all safety aspects of the business.

Staff can access all of these systems via HVPportal, which outlines the methods, policies, procedures and standards in doing business, keeping safe and protecting the environment.

**Scope of Forest Stewardship** – HVP manages softwood and eucalypt plantations for timber production, particularly sawlogs and includes operational activities such as establishing, growing and harvesting of trees. Native forest (or Custodial Land) within the forest estate is not harvested and is managed for conservation purposes including all ecosystem services, particularly, flora, fauna, soil and biodiversity.

The Forest Management Plan is based on the forest management activities conducted on Company land or on other land, and their interactions with commercial or economic outcomes, environmental values and the broader community in which the Company operates.

**Forest Management Objective** - To manage the forest estate to deliver optimal value to our investors in a way that embraces and demonstrates good forest stewardship through the continuous development of the Company's skills and practices.

Forest stewardship is the responsible management of our clients' forest investments while maintaining or enhancing the environmental and community values associated with the land for future generations. Clearly, protecting the resource from the impact of uncontrolled fire is critical.

The Company plans and manages its plantation operations to be economically viable, socially acceptable and environmentally responsible. It is committed to the wellbeing of its employees, contractors and other parties legally involved with Company assets and will take all practical steps to prevent personal injury and damage to property or environment.

HVP forest management is certified under both of the major, internationally recognised forest certification schemes; the Australian Forestry Standard (endorsed by the Programme for the Endorsement of Forest Certification systems, (PEFC)) and the Forest Stewardship Council® (FSC®), and is committed to adhering to the certification standards within its estate.

Timber plantations including exotic monocultures are accepted for voluntary certification under the Australian Forestry Standard (AFS) and under the Forest Stewardship Council (FSC) rules. Plantations are an integral consideration within the criteria of the Australian Forestry Standard. The FSC membership expressly determined that well-managed plantation forestry

operations should be accepted as an important ingredient in the global strategy for meeting human needs. This intent is consistent with that of the Australian Forestry Standard. To balance the sometimes conflicting objectives that this can present, the Company differentially manages its plantations and its custodial lands to promote the benefits and manage the issues, with the aim of achieving a balance across the full estate (see Appendix 2).

### **Development of the plan – including Aspects, Impacts, Objectives and Targets**

To establish forest management objectives the Company has analysed its activities, products and services, and identified the environmental, social and commercial aspects of these. The associated impacts have been identified and their significance assessed. The outcome of this assessment is recorded in a register of Aspects and Impacts which flows onto setting objectives and targets to minimise the impacts. The procedure followed to assess aspects & impacts and the objectives & targets can be found by HVP staff in HVPportal.

In summary, the significant aspects are related to those activities which:

- generate soil movement, and accordingly the potential for sediment generation;
- result in alterations to the soil structure (e.g. alterations to the soil profile, and to bulk density);
- may result in contamination of soil and groundwater (e.g. spills and leaks, off-target application of herbicides);
- may contribute to contamination of surface waters by chemicals (e.g. agricultural chemicals and machinery fuel/oil) and sediment;
- may result in detrimental impacts on flora, fauna, and biodiversity
- may impact on air quality (e.g. herbicides, vehicle emissions, dust, and smoke);
- may adversely impact on public amenity(e.g. noise) and cultural and aesthetic values (e.g. landscape values);
- affect health and safety of humans
- affect good relationships with stakeholders and the community
- affect cultural heritage
- occur during uncontrolled wildfire

Accordingly objectives and targets are developed and approved by the company's Operations Group at the annual September meeting to manage these significant aspects, with the aim to minimise impacts. The Monitoring and Audit Plan then addresses the compliance with the objectives and targets.

Company management practices require some impacts; for example some soil disturbance is intended where cultivation promotes crop growth. However, the objectives and targets reflect the Company's commitment to continual improvement in performance, and to long-term research on the interaction between plantations and environmental values.

### **Management planning and implementation**

HVP aims to follow the following forest management principles:

- Provide and maintain a safe working environment for staff and contractors and a safe environment for visitors
- Provide a flow of forest products within specification and in a timely manner to meet contractual commitments and the requirements of the business plan
- Maintain site productivity
- Protect all custodial native forests, threatened species and threatened ecological communities located on Company land
- Maintain water quality and conserve wetlands and riparian zones,
- Maintain a balance of plantation ages to provide a sustainable dividend to investors as well as maintaining long term social & economic benefits to the community
- Limit adverse visual amenity impacts of plantation operations
- Maintain or enhance environmental values in the custodial lands
- Continually improve the resource and its management through directed research
- Protect the assets from damaging agents such as fire, insect attack and disease
- Maintain opportunities for quiet recreation
- Develop and manage good relationships with stakeholders and the community



The means by which management objectives are achieved are documented in the company's:

- Forest Resources Systems (through data collection, data management, plantation and business modelling)
- Policies, Procedures and Operating Standards within the Company Best Management Practices (BMP's)

The Company aims to continuously develop management practices that achieve the best-balanced outcome for its business, for the environment and for the community. The BMPs:

- Capture company intellectual property in terms of objectives, procedures and technical specifications for HVP plantation management.
- Facilitate due diligence in achieving corporate responsibilities under the business, environment and community components of the stewardship program;
- Convey corporate intent for the activity to all persons operating on Company land;
- Provide staff with documentation for control of forest management including harvesting, establishment, fire management and associated operations.

Operational planning is undertaken according to the relevant BMPs. Accountabilities & responsibilities for the implementation of the BMP's and the organisation structure are documented for our staff in HVP Portal. BMP documents range from broad over-arching policies such as the Forest Stewardship Policy and OH and S Policy which are relevant to all Company activities, to policies, procedures and operating standards which are specific to one element of the business. The BMP documents are available to all staff. The BMPs are periodically reviewed internally to incorporate new knowledge, or field experience from monitoring and auditing. Some key documents are externally peer reviewed.

The BMPs cover the further identification of aspects or hazards at the site level, require the assessment of the significance of these aspects and the development of controls for the site.

The environmental aspects or hazards are generally recognised in the Victorian legislated Code of Practice for Timber Production and compliance with this Code is mandatory and complementary to the requirements of the BMP.

BMPs used in forest management cover the following activities:

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Operational planning and management | <input type="checkbox"/> Tree breeding     | <input type="checkbox"/> Site Preparation     |
| <input type="checkbox"/> Fire protection                     | <input type="checkbox"/> Weed control      | <input type="checkbox"/> Planting             |
| <input type="checkbox"/> Plantation thinning                 | <input type="checkbox"/> Pest management   | <input type="checkbox"/> Plantation nutrition |
| <input type="checkbox"/> Road construction and maintenance   | <input type="checkbox"/> Quarrying         | <input type="checkbox"/> Timber harvesting    |
| <input type="checkbox"/> Stakeholder management              | <input type="checkbox"/> Cultural Heritage | <input type="checkbox"/> Biodiversity         |
| <input type="checkbox"/> Management of native vegetation     | <input type="checkbox"/> Forest Health     | <input type="checkbox"/> Public access        |

Training programs inform HVP staff and contractors on the content of the BMPs and the Company intent.

Operations are monitored by company staff and independent auditors and bodies.

A schedule of periodic systems and operational audits and reviews test proper implementation and enable remedial actions to be taken on the system and on operations.

## 2. Governance and Legal Requirements

In Victoria there are a number of legal requirements applying to forestry operations. Foremost of these is the Code of Practice for Timber Production (the Code) which is regulated on private forests by local government.

Legal requirements from all relevant Acts are listed on the Company's Legal Register and this is kept up to date by the Company's In-House Lawyer. This process is largely undertaken by subscribing to relevant legislation update services and a periodic review of the register. This

process is outlined in the company Procedure for Identification of Health, Safety and Environmental Legal Obligations and Other Requirements.

In applying these laws, HVP work very closely with local government, the Victorian Dept. Environment, Land, Water and Planning (DELWP), the applicable Catchment Management Authority (CMA) and Water Authority. HVP also have developed a series of Best Management Practices that go beyond the requirements of the Code and these are designed to ensure that all legal and company requirements are being met by staff. Company performance against these standards are assessed through a series of audits which are described further in Section 8 of this document.

A sub-committee of the HVP Board known as the Health, Safety and Environment (HSE) Committee has overall responsibility to ensure that HVP's performance in the HSE area is satisfactory.

### **3. Stakeholders, Neighbours and Community**

The Company's stewardship extends to all of the values associated with the company forest estate. We strive to understand these values and the perspective of our stakeholders as we establish, grow, harvest and protect our client's forest investments while maintaining or enhancing the environmental and community values associated with the land.

The proactive management of community relationships and establishment of partnerships with our stakeholders will promote the company as a responsible manager of environmental and community values, build positive relationships and mutual understanding and reduce business risk. In the long run, these outcomes are essential to achieving our goals and generating and preserving long-term investment value.

While maintaining a balance between economic, social and environmental considerations HVPs social policy goals are to:

- provide a safe place to work
- respect the rights of all employees and contractors
- respect the rights of indigenous people
- engage effectively with the community on social impacts associated with forest investments

Stakeholder and community categories include:

- those who derive income from the business such as investors, employees, contractors and other providers of services or goods;
- customers;
- Indigenous parties, groups and communities
- statutory authorities, including the Country Fire Authority (CFA);
- neighbours including those living on public road access routes into our plantations and local people living downstream of our plantations; and
- community interest groups such as, recreational, Landcare and environmental groups.

HVP aims to manage at company-wide and at site level the:

- Safety of all staff, contractors and the public
- Worker's rights
- Contribution to long term social and economic benefits to the Community;
- Long term productive capacity (essentially of the soil) of adjoining public and private land as influenced by threats arising such as fire, soil erosion, chemical use, vermin, noxious weeds and pine wildings, plantation pests and diseases;
- Utility of adjoining land for the owners (quiet enjoyment by adjoining landowners of their property (may be threatened by smoke, noise, odour and nuisance dust);
- Visual amenity (final fell harvest areas) – the view from adjoining land at the landscape level;
- Use of local roads by the community for property access (public OHS, traffic level)
- Neighbouring assets such as fencing and public roads



Positive relationships and mutual understanding and respect will be built through effective communication with all our stakeholders through:-

- Active participation in advisory groups
- Strategic partnerships with stakeholders to achieve mutual goals
- Interacting with indigenous groups including at least sending harvesting plans for comments
- Identification and notification of stakeholders in advance of significant or new activities
- Listening to and considering the views of stakeholders
- Responding to stakeholder concerns with action, where required
- Conveying the Company's intent, values and forest management practices to the community.

If issues arise that cannot be dealt with without further conflict the Company has a dispute resolution procedure that can be requested and is outlined in the Community Relations BMP.

### **Public Access to the HVP Estate**

Public demand to use HVP plantations is increasing and is a factor of: historic community use, developing interest in plantation recreational pursuits (eg. mountain biking) and increasing urban forest interface pressures. Public access management presents opportunities to: improve good will; develop and maintain public advocates and maintain community support through a greater understanding of forestry. Parallel to the increasing demand for authorised use, HVP has experienced an increase in the unlawful activities (mainly arson, shooting, rubbish dumping, 4-wheel driving and motorbike riding) and unauthorised use of the plantation. This has the capacity to damage the reputation of HVP amongst community and local government stakeholders.

HVP encourage the management of public access where it reduces the risk to our plantations, our workforce and to the local community (eg reducing fire risk, arson, vandalism, rubbish dumping, illegal shooting) and improves the community relationship with our plantations. Activities may be considered where they are legal, risk appropriate, sustainable, consider the value of the setting, are compatible with HVP's commercial values and generate a community benefit. Where possible HVP will recover our costs of managing public access and any net gains should be reinvested in reducing the risk to our plantations and the community through improving signage, recreational infrastructure and environmental programs.

### **HVP Plantations as Neighbours**

HVP strive to be good neighbours with adjoining landowners. This includes complying with all laws, dealing fairly with all neighbours on issues, and being prepared to listen & negotiate mutually acceptable outcomes.

### **Indigenous Heritage and Engagement**

HVP recognise that indigenous people and groups are interested in many of the lands that HVP manage. We have developed a policy and procedure to ensure we deal with indigenous interests sympathetically, fairly and according to the law.

HVP began this process by undertaking to send our annual harvesting plans and this Forest Management Plan to relevant indigenous groups for comment and input. We continue to improve our interaction methods over time.

## **4. Land base**

### **Ownership Status**

The company's land is held under three principal land tenures.

#### **i. VPC Act Licence**

The bulk of HVP land is held under a perpetual licence issued pursuant to the *Victorian Plantations Corporation Act 1993*. The license gives the licensee exclusive possession of the licensed land (*VPC Act s. 9(4)*). It was purchased for a license fee, rather than being the subject of any periodic rental. Ownership of license rights is recorded in a public Register of Plantation

Licenses (VPC Act Divn. 3 of Part 3A), the registrar of which is also the Registrar of Titles. Usage of licensed land is governed by s.27B(1) of the VPC Act, which limits permitted usages to (a) establishing, maintaining and managing timber plantations, (b) taking and converting forest produce and (c) all other necessary things in connection with, or as incidental to (a) or (b).

#### **ii. Freehold Land**

Much of the Gippsland Region and a small proportion of the land in other regions are held in freehold title. This is in simple title, with the exception of a small number of Latrobe Valley properties a title restriction states: *“that the land be used solely for the production of timber associated with the operation of the Pulp and Paper Business Plant in Gippsland.”*

#### **iii. Leased Land**

HVP holds significant areas of land under lease. A principal lease held in the Northern Region is in the Buffalo Valley, south of Myrtleford. Gippsland Region holds a suite of leases throughout central Gippsland. Most leases are held from the State Government, and are of a sufficient duration to allow the completion of the current rotation. Expectations of renewal beyond the current expiry date vary. Almost all leases are worded to limit usage of the leased land to plantation forestry during the lease.

#### **iv. Other Minor Land Tenures**

Smaller areas of plantation are the subjects of share-farming agreements between HVP and landowners. These areas are outside the scope of our certification and hence the wood products from these are not certified. These agreements provide for HVP to manage and market the current timber crop and for either an annuity or a proportion of timber sale revenues to be paid to the landowner. The sharefarms are planned and harvested by HVP contractors and to HVP standards. In addition HVP hold licences to occupy small areas of Crown land comprising unused roads and water frontages, particularly in Gippsland.

#### **Land Use**

The greater part of the company's land is used for plantation forestry (including roads, firebreaks, etc.). The remaining land is almost entirely occupied by native vegetation, which is managed for conservation purposes only. A number of small properties are used as office, depot and house sites. The company operates two forest nurseries, at Cowwarr and Gelliondale which are outside the scope of certification.

#### **Profile of Adjoining Lands**

The company's land is predominantly situated in rural Victoria. As such, the greater part of adjoining land is farmland. Plantations originally established by the Crown are frequently adjacent to publicly owned native forests. In southwest Victoria in particular, plantation forests in separate ownership are common neighbours to HVP land. In certain areas of the state the company's plantations adjoin more urban areas, where neighbouring lands are either residential or industrial. These include the outskirts of Bright, Beechworth, Myrtleford, Traralgon South, Ballarat and Creswick.

#### **Native Title**

The status of Native Title on Company land will continue to unfold as Native Title determination processes progress. Three applications have been concluded in localities involving HVP land. In 2002, the Federal Court determined that the Yorta Yorta People have no native title rights over their claim area in northeast Victoria. In 2007 the Federal Court in the Gournditjmarra claim determined by consent that Native Title continued to exist in certain areas including some areas of HVP licensed land, in southwest Victoria. A similar consent determination, also affecting certain areas of licensed land, was made in 2010 recognising similar native title rights for the Gunai-Kurnai people in Gippsland.

This Determination has the following specific consequences for HVP land:

- It recognises native title rights over certain areas of land. This provides native access for camping, hunting, fishing, and other rights
- The native title rights which continue to exist over HVP licensed land do not have effect over HVP forestry rights on its licensed land for so long as the HVP licence continues to exist. (This is a confirmation of HVP rights under the Licensing arrangements)
- Native title rights have been extinguished where the land is or has at some time been freehold or subject to a lease.



The Traditional Owners Settlement Act (Vic) TOSA intends to provide certainty about Traditional Owner rights over Crown land, and certainty about who the Traditional Owners are and how they are represented. It provides a framework for the State government to enter into agreements with traditional aboriginal owner groups that will settle native title claims, both actual and prospective, within Victoria. The state can enter in a "Recognition and Settlement Agreement" with each group and these agreements can constitute a settlement of native title issues with these groups. Under this Act a "Land Use Activity Agreement" is required to agree management of activities on public land within the agreement area. Existing agreements (VPC Act licence, Crown leases) take precedence over the terms of a LUAA however there may be circumstances in the future where negotiations are required in relation to this Act. To date, the only TOSA affecting HVP land is the Dja Dja Wurrung agreement, affecting the northern part of the Ballarat Plantations.

### 5. Forest Description

The company's estate comprises of approximately 239,300 hectares. Of this area approximately 170,100 hectares is productive plantations.

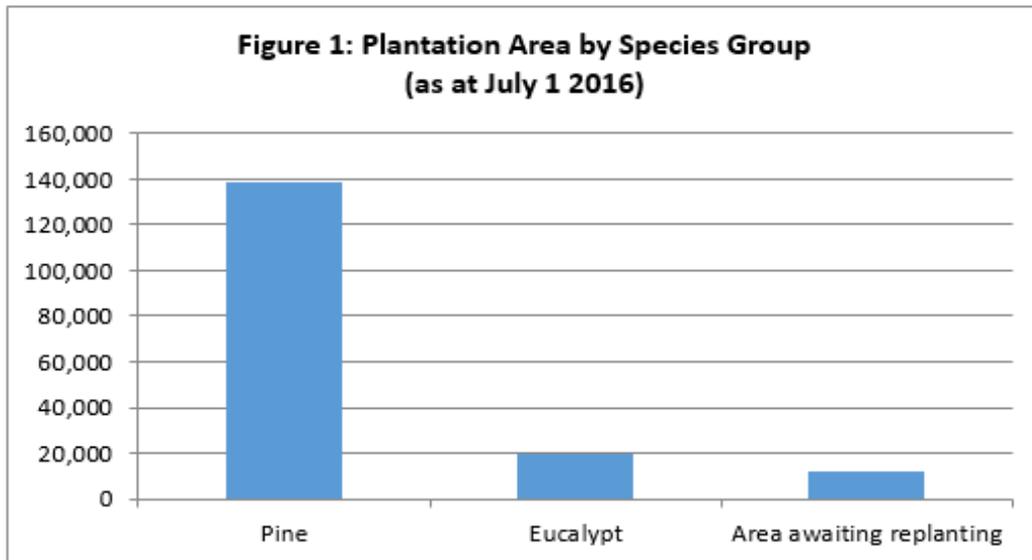


Figure 1 shows the production plantation area by species group. The predominant species are grouped as Pines (*Pinus radiata*) and Eucalypt (*E.regnans*, *E.nitens* and *E.globulus*).

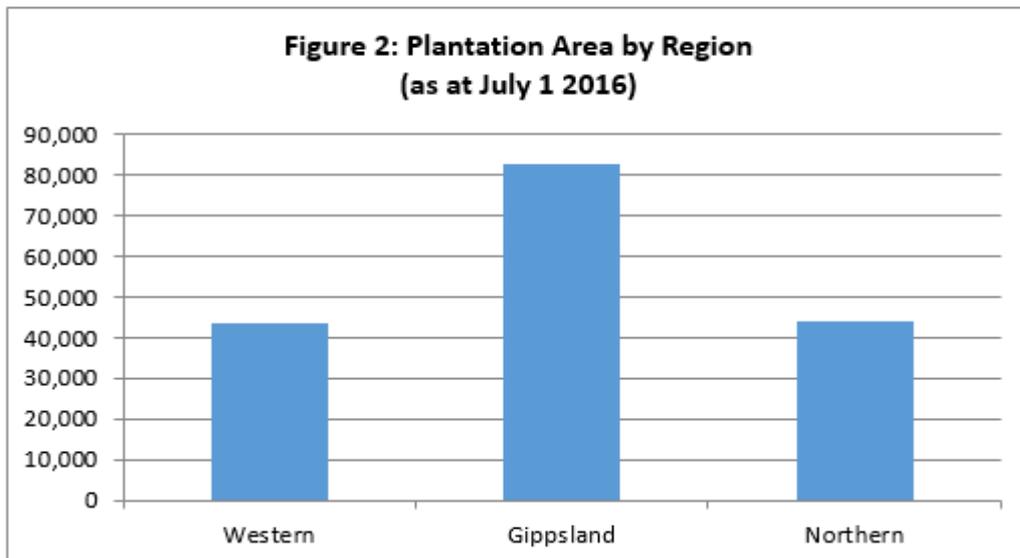


Figure 2 shows plantation area within each of the supply regions. Gippsland Region has the largest area comprising approximately 82,700 ha<sup>1</sup> or 49% of the estate.

### **Infrastructure and Custodial land**

Approximately 70,000 hectares of land is classified as custodial land or infrastructure associated with the plantation (for example roads, bridges, firebreaks, and dams). Custodial land comprises land external to plantations including native forest and vegetation, riparian areas and natural water bodies. This area exceeds 50,000 ha and although mainly in Gippsland extends across all areas of HVP's plantations.

### **Environmental limitations**

The HVP estate has numerous operational constraints that stem from environmental compliance and community concerns that impact on the production plantation area. Mapping projects have been initiated to delineate exclusion areas within the plantation due to compliance with slope limitations, buffer strip retention and flora and fauna habitat conservation and community issues. A number of exclusion categories often overlap one another, for example very steep areas often occur near watercourses. These areas are often retained as buffer strips

### **Other Productive Uses**

Non-wood productive uses of the forest estate e.g. honey, seed & gravel, may occur as opportunities arise.

### **Softwood Plantations**

The primary objective of management of the company's stands of *Pinus radiata* is the production of high quality sawlogs. Stands may be divided into those which will be thinned, and those which are not to be thinned, due to slope or market conditions. Stands to be thinned are generally established at stockings of 1,200 stems to the hectare. The objective is to maintain stockings in the early part of the rotation at levels sufficient to promote upward growth and to occlude lower branches. Two commercial thinnings are generally prescribed in the middle part of the rotation. These are thinnings with outrows and thinning of bays, aimed at maintaining a uniform stocking and releasing trees of good growth and form from competition, in order that they can individually grow faster and maximise sawlog recovery at final harvest.

Stands which are not expected to be thinned are usually established at lower stockings (around 900 stems per hectare). No commercial thinnings are undertaken, although a single selective felling to waste is sometimes practiced during the first ten years of growth, particularly on second rotation sites where the establishment of pine wildings has raised effective stockings. In both thinned and unthinned silviculture, final harvest is programmed between 26 and 35 years.

### **Eucalypt plantations**

The eucalypt plantations are all in the Gippsland Region. The principal species is *E. nitens* (shining gum) although some areas have been planted in the past with *E. regnans* (mountain ash) and *E. globulus*. As a general rule, shining gum and mountain ash tend to be planted on the more elevated, higher rainfall sites. *E. nitens* is particularly frost hardy and grows rapidly during its early years. The *E. nitens* trees get above weed-competition and browsing animals quickly and reduce Gippsland Region's reliance on herbicides and browsing deterrence. Therefore *E. nitens* is the species of choice where frosts, severe weed-competition and browsing pressure are anticipated.

The primary objective of management of the company's eucalypt plantations is maximising value through the production of sawlogs and pulpwood. Stands may also be divided into those which will be thinned, and those which are not to be thinned, due to slope or market conditions. Stands are generally established at stockings of 1000 stems to the hectare. The objective is to maintain stockings in the early part of the rotation at levels sufficient to promote upward growth and to occlude lower branches. One commercial thinning is anticipated in the middle part of the rotation where slope permits. This is an outrow thinning with thinning (from below) of bays, aimed at maintaining a uniform stocking and releasing larger trees of good form from competition, in order that they can individually grow faster and maximise recovery at final harvest.

In both thinned and unthinned stands, final harvest is usually programmed between 20 – 35 years.



### **Custodial Lands, Infrastructure and High Conservation Areas**

Custodial lands are the Company lands external to the plantation forests. These include areas of native forest and vegetation, roads which exclusively provide access to Custodial land, water bodies and other non-plantation land uses.

Native forest and vegetation found within the Custodial Lands is managed for conservation purposes. Custodial lands include some areas of high conservation value forest (HCV) which over time have been defined via surveys or ecological vegetation class (EVC) mapping process.

No native forest is harvested and no native forest is converted to plantation. This has been the policy since HVP took ownership and management of the estate over 15 years ago.

This conservation designation is a voluntary decision by the Company for freehold land and for the land subject to the Plantation Licence granted under the Victorian Plantation Corporation Act. Conservation means protecting, maintaining and where appropriate enhancing or restoring the range of environmental values associated with native vegetation. HVP has maintained a voluntary policy not to harvest native forest in its custodial lands and in 2009 entered an agreement with the Victorian Government on this issue in the Strzeleckis. This agreement was the outcome of many years of work by company staff, consultants, local government, community groups and the State Government and offers both long-term protection of native forest values as well as considering the needs of a major customer, Australian Paper.

The key points in the agreement include:

- 8,000 ha (of core biodiversity areas and linking corridors) returned to public ownership
- A further 17,945 ha of native forest in the Strzeleckis permanently reserved from harvesting with on-title protection
- Regeneration of indigenous native forest species following the harvest of the 1,500 ha of plantations within the 8,000 ha area.

The custodial land represents a valuable conservation resource and covers a range of bioregions and EVC's as outlined in Table 1.

### **Significant biodiversity values (also known as High Conservation Values)**

Every forest has some environmental and social value. The values it contains may include rare species, rare habitats and recreational sites or resources used by local residents. Where these values are considered to be of **outstanding significance** or **critical importance**, the forest can be considered to have significant biodiversity values or high conservation values (HCVs). The Proforest HCV Toolkit is used as a guide to determine high conservation values.

Values which are of outstanding significance and critical importance have mostly already been recognised in some way in Victoria due to the extensive assessment and reporting over the last 30 years of the State Government's Land Conservation Council (LCC) now operating as the Victorian Environmental Assessment Council (VEAC). The role of that Council is to conduct investigations that are requested by the Victorian Government relating to the protection and ecologically sustainable management of the environment and natural resources of public land. As a result of their extensive investigations forest values such as areas of global regional or national significance and other values considered of outstanding significance or critical importance, have been placed in reserves.

An assessment to identify exceptional values in HVP Plantations' estate identified the following sites or forest types to have significant biodiversity / high conservation values:

- Concave Pomaderris (Northern Region)
- Central Highlands Cool Temperate Rainforest (Gippsland Region)
- Western basalt plains grassland community (Western Region)
- Native vegetation remnants – South West Victoria (Western Region)
- Riparian links to Pheasant Creek Nature Conservation Reserve (Northern Region)

This assessment has been reviewed and confirmed by an independent expert. Since the latest review, Strzelecki Warm Temperate Rainforest (Gippsland) has increased in conservation significance and has been added to the list. It is protected on our estate.

**Table 1. List and Area of Native Forest EVC's found on HVP's custodial land**

<b>EVC No. and Name</b>	<b>Area on HVP estate (ha)</b>
3 - Damp Sands Herb-rich Woodland	374
6 - Sand Heathland	1
8 - Wet Heathland	5
16 - Lowland Forest	2,345
17 - Riparian Scrub	52
18 - Riparian Forest	1,351
19 - Riparian Shrubland	158
20 - Heathy Dry Forest	696
21 - Shrubby Dry Forest	1,790
22 - Grassy Dry Forest	1,153
23 - Herb-rich Foothill Forest	6,099
28 - Rocky Outcrop Shrubland	50
29 - Damp Forest	8,407
30 - Wet Forest	14,986
31 - Cool Temperate Rainforest	386
32 - Warm Temperate Rainforest	209
37 - Montane Grassy Woodland	17
40 - Montane Riparian Woodland	11
41 - Montane Riparian Thicket	13
45 - Shrubby Foothill Forest	1,099
47 - Valley Grassy Forest	365
48 - Heathy Woodland	319
53 - Swamp Scrub	365
55 - Plains Grassy Woodland	26
56 - Floodplain Riparian Woodland	18
61 - Box Ironbark Forest	45
68 - Creekline Grassy Woodland	15
72 - Granitic Hills Woodland	1
74 - Wetland Formation	3
83 - Swampy Riparian Woodland	1,174
126 - Swampy Riparian Complex	464
132 - Plains Grassland	1
134 - Sand Forest	89
136 - Sedge Wetland	106
151 - Plains Grassy Forest	76
169 - Dry Valley Forest	58
175 - Grassy Woodland	51
179 - Heathy Herb-rich Woodland	39
185 - Perched Boggy Shrubland	9
191 - Riparian Scrub	124
198 - Sedgy Riparian Woodland	185
200 - Shallow Freshwater Marsh	6
201 - Shrubby Wet Forest	32
316 - Shrubby Damp Forest	14
318 - Montane Swamp	20
647 - Plains Sedgy Wetland	10
654 - Creekline Tussock Grassland	1
681 - Deep Freshwater Marsh	11
710 - Damp Heathland	88
736 - Limestone Rise Grassland	15
793 - Damp Heathy Woodland	99

**Rare, Threatened and Endangered Species**

Company policy requires that threatened species and threatened ecological communities located on Company land shall be protected. These protection measures may include:

- Developing and adopting protection prescriptions for significant threatened species known to occur on Company land. These prescriptions will be based on the range of scientific research available and are to be implemented at known locations of the species;
- Examples of this include the Giant Gippsland Earthworm (listed as endangered) and the Koala (not listed in Victoria but of immense interest) where HVP has detailed management protocols to ensure the impact of our activities on the species is minimised.
- Mapping the distribution and location of known threatened species in the geographic information system and linking this to a database for consideration in resource planning;
- Identifying further areas or sites supporting threatened species;
- Identifying, monitoring and controlling threatening processes (including investigating the impact of company management activities and developing practices to mitigate these impacts) that endanger threatened species;
- Training of staff to recognise and identify threatened species in their district.

Management of high conservation value Ecological Vegetation Classes includes:

- Establishing the Ecological Vegetation Class for all custodial land
- Developing a written plan for the HCV areas;
- Establishing plans for the management of specific sites of some significant EVC's
- Utilising published works and studies to aid in identifying the values of the EVC's.

**6. Annual Program 2016/17**

**Plans for current year**

Table 2. HVP has the following plans for the financial year 2016/17.

Parameter	Gippsland	Northern	Western	Total
Area planned to be <b>planted</b> - season 2016 (ha)	3,715	1,998	1,434	7,147
Area planned to be <b>thinned</b> (road, T1,T2,T3) (ha)	4,488	2,129	3,385	10,002
Area planned to be <b>final harvested*</b> (ha)	3,874	2,767	1,300	7,941
Plantation <b>products</b> planned to be sold (m <sup>3</sup> )	1,372,000	948,000	943,000	3,263,000

\*excludes private wood and chip

**Annual Harvest Rates**

The company has three levels of resource planning: strategic, tactical and operational. Annual harvest rates for the Company's estate are derived from strategic planning models. Strategic level planning is undertaken using estimations of future wood flows along with projections of future revenue and cost profiles. (See Appendix 1 for Resource Planning system)

Optimised management of the estate considers a number of criteria and constraints including:

- market demands
- age class
- log product outturn
- log price
- silviculture of stands
- cost of establishment
- cost of harvesting, haul and management
- operational constraints

These are modelled over a period of 60 years (two rotations).

Annual harvest rates are derived for each supply region meeting long-term supply commitments for a range of customers for a range of products. The model can be constrained to ensure supply constraints are met including such criteria as non-declining yields, maximum recovery over a period of time and minimum clearfell age.

The resource description, wood flow projections, revenue and cost profiles are used to formulate a business model for the company on an annual basis. The model output also provides the basis for forest valuation.

### **Species Selection**

Species grown for timber production are *Pinus radiata* across all locations while in Gippsland, the hardwood species *Eucalyptus nitens* may also be planted depending on forecast demand. Species selection is predominantly determined by the requirements

- to maximise the return to the investors,
- meet commitments to customers
- minimise business risk

Species grown for stewardship purposes will be endemic species selected according to the site-specific environmental benefits being sought.

### **Pinus radiata**

Selection of *Pinus radiata* as the predominant softwood plantation species has a historical background based on early species trials in SE Australia seeking a softwood species to complement the plentiful hardwood timber availability from the native forests. *P. radiata* was clearly the most productive species and this experience has been repeated in similar climates such as New Zealand and Chile.

Timber production from radiata pine has been pursued from this historical background due to:

- returns on investment currently maximise returns to HVP's investors
- the reduced risk resulting from the large body of operational experience and silvicultural research knowledge developed over a long period including over 50 years of tree breeding to improve growth and form and other characteristics.
- there are other major growers in Australia and New Zealand providing synergies to support efficiencies in both the growing and processing industries
- the development of a large domestic processing industry based on *P. radiata* as the basic raw material, with volumes to enable international competitiveness
- the species is relatively drought tolerant and flexible in silvicultural management regimes over a wide range of sites enabling the accumulation of substantial estates to supply industry, indicating some resistance to climate change
- the species' wood characteristics make it versatile for a broad range of processes and uses, with a large underpinning market in the building industry.
- Product markets are well established and stable through long term supply commitments to industry.

### **Eucalyptus nitens.**

Where eucalypts are planted the species that is most appropriate for that site is used after considering the environmental and economic impacts. Gippsland sites can clearly be split into lowland (<250m elevation) and Strzelecki (>250m elevation) sites. Each planting block will usually be considered as a whole and generally planted with only one species.

- Lowland sites are generally planted with *Pinus radiata* as described above. (sites predominantly below 250m elevation)
- Strzelecki sites (sites predominantly above 250m elevation on fertile clay loams)
- These sites can be planted to *Eucalyptus nitens* (shining gum) or *Pinus radiata*. Shining gum occurs naturally within 60km of these sites, and has demonstrated superior growth to other eucalypt species on these sites. Growth of *E. nitens* is more than 50% greater than *E. regnans* (mountain ash) and *E. globulus* on these sites and is similar to *Pinus radiata*. *E. nitens* grows rapidly, and establishes a large crown quickly. This rapid early growth allows the trees to overcome weeds and browsing animals quickly and reduces the need for follow-up weed control application, reduces fertiliser requirement and reduces the need for browsing



animal control. *E. regnans* (which occurs naturally on similar sites) increases height and develops its crown more slowly and consequently requires additional weed control, fertiliser and browsing deterrence measures to assure its commercial success.

## 7. Estate Management

### 7.1 Monitoring of Forest Growth

HVP's Resource Planning System plans the management of the plantation resource. The objective is to:

- Predict future volume by log products produced from the HVP estate (wood flow modelling);
- Predict future cash flows associated with managing the estate and producing and selling those products (cash flow modelling); and
- Indicate which stands should be harvested and in what order to meet customer contracts and maximise the value of the forest, while meeting forest and environmental management objectives (strategic planning).

The outputs from this Resource Planning System informs Tactical and Operational resource planning and preparation of the financial model and budgets.

#### Area and yield

##### Forest area and inventory

Information pertaining to the forest area and timber inventory are captured throughout the life time of a plantation:

- At establishment, the planted boundary is captured using GPS and transferred to the GIS system. This information is annotated with the planting year, species, genetic material and plant type.
- An assessment of the survival of the plants is undertaken around 9 months after planting, at a time when further mortality due to summer stress is unlikely. Results are compared to the target stocking levels and are used to determine whether replanting is required to achieve an acceptable stocking level.
- Between 3 and 5 years after planting, a desktop assessment of the plantations is undertaken using aerial photography. This allows identification of unstocked areas and adjustment of plantation areas as appropriate.
- A timber inventory is undertaken at various times throughout the rotation, including between the ages of 8 and 9, after any thinning operation, and before a clearfell operation. Sample plots are located to provide statistically valid estimates of tree and stand characteristics. The assessment process includes diameter and height measurements and "cruising" of trees to classify each section of the stem by quality attributes such as branch size, sweep and damage. The inventory assessment provides information about the site quality, volume, stocking and timber quality of the stand.
- Long term effects of insects, pests and drought, as well as genetic improvement and better silvicultural management, are progressively captured through inventory assessment.
- Activities that change the stocking of a stand, such as fires, wind throw, road building and thinning operations, are mapped in the GIS system throughout the life of the plantation, to ensure the area data is up-to-date and/or to trigger the need for an updated inventory assessment.

##### Tree growth, shape and size

The shape and size of trees and growth of trees over time are described by biometric functions. These functions are constructed from two data sources:

- Permanent Growth Plots (PGPs) are established to capture the variety of growing conditions across the estate. PGPs are fixed plots that are measured every two years. Data from these plots are used to construct the biometric functions that describe how the basal area, height and stocking of stands of trees vary over time.
- Volume and taper plots are undertaken periodically. These involve destructive sampling and detailed measurements of cross sections of the stems from the base to the tip. This data is used to construct models that describe the taper (or shape) and volume of trees.

##### Yield Tables

A yield table predicts future volume by log product at different ages, including both volume harvested and volume remaining after thinning.

To develop a yield table, the area and inventory information and the growth, shape and size functions, are combined to estimate the standing tree volume at the age of the inventory and in the future. At each time step, the features and the size and shape of the tree stems are assessed against product specifications, and the volume of each product that is available is calculated.

Yield tables are constructed to match the likely management regimes that will be implemented for that stand. Where applicable, yield tables will estimate volumes available for thinning operations. Unless the stand is on a very steep slope, the normal planning process is for a stand to receive a first thinning at around age 11 - 14 and a second thinning around age 18 - 20, before final harvest at around age 25 to 27. On very steep slopes, thinning is typically impractical for economic reasons and such stands are modelled through to final harvest in an unthinned state. The capacity to undertake thinning operations may be limited by available markets, particularly for lower quality pulpwood logs.

The accuracy of yield tables is assessed annually by reconciling the volume prediction against actual harvested volume.

### **Wood flow and Cash flow modelling and Strategic Planning**

To predict future wood flows and cash flows and undertake strategic planning, area, yield, cost and price information are combined, together with management and contract constraints, into a linear programming (LP) framework.

Examples of the type of management and contract constraints that might be implemented in strategic planning include:

- Specific volumes to specific customers as required by contract;
- Supply from specified areas may need to be limited due to seasonal or environmental constraints on harvesting and haulage, road capacity or road limitations;
- Volumes harvested by particular types of harvesting systems may have minimum volume requirements for operational feasibility and/or maximum volumes requirements for capacity;
- Where supply of log volumes is not specified by contract, supply may need to be smoothed over various periods to make sales to customers more manageable and consistent; and
- Particular stands may need to be harvested in particular years, such as where land is leased or where third parties are involved.

The LP analyses all of the information provided and generates a strategic level schedule, outlining the order in which each plantation stand should be harvested (whether that be by thinning or clearfall) to maximise the value of the plantation estate while meeting the model constraints.

### **Resource Planning System Uses**

The strategic level model is used to guide more detailed operational planning. Tactical plans comprise schedules of harvesting over 3 to 5 years that address specific planning issues such as harvesting adjacent areas in the same time frame, balancing road upgrades and access, harvesting and haulage crew capacities, seasonality issues and haulage distance to customers.

Plans of Utilisation (operational plans) refine tactical plans for the first 6 to 12 months, to address detailed supply issues to customers on a weekly and then monthly basis (such as more precisely matching customer orders against volumes of specific log products from each stand).

For business planning, wood flow and cash flow outputs from the strategic model are aggregated into a consolidated business model that includes other aspects of HVP's operations (e.g. the nursery and SPE).

The tactical and operational plans for each region underpin preparation of a regional budget. The regional budgets are consolidated into a business-wide budget and added to the first year of the consolidated model to generate a financial model. The financial model is used for a range of reporting requirements and to track corporate and investor metrics.

## **7.2 Chemical and Fertilizer use**

The objective of wood production in plantation crops is to produce wood fibre as efficiently as possible on the minimum area in a commercially viable manner without environmental damage. Management of the crop requires providing the maximum advantage to crop trees in terms of access to moisture, nutrient and light.



In Victorian conditions, multiple research projects have repeatedly proven that weed control during the first year is essential to ensure seedling access to moisture for initial survival and rapid early growth. Once established the plantation canopy itself is the most effective weed control measure on that site for the next 25+ years.

The Company has an integrated pest management program which seeks to minimise the use of chemicals through silvicultural techniques, mechanical, manual and biological control methods.

The Company has a restricted list of chemicals to be used for weed control and is a member of a research consortium seeking alternative control methods, more benign chemicals, application techniques and reduced application rates.

A number of exotic pest insects (sirex wasp, pine aphid), pest animals (rabbits) and pest plants (gorse, blackberry, St Johns Wort and tutsan) have biological control agents in place to aid control.

Plantation pests having an impact on growth, and environmental pests and weeds having an impact on environmental values or neighbours, may require chemical control for commercial, social, environmental or legal reasons.

Phosphorus, nitrogen and sulphur, are common elements to be applied to ensure tree health and optimum growth. Potassium, copper, zinc, boron and other trace elements may also be applied where deficient.

Fertiliser programs are developed on the basis of results from foliar sampling programs; a plantation site may receive 2 or 3 applications of fertiliser during a 25-35 year rotation. All fertiliser additions use commonly available agricultural products.

### 7.3 Estate Protection

#### **Fire Protection**

Damage by fires is a serious and increasing risk to all Victorian plantation estates.

The major plantation species have a low tolerance to fire. Even fires of low intensity can cause death or a loss of increment and a downgrading of wood quality. Charring is a defect unacceptable for papermaking and detracts from sawlog quality. The effect of downgrading of quality and value is exacerbated by the interruption to wood flows and may have long term ramifications for both the company and the industry. Fire in custodial areas can have a beneficial, benign or damaging effects on the environmental values however it is an important natural determinant of native vegetation. All land managed by the company is in the “*Country Area of Victoria*” (CFA Act 1958) and as such the control of the prevention and suppression of fires is vested in the Country Fire Authority. The company has formed a number of Forest Industry Brigades as detailed in *Section 23AA of the Country Fire Authority Act 1958, and Country Fire Authority (FI B's) Regulations 1998*.

Fire protection activities are categorised as either fire prevention or fire suppression.

**Fire prevention** includes all activities undertaken prior to the ignition of a fire and aimed at minimising the incidence and spread of fire. (The fire incidence is described in terms of the number of fires and the asset damage, area burnt and fire intensity).

**Fire suppression** includes all activities that are concerned with controlling going fires.

HVP plans and undertakes a range of prevention works and actions to protect company assets from fire and to provide safety and access for fire fighters. The choice of prevention measures is based on the cost effectiveness of each measure at reducing the number of fires, the area burnt, the damage to assets and fire suppression cost.

Fire prevention objectives are to:

- minimise the number of wild fires which originate on or enter company land
- minimise the area burnt and damage to assets
- reduce fire suppression costs

Fire suppression objectives - Upon detection of a fire the action will be safe, fast, determined and thorough with primary objectives to:

- Control the fire in the shortest possible time
- Minimise the area burnt and damage to assets

In achieving these suppression objectives due regard is paid to:

- The safety of personnel
- Fire suppression strategies and tactics appropriate to plantations that consider the commercial value of the plantation stands threatened and the suitability of each stand for salvage of forest produce thereby minimising the loss to the company and the dependent industries
- Environmental protection

Suppression of wildfires on or threatening Company land is given priority over all other Company activities within the regions. HVP has an extensive fire fighting fleet including 18 large fire trucks, 32 small four-wheel drive slip-on units and, in Gippsland and Northern, a first attack helicopter on standby.

**Regional Fire Protection Plans document:**

- Fire Protection policy and objectives
- Analysis of risk - providing details on the incidence of fire and the risk of plantation damage.
- Fire prevention strategies - measures the region will take to minimise incidence of fire and minimise the area burnt, assets lost and suppression costs
- Fire suppression Operations folder - contains detailed information that is updated annually:
  - a. Fire suppression maps
  - b. Resource information
  - c. Contact arrangements
  - d. Contractor information
  - e. Preparedness arrangements

**Plantation Health**

External experts in entomology, pathology and nutrition are engaged for their input and who at least once each year provide a structured forest health surveillance program.

A range of forest management programs combine to ensure a healthy forest capable of resisting pests and diseases thereby decreasing forest management risks and the reliance on chemical control methods. This integrated pest management program includes:

- the tree breeding program which aims to select vigorous plants adapted to the range of sites on the estate, including breeds with specific disease resistance such as Dothistroma resistance
- maintaining tree vigour by implementing an optimum stocking control regime from plantation establishment through to timely thinning operations to utilise suppressed individuals. This is the primary control mechanism for insect pests such as the Sirex wood wasp.
- a scientifically targeted forest nutrition and nutrient conservation program to reduce the incidence of nutrient deficiencies thereby improving crop vigour and disease resistance.

Other forest management programs are directly aimed at managing threats to forest health such as:

- control of competing vegetation particularly in the first year and pre-canopy closure.
- minimising wild fires, which at lower fire intensities can damage plantations and act as the primary agent for subsequent attack by pests and diseases.
- browsing animals which can inflict physical damage to crop trees by removing protective tissues (eg. bark stripping) and thereby expose the tree to subsequent insect or pathogen attack.

These programs comprise the long-term pest and disease prevention strategy for sustainable forest health. Nevertheless this prevention program must be supplemented by carrying out



control programs in response to outbreaks of pests and disease and incursions of new agents. These control programs are conducted in a safe and responsible manner utilising biological control agents where possible (such as for Sirex Wasp and Pine Aphid) and other methods which have minimal environmental impact.

#### **7.4 Capacity of the plantation to act as a net Carbon sink**

HVP monitoring of forest growth includes a carbon accounting system. This is based on converting the growth of the tree to carbon stock. Tree growth is converted to above-ground biomass, and then expanded to include the root system using allometric relationships. This whole-tree biomass is then netted down for moisture content, and then the dry weight is converted to molecular carbon content. As each tonne of carbon in the biomass is equivalent to 3.66 tonnes of carbon dioxide, it can be finally converted to tonnes of carbon dioxide equivalent.

HVP has completed a set of steps in assessing available Carbon Sequestration Credits (CSC's):

- Confirmation that all lands related to the (CSC's) are compatible with the Kyoto Protocol rules (Article 3.3), and were not forested on January 1, 1990.
- Review of carbon accounting models by Australian Greenhouse Office
- Independent review of carbon accounting systems by an independent consultant
- Projection of carbon stocks and stock changes based on current forest management plans.

HVP annually records a summary of its greenhouse gas profile. The process for carbon accounting is based upon generally accepted carbon accounting methodologies and available quantification methods which include:

- annual change in Carbon stock in the forest (due to net growth, harvesting, fire, area variation)
- carbon stored in harvested wood products and
- the company's net non-biological (fuels and fertilisers) emissions

### **8. Certification, Monitoring and Statistics**

HVP conducts a large amount of monitoring to ensure that our operations are meeting requirements. Monitoring includes both 3<sup>rd</sup> party independent monitoring and internal monitoring conducted by the company personnel or agents hired by the company.

HVP have achieved independent certification of our forest management standards and performance by both the Forest Stewardship Council (FSC) and the Australian Forestry Standard (AFS) which is endorsed by the Program for the Endorsement of Forest Certification (PEFC). Both certification standards require regular auditing of HVP's performance to ensure compliance with the rigid standards of the certification system.

The area covered by forest certification includes all plantations and custodial land owned or managed by HVP Plantations. This is an area of approximately 240,000 ha and maps of this area can be found on our website on the "Forest Management" tab and "Maps and Area" sub tab. A small scale regional map is held in Appendix 3 of this document.

Monitoring statistics for last financial year are presented in table 3. These statistics are considered and reviewed at the annual September Operations Group meeting and are used to modify the Forest Management System and Forest Management Plan (this document).

### **9. Environmental Safeguards and Environmental Assessments**

The Company undertakes environmental assessments and measures at the landscape scale and on a site specific basis to ensure that we comply with the law and in particular, do not place any rare or threatened species or habitat under increased risk. This includes all applicable aspects of the Victorian Flora and Fauna Guarantee Act and the Commonwealth Environment Protection and Biodiversity Conservation Act.

Environmental safeguards have been developed based on these assessments and from operational experience. HVP requires that safeguards are varied to protect environmental values on a site specific basis.

#### Landscape level assessments:

The Company has undertaken an analysis of environmental aspects of its forest management operations. Significant environmental aspects have been identified. The analysis of environmental aspects has provided the basis for:-

- Objectives and Targets for continuously improving environmental performance;
- Environmental training needs
- Development of Best Management Practices (BMPs)
- The Company also conducts and co-operates in scientific research into environmental aspects of its forest management including:-
  - The Croppers Creek Catchment Hydrology study
  - Development of a Koala Vegetation Atlas for Gippsland.
  - Supporting genetic research and conducting a population census of the South Gippsland Koalas in partnership with Federation University.
- Biodiversity
- A major task of EVC mapping across our estate.
- Carrying out programs such as biodiversity monitoring to develop better knowledge of the values on custodial land, and as basis for future monitoring.
- The Company is assessing environmental values on company land and recording data in the GIS for access by staff in operational planning and District forest management plans e.g. the Ecological Vegetation Class mapping of native vegetation on Custodial land and threatened species layers.
- Management of significant biodiversity / high conservation values – the general goal where these are identified is to maintain or enhance the value(s) – as well as ensuring that key stakeholders are informed about the proposed management for those value(s)
- an assessment of significant biodiversity/high conservation values identifies those values and proposed strategies to ensure their protection specifically recognises:-
  - o Strzelecki Cool Temperate Rainforest
  - o Strzelecki Warm Temperate Rainforest
  - o Riparian Links to Pheasant Creek Nature Conservation Reserve
  - o The Concave pomaderris site
  - o A Western Basalt Plains Grassland Community near Bradvale
  - o Selected Native Vegetation remnants in south-west Victoria

#### Site Specific assessments:-

- The Company has an integrated planning and management process for forest operations which requires evaluation of investment options, environmental values and stakeholder interests on a site specific basis. The outcomes of site evaluation are recorded on a planning checklist which is activity specific.
- The Company has developed environmental safeguards for each type of forest operation to manage the potential impacts on site values. These are outlined in the Procedure and Operating Standards for the activity BMP e.g. Timber Harvesting. The planning and management process requires Company staff to amend the environmental safeguards where necessary to protect values on a particular site.
- Management of forest operations is recorded on a site diary kept by the Company site manager and each site is assessed on completion of the operation to ensure compliance with company stewardship standards.
- The Company also undertakes audits of forest management operations using staff and external consultants in addition to any audits undertaken by the regulatory authority and certification bodies. The findings from these audits are then used to correct non-compliances and to continuously improve the systems.

## 10. Maps

The entire company estate is mapped in digital format in Arc GIS. The information available through the company GIS is co-ordinated by the Forest Resources group. Base maps are shown in Appendix 3. More detailed maps of our certified area is held on our website.

Table 3. Monitoring statistics for the 2015/16 financial year

Description	Unit	Result	Additional information
<b>a) Area</b>			
Area of pine plantation	ha	138,371	
Area of eucalypt plantation	ha	19,599	
Area awaiting replanting	ha	12,201	
Native forest*	ha	49,902	
Infrastructure/other (roads, firebreaks, depots, etc)	ha	19,289	
<b>Total Estate Area</b>	<b>ha</b>	<b>239,362</b>	
Area planted during 2015 season	ha	8,188	
Area harvested	ha	5,904	
Area thinned	ha	9,286	
Plantation area burnt	ha	153	
Plantation area lost to windthrow	ha	-	
Plantation area lost to hail damage	ha	-	
<b>Total plantation damage area</b>	<b>ha</b>	<b>153</b>	
Native forest burnt - unplanned (wildfire)	ha	15	
Native forest burnt - planned (ecological/fuel reduction)	ha	372	
<b>b) Forest Products</b>			
Domestic Sawlog	000m <sup>3</sup>	1,348	
Domestic Pulplog	000m <sup>3</sup>	1,608	
Domestic Post & Poles	000m <sup>3</sup>	87	
Other Domestic Logs	000m <sup>3</sup>	144	
Export Volume	000m <sup>3</sup>	407	
<b>Total Volume</b>	<b>000m<sup>3</sup></b>	<b>3,594</b>	
Other forest produce licences (honey, seed, mushrooms etc)	No.	2	
Quarrying licences	No.	1	Where other organisations conduct quarrying on HVP land
<b>c) Social</b>			
HVP Employees Female	FTE No.	30	FTE = Full time equivalents
HVP Employees Male	FTE No.	73	FTE = Full time equivalents
HVP Seasonal Employees (Nurseries & Fire Season)	FTE No.	26	FTE = Full time equivalents
Direct contractors	FTE No.	836	FTE = Full time equivalents
<b>Total employment</b>	<b>FTE No.</b>	<b>965</b>	<b>FTE = Full time equivalents</b>
People inducted onto HVP land	No.	3,401	
Outside groups issued with permits to use HVP land	No.	36	
Number of significant stakeholder interactions	No.	489	Includes interactions that are ongoing or not solved on the spot
<b>d) Safety</b>			
Lost Time Injury frequency rate	No./mill hrs	12.8	
Number of independent Safety System Audits	No.	23	Safety system audits of contractor workforce performance
Average score for independent Safety System Audits	(%)	89	Safety system audits of contractor workforce performance
Number of independent Safety Field Audits	No.	34	Field audits of contractor workforce performance
Average score of independent Safety Field Audits	(%)	93	Field audits of contractor workforce performance
<b>e) Environmental</b>			
Total native forest	(ha)	49,902	
Native forest under on-title protective agreements inc. cores & links	(ha)	23,811	
Other native forest	(ha)	26,091	
Number of Ecological Vegetation Classes (EVC's) represented	No.	52	
Cores and Links total area	(ha)	8,000	
Cores and Links native forest	(ha)	5,970	
Cores and Links ash plantation never to be harvested	(ha)	700	
Cores and Links plantation harvested to date	(ha)	1,071	
Cores and Links plantation still to be harvested	(ha)	429	
Cores and Links harvested area regenerated to native forest	(ha)	965	
Date of last FSC Certification audit	Date	Dec-15	
Date of last AFS Certification audit	Date	Feb-16	
Number of Code of Forest Practice and BMP Audits	No.	42	
Average score for Code of Forest Practice Audits	(%)	97	
Average score for Company BMP audits	(%)	96	
Number of Flora or Fauna surveys completed	No.	16	
<b>f) Koalas</b>			
Area of primary Koala habitat	ha	5,307	This is all native forest and is not harvested
Area of secondary Koala habitat	ha	18,737	This is all native forest and is not harvested
Most recent Koala survey	Date	Apr-16	
<b>g) Nurseries</b>			
Pine Seedlings produced	No. Million	7.2	
Pine Cuttings produced	No. Million	4.2	
<b>Total Plants produced</b>	<b>No. Million</b>	<b>11.4</b>	
<b>h) Other</b>			
No. fires HVP attended with origin on HVP land last fire season	No.	67	
No. fires HVP attended with origin on non-HVP land last fire season	No.	44	
Pine 9-month survival of trees planted	(%)	82	Target is at least 85%
Carbon stored on HVP estate - at prior 31st December	Mt CO <sub>2</sub>	38	Above-ground C on HVP land less fuel, fertiliser & chemical used
Date of last Forest Health Assessment	Date	Nov - 15	Independent Forest Health Assessment

\* For a breakdown of the native forest land into Ecological Vegetation Classes see the Forest Management Plan Table 1

### **Maps- Resource base**

Resource maps are a component of the Forest Resource Systems. The base layers maintained are:

- Plantation layer - forest address, year planted and species
- Roads layer - road name and standard
- Hydrology layer - hydrological features

The data in these layers is updated annually after planting season to account for changes associated with recent harvesting operations. Data is updated using GPS and aerial photography techniques with data quality control managed centrally through Melbourne Office.

### **Maps – Ownership**

Maps illustrating the boundaries and basic attributes of land owned or managed by HVP are stored on the company GIS. The table for HVP properties may be accessed from other sites on the company intranet by those with the requisite permissions. Copies of documents evidencing land tenure (titles, licences, leases, etc) are held by the In-house Lawyer. Districts hold additional copies of the plans delineating the boundaries of land within their area.

### **Maps – Custodial Lands**

HVP has undertaken a project to map its custodial lands. In Gippsland the task involved mapping the Ecological Vegetation Classes, identifying the dominant overstorey species and its age structure and indicating disturbance history. This process was initially carried out on aerial photos, and then followed up with 60% ground-truthing. This mapping was carried out at a scale of 1:10,000. In other regions, DEPI mapping has been used. This mapping has been supplemented with specific mapping projects organised by HVP and conducted using ecological consultants.

## **11. Product processing and marketing**

The Company has no log-processing facilities however does export a small amount of pine log and chip.

A large domestic processing industry has developed based on *P. radiata* as the basic raw material, with volumes to enable international competitiveness. The Company is the main provider to this industry in Victoria, managing approximately 65% of the State's softwood resources. The largest downstream product from HVP plantation log sales is sawn timber for the domestic housing market; the most significant impact on sawn timber production is the domestic housing construction cycle.

Log production from across the regions is displayed in figures 3 and 4 below.

The company marketing program has a volume distribution of approximately 80% of long term contract sales and 20% of short term contract or spot sales. **Existing Long term contracts**

- The Company has 14 contracts of 3 years or longer for supply to domestic processors and these contracts provide approximately 85% of Company revenue. These sales arrangements encourage investment in domestic processing and optimal resource use to enable international competitiveness in a market environment which has a scarcity of long rotation resource
- Long term domestic contracts and diversified markets dampen the influence of market cycles on plantation wood production

### **New large sales**

- For large volume sales the Company assesses the resource, and seeks processing options to return the highest value through matching the resource to potential processes.
- Investment is sought in domestic industrial processing which increases the product diversity of the Company's customers.

### **Short term contracts and Spot Market sales**

- Sales of small parcels of roundwood occur regularly to test the market and encourage small local processing. Short term sales enable flexibility with harvesting operations.

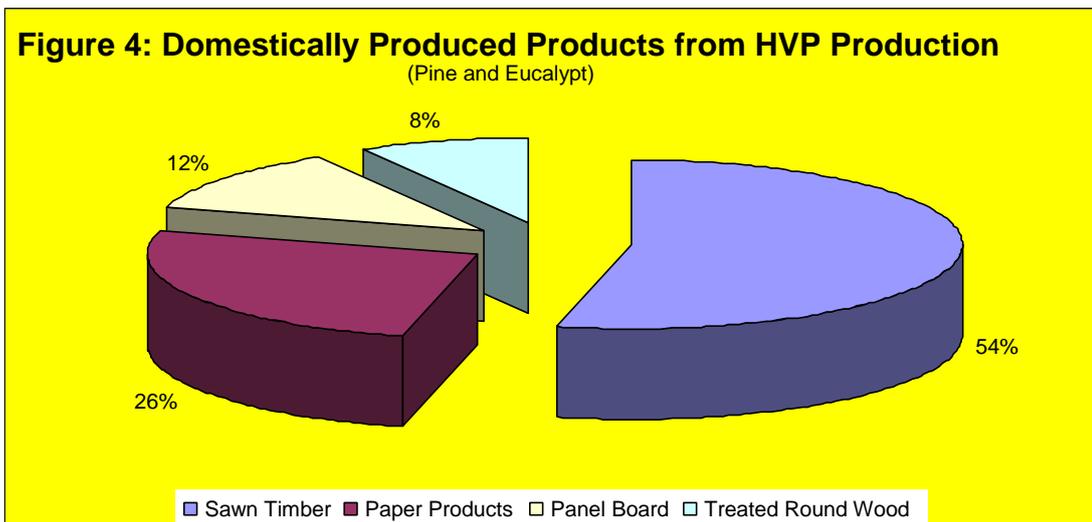
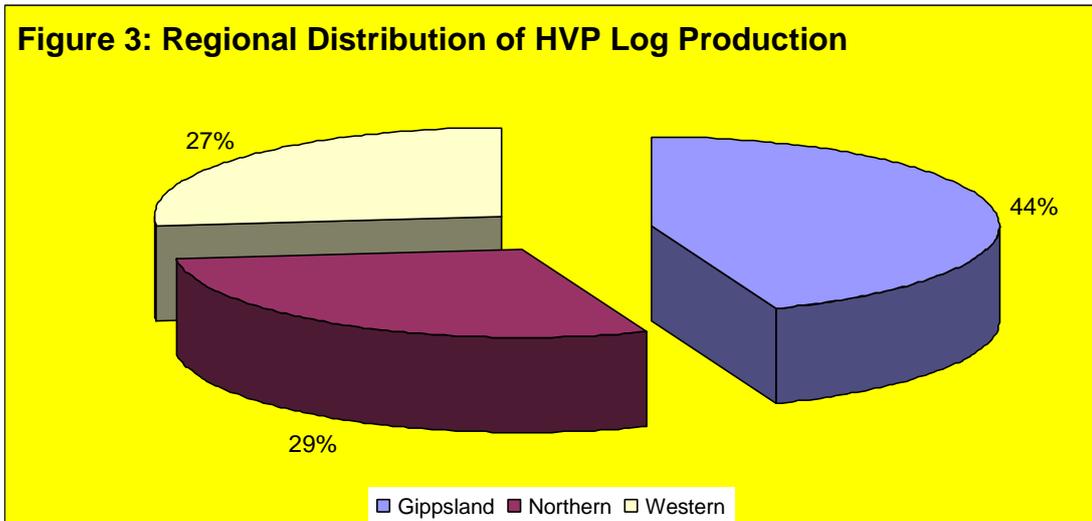


**Export sales**

- Export sales provide an outlet for logs which are surplus to the capacity of local processors, exports amount to approximately 2% of annual sales
- These sales also enable the Company to understand world markets and pricing for this internationally traded commodity

**New Opportunities**

- Through its large plantation estate HVP is a significant collector of solar energy in the form of wood cellulose. This will increasingly provide opportunities to harvest and sell wood residues for use in energy plants or for the production of fuels such as ethanol, and bio-diesel.



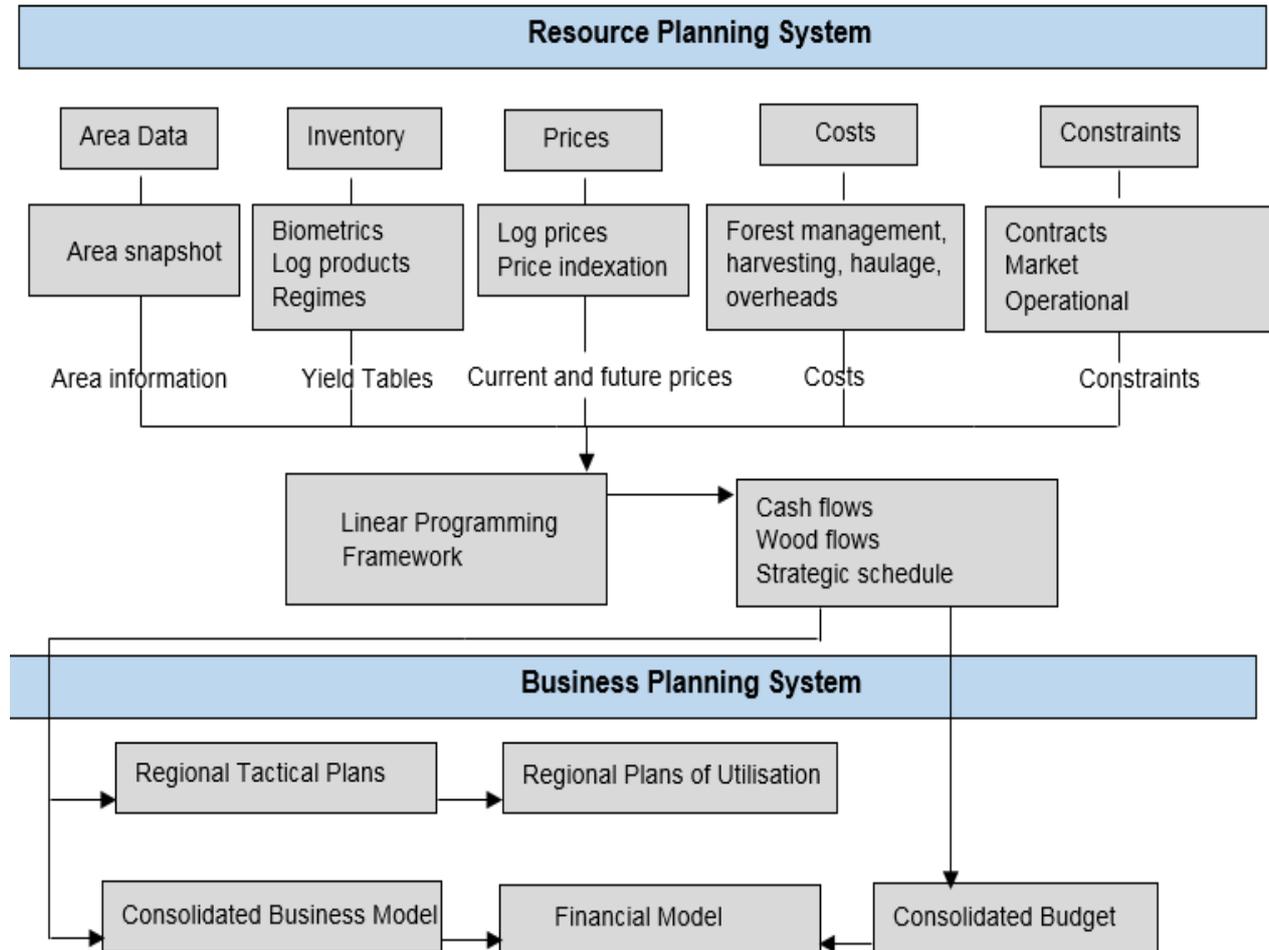
**12. Training to implement the Plan**

A Company training plan and training register documents training programs to support the FMP.

**13. Plan Review and Update**

The FMP will be reviewed annually by the Operations Group in September and the BMP's will be continually revised as improved practices develop. The FMP review will rly consider results of the HVP monitoring program, legislative changes and public comments received during the year.

## APPENDIX 1 - Plantation Resource Planning System



**Area snapshot** - a defined set of spatial and attribute data at a point in time

**Yield Tables** - estimates of the volume of log products by forecast year and harvesting operation.

**Price indexation** - forecast changes in prices in response to market and economic trends

**Forest management costs** - costs for the establishment and management of forest stands

**Harvesting/haulage costs** - costs for the harvesting of logs from forests and transporting those logs to mills or log markets

**Overheads** - Costs which cannot be directly attributed to specific forest management tasks, such as corporate services, insurance, fire preparedness, IT, business-wide projects

**Constraints** - obligations and limitations on the volume of log products harvested each year. These include contracted volumes, capacity for different harvesting operations, limits on the volume of log products harvested from summer or winter areas, smoothing of supply

**Tactical Plans** - approximate order of harvesting over the next 3 to 5 years

**Plans of Utilisation** - detailed order of harvesting and balancing of haulage over the next 6 to 12 months

**Consolidated Model** - combines the LP output for each regional model into a single model, including non-regional components of forest management. This model integrates the regional scenarios for assessing business-wide scenarios and sensitivity analyses

**Financial Model** - extends the Consolidated Model to include HVP corporate and financial information to generate a range of financial and investor reports



## APPENDIX 2. PLANTATIONS AS A BENEFICIAL LAND-USE

While plantations can provide an array of social and economic benefits, and can contribute to satisfying the world's needs for forest products, they should complement the management of, reduce pressures on, and promote the restoration and conservation of natural forests.

Timber plantations including exotic monocultures are accepted for certification under the Forest Stewardship Council rules and within the Australian Forestry Standard (AFS).

Within the AFS plantations are defined as

*Stands of trees of either native or exotic species, created by the regular placement of cuttings, seedlings, or seed selected for their wood-producing properties and managed intensively for the purposes of future timber harvesting.*

AFS specifically rules out the use of Genetically Modified Organisms (GMOs) as does FSC.

A plantation in the FSC principles and Criteria is defined as

*Forest areas lacking most of the principal characteristics and key elements of native ecosystems as defined by FSC-approved national and regional standards of forest stewardship, which result from the human activities of either planting, sowing or intensive silvicultural treatments.*

Within the FSC standard, planted stands are not necessarily “plantations.” When plantation forestry operations are evaluated for potential certification, there are several key requirements that tend to be most determinative of the final decision.

These key requirements include:

- Plantation forestry operations cannot entail the conversion of natural forests.
- A portion of the plantation forestry area must be managed to maintain or restore natural vegetative cover.
- GMOs cannot be deployed or otherwise used.
- Within the context that an operation is considered as plantation forestry rather than natural forest management, there should be efforts to encourage greater levels of biological diversity.”

Plantation management should then :

- provide an array of social and economic benefits
- contribute to satisfying the world's needs for forest products
- complement the management of natural forests
- reduce pressures on natural forests
- promote the restoration and conservation of natural forests

The acceptance of plantations is integrated into the Australian Forestry Standard however the FSC preferences in the criteria present some challenges to the fundamentals of HVP operations.

Some key issues where there is no conflict recognised by HVP are:

- by both State Legislation and Company policy and practice, no natural forests are converted to plantations
- Approximately 25% of HVP estate is managed to maintain natural vegetation cover which by voluntary Company policy initially and by subsequent agreement with the State Government, is not subject to harvesting even though harvesting was initially legally permissible. This nonplantation land is defined as Custodial Land
- GMOs are not deployed or used on HVP land
- there are efforts to encourage greater levels of biodiversity within the plantation forestry operation as is recorded in the HVP Stewardship program

There are some issues where balancing conflicting preferences across HVP estate is required. For example there is an FSC preference for native species endemic to the locality. This preference is not currently compatible with the financial viability of exotic softwood plantations.

The exotic *Pinus radiata* plantations, with uniform management and age classes, often in large contiguous areas for management and production efficiency and viability meet the FSC preferences of:

- “enhancing economic,..... and social stability”,
- species selection based on site suitability and appropriateness to management objectives
- reducing harvesting pressures on native forests,
- capacity to provide resources to maintain and enhance areas of greater biodiversity.

However FSC Criteria also state conflicting preferences for:

- endemic native species
- plantation layout consistent with patterns of forest stands in the natural landscape,
- diversity to include size and distribution of management units,
- diversity of number and genetic composition of species
- diversity of age classes and structures

### **Benefits and Issues within estate management**

The table attached divides the certification considerations and expectations into 4 key areas:

- Contribution of whole estate to biodiversity
- Plantation species selection
- Plantation contribution to the reduction of pressures on native forests and the capacity to complement native forest management
- Social and economic benefits

The benefits and issues within these four key areas are listed and the objective of HVP is to manage the issues to reduce unfavourable impacts.

Active management of these issues to provide balance within these expectations across the estate has included:

- Conversion of plantations to native species in selected significant riparian zones to improve, in the long term, water quality outcomes and connectivity between custodial lands (company native forest lands) and adjoining native forest on public land,
- Implementation of a wildling control program
- Project to map and gather data on biodiversity of custodial lands for effective management
- Development of objectives and targets
- Consideration on size of areas of clear felling
- Agreement with the State Government on management of areas in the Strzelecki Ranges which contain a mosaic of native forests and company eucalypt plantations.
- Retention of *E. regnans* plantation in creek buffers on permanent creeks.
- Development and signing of the Cores and Links Agreement resulting in the creation of an 8,000ha reserve in government hands.

HVP seeks to differentially manage plantations and custodial lands to promote the benefits and manage the issues, with the aim of achieving a balance across the full estate (see attached Table 1).

TABLE 1. Consideration of plantation benefits

Land Type	Contribution to Biodiversity	Species Selection	Reduce pressures on native forests Complements native forest management	Social and Economic benefits or issues
<p><b>Softwood Plantation</b> <i>(Pinus radiata)</i></p> <p>(~138,000 ha)</p> <p><b>Benefits</b></p>	<ul style="list-style-type: none"> <li>• Provide shelter and limited food supply for native bird and animal species in excess of that supplied by cleared farmland particularly at the plantation – native vegetation interface</li> <li>• Native vegetation remnants within the context of a surrounding pine plantation exhibit significantly greater biodiversity than as woodland islands in a grassland context</li> </ul>	<ul style="list-style-type: none"> <li>• Economic and social stability in <i>P radiata</i> through:               <ul style="list-style-type: none"> <li>○ Multiple process uses</li> <li>○ High volume production</li> <li>○ Low disease, insect losses</li> <li>○ 2<sup>nd</sup> and 3<sup>rd</sup> rotation productivity and sustainability knowledge</li> <li>○ highly developed tree improvement programs(50 yrs)</li> <li>○ highly developed R &amp; D base</li> <li>○ Excellent sawlog characteristics</li> <li>○ Fibre characteristics support uses not suited to indigenous spp (cardboard and tissue)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• High volume production of wood fibre reduces pressure on supply need from native forests around the world</li> <li>• Production more cost efficient out-competes native forest production.</li> <li>• 70% of Australia’s sawn output comes from plantations which comprise only 1% of the forest area</li> </ul>	<ul style="list-style-type: none"> <li>• Economic and social stability through:               <ul style="list-style-type: none"> <li>○ Diverse distribution across the State</li> <li>○ High volume to meet community demand and industry expectation</li> <li>○ Viable economic return</li> <li>○ Social benefits – regional employment, catchment benefits, public use</li> <li>○ Chemical and fertiliser use is less than alternative agricultural land uses</li> <li>○ Plantations and processing industries not seasonally diminished by drought</li> <li>○ Enables management of custodial lands (native forest) for conservation purposes</li> </ul> </li> </ul>
<p><b>Issues</b></p>	<ul style="list-style-type: none"> <li>• Low contribution to biodiversity relative to natural vegetation</li> <li>• Uniform even aged management at coupe level</li> </ul>	<ul style="list-style-type: none"> <li>• Wildings of exotic spp</li> <li>• Low species diversity</li> <li>• Monoculture at risk to disease and insects requires monitoring</li> <li>• Risk of loss due to fire</li> </ul>		<ul style="list-style-type: none"> <li>• Financially viable, high volume production requires:               <ul style="list-style-type: none"> <li>○ Use of chemicals</li> <li>○ Use of synthetic fertiliser</li> <li>○ Uniform even aged management</li> </ul> </li> </ul>

Land Type	Biodiversity	Species Selection	Reduce pressures on native forests Complements native forest management	Social and Economic benefits or issues
<b>Hardwood (Eucalyptus) Plantation (~20,000 ha)</b>	<b>Benefits</b> <ul style="list-style-type: none"> <li>• A significant contribution to biodiversity although interrupted by harvest and not equivalent to native forest,</li> <li>• Complements adjoining native forest where the full range of habitat elements are found (e.g. nesting hollows)</li> <li>• Contribution to vegetation mosaic</li> </ul>	<ul style="list-style-type: none"> <li>• Reflect native forest given single age and species stands are common in high rainfall Eucalypt forests</li> <li>• Some genetic improvement available through conventional tree breeding methods to increase commercial viability</li> </ul>	<ul style="list-style-type: none"> <li>• Volume production reduces pressure on supply need from native forests for comparable fibre type</li> <li>• Stand management can be complementary to adjacent native forest management</li> </ul>	<ul style="list-style-type: none"> <li>• Economic and social stability through</li> <li>• High volume to meet industry expectation</li> <li>• Economic return</li> <li>• Spread risk from softwood plantations</li> <li>• Social benefits – regional employment, catchment benefits, public use, water quality</li> <li>• Enables the support of beneficial management of custodial lands for conservation purposes</li> </ul>
	<b>Issues</b> <ul style="list-style-type: none"> <li>□ Rotation cycles interrupt contribution to biodiversity although this does provide a further range of environmental niches</li> </ul>	<ul style="list-style-type: none"> <li>• <i>E nitens</i> preferred to <i>E. regnans</i> for greater productivity</li> <li>• Wildlings of non-endemic species.</li> <li>• Potential for genetic pollution of natural vegetation</li> </ul>	<ul style="list-style-type: none"> <li>□ Commercial risk – some public opposition to harvesting indigenous species even in plantations</li> </ul>	<ul style="list-style-type: none"> <li>• Economic returns marginal</li> <li>• Risk to stable supply to industry where harvesting constraints sought if endemic species plantations become viewed as native forest</li> <li>• Financially viable,</li> <li>• high volume production requires: <ul style="list-style-type: none"> <li>○ Use of chemicals</li> <li>○ Use of synthetic fertiliser <ul style="list-style-type: none"> <li>○ Uniform even aged management</li> </ul> </li> </ul> </li> </ul>

Land Type	Biodiversity	Species Selection	Reduce pressures on native forests Complements native forest management	Social and Economic benefits or issues
<p><b>Custodial lands</b> (Company native forests voluntarily not harvested) (~ 50,000 Ha)</p> <p><b>Benefits</b></p>	<ul style="list-style-type: none"> <li>• Maintain characteristics and biodiversity of proximate native forest</li> <li>• Contribution to vegetation mosaic</li> <li>• Complementary to plantations</li> <li>• Creation or enhancement of corridors and riparian strips benefitting biodiversity</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Endemic species for restoration of corridors and riparian strips within plantation areas</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Corridor and riparian strips in plantations complementary to adjacent native forest management</li> </ul>	<ul style="list-style-type: none"> <li>• Contribution to landscape mosaics</li> <li>• Water production and water quality</li> <li>• Public use</li> <li>• Potential to add value to estate through Stewardship initiatives and biodiversity</li> <li>• Progressive return of some land to the State for preservation purposes</li> <li>• Water and soil quality</li> <li>• Stakeholder involvement in projects, e.g. koala corridors, rainforest restoration and bushwalking</li> </ul>
<p><b>Issues</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Pest plants and animals invading custodial land</li> <li><input type="checkbox"/> Pest plants and animals living in custodial land impacting on plantations and other land uses</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> N/A</li> </ul>	<ul style="list-style-type: none"> <li>• Increased pressures are placed on native forests owned by others, by the policy not to harvest on HVP custodial lands</li> <li>• Increased pressure on other forests by taking plantation land out of production and returning it to the State with custodial land</li> </ul>	<ul style="list-style-type: none"> <li>• Minimal economic returns</li> <li>• Quantum and priority of management costs (subsidised from plantations)</li> </ul>

**APPENDIX 3 HVP Regional Map** – For more detailed maps see the HVP internet site – forest management – defined forest area, or click <http://www.hvp.com.au/hvp-forest-management/area-maps/>

