WAPRES PLAN 01

FOREST MANAGEMENT PLAN

Contents

1. WAPRES PLANTATION ESTATE

WAPRES manages *Eucalyptus* and Pine plantations throughout the South-West region of Western Australia with trees grown primarily for pulpwood. WAPRES aims to meet or exceed industry best practice in all our operations. Our forest management practices are certified to the Responsible Wood (RW and internationally recognized through PEFC) Sustainable Forest Management and Forest Stewardship Council® (FSC®) Forest Management. WAPRES also implements a dually certified RW and FSC® Chain of Custody system to ensure the accountability of our wood fibre products.

WAPRES, through its owner Marubeni Corporation of Japan, provides commitment not to offer or receive bribes in money or any other form of corruption, and will comply with anti-corruption legislation domestically and internationally. The Marubeni Group Compliance Statement exhorts:

"When you are faced with a choice between integrity and profit, choose integrity without hesitation."

WAPRES adheres to the plan outlined below to ensure that its **Forest Management Policy** (Policy 02) is implemented. Where applicable this Forest Management Plan is consistent with the FIFWA "Code of Practice for Timber Plantations in Western Australia". This plan is reviewed regularly to consider changes in management objectives, the results of measurements and monitoring and any other new information.

WAPRES' Defined Forest Area (or Forest Management Unit), covers a total area of approximately 17671 hectares in the south west of Western Australia. This area comprises 15 freehold properties owned by WAPRES, private property plantations managed by WAPRES as well as the gross area covered by all of our more than 140leases. WAPRES currently manages approximately 15,000 net stocked hectares of mostly Tasmanian Blue Gum *(Eucalyptus globulus)* and an emerging *Pinus radiata* estate within this Defined Forest Area. The plantations are generally within the 700mm rainfall isohyet and are situated south west of a line between Boddington in the north and Albany in the south.

WAPRES manages 39ha of pinus radiata on one of our freehold sites. This area was established for future wood resource and to potentially take advantage of the developing carbon sequestration market. This is a market that WAPRES is looking to expand into through both external and internal investment.

The total estate under management is located on about 140 separate properties, resulting in an average size of approximately 100 -hectares, varying from as little as 11 hectares up to 785 hectares.

Currently, the sole commercial product grown in the plantations owned and managed by WAPRES is pulpwood, used in the manufacture of printing and writing paper. Until recently the woodchips had exclusively been sent to our shareholder's customers in Japan, but China has now become an important market and new markets are also being investigated. WAPRES has a history of investigating alternative uses for the wood and where possible will continue to contribute to industry based research initiatives in this area.

As stated in our **Forest Management Policy**, WAPRES seeks to maximize the ability of its own estate to balance wood flows from other sources. The objective is to provide our customers with a constant, reliable supply of high-quality *E. globulus* woodchips for their pulp and paper making businesses from our Bunbury port facility. We achieve this through the judicious use of silvicultural treatments such as

fertiliser application and by managing rotation lengths within the flexibility provided by our land leasing arrangements.

2. WAPRES' PROCUREMENT OF WOOD FIBRE

WAPRES partners with public and private forest growers and managers to maximize the volume and value recovery of their trees by coordinating the management, planning, harvesting, haulage and processing of numerous plantation and native forest tree species.

WAPRES is committed to optimizing the utilization of available wood fibre and has established a range of markets to support this objective. In addition to traditional pulp and paper products, wood fibre is sought after for energy, domestic home heating, silicon, garden, and nursery products.

For pulp

Public and private forests – blue gum and other species suitable to the pulp and paper industry.

Public and private natural forest – karri sourced from selective thinning of regrowth native forest and the recovery of residue from trees harvested or processed into other products.

For biomass

Public and private forests – fire affected blue gum and other species, or varieties not suited for use by the pulp and paper industry (which would otherwise be felled and wasted).

For Charcoal – Silicon

Public and private forests – blue gum and other species.

3. SOCIAL, ECONOMIC AND ENVIRONMENTAL IMPACTS OF WAPRES' FOREST OPERATIONS.

The Social and Economic Landscape

The South West of WA is a major contributor to the WA economy and has been growing steadily in recent years. The major industries by region are described below:

Bunbury Wellington Region	Warren Blackwood Region	Vasse Region
Mining	Agriculture	Tourism
Infrastructure projects	Timber	Viticulture
Manufacturing	Tourism	Agriculture
Agriculture	Viticulture	Creative industries
Commercial & professional services	Professional services	Professional services

(Source: www.swdc.wa.gov.au)

Plantation Forest is currently a significant land use, totalling 287,000ha of hardwood plantation in 2014 (Gavran, 2015). It is still a fairly new industry, with the most significant establishment period

occurring between 1996-2000 (Gavran and Parsons, 2011). Recent figures indicate that growth has stabilised and area is now slightly decreasing (Gavran, 2015; Gavran and Parsons, 2011).

Prior to purchase or lease for plantation establishment, WAPRES properties were used for a range of agricultural purposes. This includes pasture for sheep (wool and meat), beef cattle, dairying, cropping, viticulture, horticulture or plantations. WAPRES does not establish plantations or purchase wood from any plantations converted from native forest after 1994.

For a detailed report on socio-economic impacts of the forest industry in Western Australia see Schirmer *et al* (2017).

3.1. Stakeholder Engagement

Stakeholder Sundowners are held in Bunbury approximately every 18 months to inform lease holders, and other interested parties, of the current market and progress of the company. This provides an opportunity for current lease holders and stakeholders to engage with WAPRES staff in any areas of concerns or improvements they may consider to be of relevance.

3.2. Positive Social and Economic Impacts

Contribution to local economies. WAPRES has both a "buy local" and "employ local" philosophy, with our operations contributing approximately $60 million annually to south western WA economies. Since 2001, the growth of the plantation industry has provided a degree of transition of employment from the declining native timber industry. Local employment was rated as the highest positive impact from Forest by Schirmer *et al* (2017).

Diversity in the economic landscape. Plantation Forest offers an alternative land use option for landowners. A greater variety of industries in a region gives resilience to local economies.

Lifestyle and financial benefits to leaseholders. A significant proportion of WAPRES leaseholders report financial and lifestyle benefits as a reason for converting their farmland to plantation.

Community and industry collaboration. WAPRES has a community sponsorship program and assists in a number of community projects, scientific research and events annually. WAPRES participates in regional forums, including Bunbury Geographe Economic Alliance (BGEA). This alliance involves a broader Industry membership (mining, Forest, construction, education & training) and the local council Presidents in discussions on economic development, industry activity and regional issues. WAPRES is an active member of the Forest Industry Federation of WA (FIFWA)and the Australian Forest Products Association (AFPA).

Industry research. Companies operating throughout a region are collaborate to identify and learn from trends and contribute to knowledge accumulation. WAPRES contributes to and is involved with collaborative industry R & D initiatives, and groups such as the Industry Pest Management Group, Forest Pest Management Consortium and Tree Breeding Association.

Improvement of roads. Upgrading of roads to facilitate harvesting operations is a positive for local residents.

3.3. Negative Social and Economic Impacts

Traffic and quality of local roads. Schirmer *et al* (2017) reports the highest community concerns regarding the forest industry were negative impacts on traffic and road quality. WAPRES consults with local shires and Main Roads WA regarding haul routes and any conditions on certain roads. WAPRES was the initiator of the system of school bus time curfews in 2001, which has now become an industry standard. All WAPRES haulage contractors are required to maintain vehicles to statutory safety standards and are subject to company and regulatory inspections.

Impacts on attractiveness of local landscape. Schirmer *et al* (2017) also found that the community rated negatively the visual impact of forestry. The harvesting of trees and the associated site cleanup are necessary and temporary stages in the cycle of a plantation and it is within business interest to complete these processes in a timely manner as conditions allow.

Increased fire risk. It is acknowledged that plantations may increase fire risk, particularly with practices such as retaining slash on site. WAPRES has developed a Fire Management Plan and invests in a number of fire mitigation strategies, including maintaining a fire response team and a 24hr Fire Line, liaising with local fire brigades and government agencies, signatory to the " WA Plantation Managers Fire Agreement" maintaining firebreaks and ensuring fire control units are on site during harvest operations. WAPRES fire control practices are frequently associated with positive interactions within the community. The development of markets to utilise wood residues associated with timber harvesting plays an important part in reducing fire risk and severity. By utilising this material the need for burning is mitigated and the risk and consequence of uncontrolled fire is significantly lessened.

Increased water use. See Altered Hydrology under Environmental Impacts.

Increased pests and weeds. Some community members point to plantations as sources of weeds and pests. WAPRES plantations are inspected periodically during the year for weeds and develop necessary actions to manage infestations. WAPRES liaises with local weed action and pest control groups and addresses individual concerns when raised.

Decline in populations, employment, local memberships. Some communities have concerns that the plantation industry results in removing people from the land. Studies (Schirmer *et al*, 2008) have found that selling land to the plantation industry as opposed to leasing has greater community impacts. WAPRES primarily leases land, with landowners or tenants in many cases remaining on the property.

Noise and disruption associated with harvest activities. WAPRES provides residents and neighbours with information including operation timing, a map of the proposed harvest area, haul roads and relevant contact details. Night operations are restricted to areas where disruption to any neighbours is minimised. Infrastructure is inspected and any damage is rectified prior to leaving the property. To minimise disruption associated with our operations, measures such as reducing speed limits, dust suppression, restricting haulage to certain times or finding an alternate route are undertaken.

Encumbrance of future land use. Some landowners are concerned as to how plantations will limit future land use. WAPRES consults with landowners how their land will be left upon a lease exit and provides advice.

Chemical Use. See under Environmental Impacts.

3.4. Environmental Landscape

WAPRES operates within the Southwest Australia Ecoregion. This zone is globally significant in terms of biodiversity and ecological value and extends from Shark Bay in the north to Esperance in the south. One of the few Mediterranean biomes in the world, its diverse landscape encompasses *kwongan* heathlands, eucalypt woodlands, mallee, tall eucalypt forests, swamps, naturally saline wetlands and granitic outcrops (Gole, 2006).

The ecoregion is listed as one of 36 Global Biodiversity Hotspots - an area of exceptional biodiversity confronting considerable environmental pressure (Conservation International, 2023).

See **WAPRES PLAN05 - HCV Management Plan** for a more detailed description of biodiversity values in the region.

3.5. Positive Environmental Impacts

Forest management in general requires less input of energy and resources, resulting in less disturbance, than traditional farming methods. This can result in positive environmental outcomes.

Certified Operations. As a company certified to environmental and Forest management schemes, WAPRES adheres and is audited to several standards that require responsible land management across its estate.

Livestock removal or reduction. The removal or reduction of livestock on previously grazed land reduces environmental pressure on the landscape.

Improved water quality and biodiversity. Less intensive land use benefits water quality and biodiversity. Stewart (2011) demonstrated that water quality, biodiversity and riparian condition of streams running through plantation in the south west was improved in comparison to pastured land.

Reduced salinity. Managed forests have been used successfully as a tool to reduce salinity throughout the Collie and Kent River catchments (Bari *et al* 2004, Mauger *et al* 2001).

Protection of remnants and creeklines. It is standard practice in WAPRES operations for native vegetation and riparian areas to be protected and classified as operational exclusion zones.

Soil resources. Forested areas are likely to improve soil resources when compared to agricultural, horticultural or extractive land uses. Site preparation is conducted along contours, helping to retain water in the landscape and reduce runoff and erosion. Mechanical soil disturbance only occurs in planting preparation and harvesting (approximately on a 10 year cycle). Leaf fall and slash accumulate during the growing period increasing soil organic matter and contributing to carbon storage.

Reduced "edge effects" and improved connectivity of remnants. Plantations offer cover to wildlife and can facilitate the movement of fauna and flora between stands of remnant vegetation and bushland.

3.6. Negative Environmental Impacts

Chemical use. There may be community concern regarding the use of chemicals in plantations. WAPRES operates a number of controls (certified to EMS, RW and FSC® standards) to eliminate or minimise impacts arising from chemical use. These include monitoring methods to determine if chemicals are required, selecting safer chemicals, operating to a spray prescription, and using only licensed contractors. Sensitive areas and High Conservation Values are marked on maps and are considered in the spray prescription. Aerial application of chemicals is only considered when it is very unlikely that non-target sites will be impacted, and residents and neighbours are contacted prior to any aerial operations.

See **WAPRES Statement 08 - Chemical Usage Statement** for more information.

Spread of Phytophthora dieback. Activities such as road building and vehicle movement may spread the water borne Phytophthora dieback pathogen, a serious threat to biodiversity in south west WA which is present throughout most disturbed areas. WAPRES liaises with DBCA when haulage may be required through dieback free Disease Risk Areas (DRAs).

Increased pests and weeds. See under Social Impacts.

Altered hydrology. There is a community concern that trees utilise more water in the landscape than shallow rooted pasture or crops. Studies have indicated reafforestation needs to cover at least 15-20% of cleared catchment land area to begin to have a measurable impact on catchment flows (Parsons *et al* 2007). Plantations in south west WA (including pines) cover on average 5.7% of cleared catchment areas, and are generally scattered and of varying ages.

Burning practices. In some instances, WAPRES burns harvest slash in order to improve access for re-establishment, future land use, or to reduce fire risk. There is some concern that this may negatively impact on soil health. As this practice may only occur once in ten years at most, WAPRES does not believe this would be major contributor to soil decline.

Erosion and turbidity from poorly maintained drainage. WAPRES periodically inspects plantations throughout the year, and at-risk plantations after significant storm events. Issues are noted and rectified as required.

Impacts on water quality and biodiversity from harvest operations. WAPRES harvest management practices are considered to reduce or eliminate impact on waterways. A recent study has demonstrated that bluegum harvesting operations in the Albany area had no detrimental effect on water quality or biodiversity. These studies also verified that water quality and biodiversity was improved as it ran through plantation property.

Soil disturbance from heavy machinery. Roads are assessed prior to harvest and upgraded as required. Harvesting operations are scheduled to avoid potentially wet areas in winter and may be suspended during adverse weather conditions. Machines are required to only use approved stream crossings and avoid exclusion zones. Log landings and processing sites are established in nominated sites. Significant soil disturbance is raised as an **WAPRES F2.0 - Incident Note**, with further operations assessed for suitability.

Accidental release of hydrocarbons. Contractors and employees are required to follow WAPRES procedures regarding prevention and management of oil spills. Refuelling is to occur on mineral earth only and away from watercourses. Significant spills are reported as an **WAPRES F2.0 - Incident Note**.

Wildings. Bluegums managed as pulpwood are regarded as non-invasive in south west WA, however wildings do sometimes occur outside of plantation areas. If plantation inspections detect wildings, appropriate control measures are undertaken.

See **WAPRES 06 - WAPRES Environmental Management Plan**, **WAPRES 9050 - The Protection and Management of Biological Diversity** and **WAPRES 9060 - The Protection of Soil and Water Resources in Plantations** for further details on how WAPRES protects environmental values.

4. STAKEHOLDER CONSULTATION.

WAPRES is committed to meaningful stakeholder consultation with its customers, lessors, neighbours, local governments, and key state government departments, general interest groups, cultural and heritage groups and the community generally.

WAPRES maintains a list of community and environment stakeholders who are notified of upcoming audits and receive our bi-annual Blueprint newsletter. Any member of the public can register to be included on this list through the WAPRES website.

The document **P18 - Stakeholder Engagement** describes the engagement process in more detail. WAPRES has formalised its commitment to its neighbours, local communities and key stakeholders with the development of its **P06 - Good Neighbour Statement**.

5. PRINCIPLES OF ENVIRONMENTAL CARE.

WAPRES is committed to carrying out its plantation management and harvesting and haulage operations in accordance the Code of Practice for Timber Plantations in Western Australia and its Principles of Environmental Care, these documents include:

- **WAPRES 9010 - Environmental Monitoring Guidelines**
- **WAPRES 9020 - Chemical and Hydrocarbon Incident Management Guidelines**
- **WAPRES 9040 - Hygiene Control in Plantations**
- **WAPRES 9050 - The Protection and Management of Biological Diversity**
- **WAPRES 9060 - The Protection of Soil and Water Resources in Plantations**

SECTION A – PLANTATION MANAGEMENT

6. MANAGEMENT OF REMNANT NATIVE VEGETATION.

The south west of Western Australia is globally significant Biodiversity Hotspot, supporting a unique and rich biota. WAPRES acknowledges responsibility to manage native vegetation within our land estate with the objectives to conserve the existing biodiversity and enhance these values where feasible.

WAPRES recognises that the establishment and maintenance of plantations on farmland generally has a positive effect on both biodiversity and water quality (Grimbacher, 2011). Reduced grazing

pressures, ground disturbance, and increased vegetation cover as compared with pasture or horticulture contribute to this outcome. Plantations adjacent to native vegetation also decrease "edge effects" and offer increased connectivity between native remnants.

WAPRES has a total of 2,256 hectares of "conservation area" within its DFA/FMU (12% of 18,140 ha) as of December 2022. Conservation area comprises remnant vegetation, streams and buffer zones, and unplanted pasture areas. On leased properties, while the native forest is technically within the area covered by the lease (annexure) the payment of rent is calculated on the net stocked area of plantation (productive capacity), which is only established on previously cleared areas. As a result, WAPRES generally does not carry out any active management activities on these areas of native forest, without detailed consultation with the landowner. The type of activity conducted in native forest areas is limited to practices that provide a positive impact to the health and resilience of the forest. Typical management activities in these areas would include assisting landowners with fuel reduction thinning, burning and the upgrading of existing roads through these areas (e.g. gravelling and installation of drainage) to facilitate harvesting activities. Prescribed burning also has the ancillary benefit of assisting in forest regeneration and maintaining biodiversity.

Our primary management tool for the conservation of native remnants is exclusion from our operational activities. Remnant vegetation and other conservation areas are listed as Operational Exclusion Zones, and breaches of this rule are recorded as **WAPRES F2.0 - Incident Note** and dealt with accordingly. Streams and wetlands have a minimum operational buffer as defined elsewhere in our Management System. Noxious weeds, including those in remnants and stream reserves, are identified during plantation inspections and controlled as appropriate. The ecological value of dead and fallen timber to biodiversity and ecosystem function is recognised, and this is not removed unless it poses an immediate safety risk.

WAPRES is not involved in the harvest of any species listed by CITES (the Convention on International Trade in Endangered Species of Wild Flora and Fauna).

7. HIGH CONSERVATION VALUES.

High Conservation Value (HCV) areas are those that may possess important values such as threatened species, ecological communities or cultural heritage. WAPRES has identified a number of areas under its control that fit the criteria for High Conservation Value. Several remnant vegetation areas are high quality remnants of significant size that potentially provide habitat for threatened animals such as the quenda, woylie, quokka and chuditch, as well as being representative of the local ecosystems. WAPRES will consult with the owners of the leasehold properties where HCV values have been identified to explain the significance of these findings and will provide these landowners with a copy of the "Special Values Booklet" produced by the WA plantation industry. We will also provide them with contacts to local community groups and government agencies if they require further information or assistance.

Threats to these values are identified, and appropriate monitoring and management plans are developed in consultation with expert stakeholders.

More detail is available in **WAPRES PLAN 05 - High Conservation Value Management Plan** and the Plantation Industry Special Values Booklet.

8. SILVICULTURAL SYSTEMS.

WAPRES applies conventional silvicultural practices that are consistent with State and National best practice during plantation establishment and maintenance activities.

Globulus plantations have a nominal rotation length of 10 years with harvesting occurring at the end of the rotation. There is typically no thinning work completed during the rotation. The final harvest age may vary to enable the forest to be managed according to their specific site conditions (especially soil depth and rainfall) as well as enabling the scheduling of harvesting to smooth wood flows from other sources within the constraints of our lease agreements.

Softwood Plantations have a nominal rotation length of 30 years with harvesting scheduled to occur at approximately age 10-14 (first thinning) 18-22, (second thinning) and 28-30 for the final harvest. The actual harvest age may vary to enable the forest to be managed according to specific site conditions, forest health, productive capacity as well as enabling the scheduling of harvesting to smooth wood flows from other sources within the constraints of our lease agreements.

8.1. Expected Harvest Volumes

WAPRES maintains a regular inventory program that enables us to predict future volumes of logs that will be produced both from the plantations we own and also from the large plantation estate we manage for third parties. The plantations have historically been measured at both age 4.5 and 7.5 year, and the standing volumes estimated from these inventories are grown on to a nominal age 10 harvest, using growth models developed from our comprehensive set of Permanent Sample Plots (PSP). Over the last couple of years the inventory program has been modified slightly to more effectively meet company requirements

WAPRES's own plantations in the Bunbury export zone are expected to yield between 200,000 and 300,000 tonnes of wood fibre per annum for the period 2022-2023 and this is expected to reduce to 150,000-200,000 for the period 2023-2025, based on an average 10 year rotation length. WAPRES also has access to third-party wood through wood purchase agreements, which will yield between 20,000 and 60,000 tonnes of logs per annum over the same period. Additional private resource is available for purchase, which will ensure that we are able to meet our customer's requirement for the foreseeable future. Sales volumes for the period 2022-2025 are likely to average between 300,000 and 500,000 tonnes per annum.

8.2. Site Selection and Productivity Determination

All new *E. Globulus* plantation sites must receive at least 700 mm/annum of rainfall & *P.radiata* at least 600mm/annum.

All new plantation sites must be either be ex-pastured or ex-plantation. WAPRES will not convert native forest to plantation. There may be limited circumstances where small scale clearing including for infrastructure may be required, but only as approved by the appropriate authorities. We will strive to ensure that no threatened species or habitat, or significant ecosystems are adversely affected.

WAPRES identifies High Conservation Values (HCV) across its estate through initial desk-based assessments, followed through with field reconnaissance of higher-risk plantations. HCV areas are assessed for potential threats and appropriate management strategies are developed.

WAPRES' preferred method of land acquisition is leasing; however selective land purchases may be required to ensure minimum requirements for resource security are met. Land may be purchased by WAPRES directly or by other parties looking to invest in plantations.

All new plantation sites have a soil assessment carried out, as identified in the Land Acquisitions and Estate Operations Manual. Productivity for first rotation sites will be determined using actual harvest information for similar sites where possible. Where this is not available the empirical model SITEPROD developed in conjunction with the CRC-SPF will be used. For second rotations (2R) productivities will be determined using evidence gained from recent inventories or harvest yields. However, as noted above in the inventory section all yield forecasting in the Bunbury Export Region will remain problematic at least until the recent rapid increase in insect damage stabilises or is reversed.

8.3. Plantation Approval Process

8.3.1. The Internal Rate of Return (IRR) for all new plantations will be assessed on the relevant Plantation Proposal Form and in accordance with the latest version of the Land Evaluation System.

8.3.2. All Plantation Proposal Forms meeting minimum IRR requirements will be forwarded to the CEO for approval. Plantations that fail to meet the minimum requirement but have additional values such as scale or location, may also be forwarded along with an explanation of the additional values. The CEO may approve these if the case is sufficiently compelling.

8.3.3. Second rotation viability will be assessed having regard to the alternative cost of lease exit where this is relevant.

8.3.4. It is the responsibility of the Estate Manager to ensure all necessary local government approvals are obtained if required and the lease registered with the Titles Office at Landgate.

8.4. Choice of Species

WAPRES initially chose Tasmanian Blue Gum (*Eucalyptus globulus*) as the preferred species for its plantation program for our higher rainfall sites, which commenced in 1980. This decision was based on results of trials conducted by the then W.A. Forests Department and from observations of plantations in other parts of the world with similar Mediterranean climates to ours. The main criteria used for this initial selection were:

- growth rates (over a range of soil types),
- pulp and paper making properties,
- resistance to dieback (*Phytophthora*); and
- the ability to coppice (reshoot from the stump).

Since then, WAPRES has conducted a number of species trials, and these have confirmed the superiority of *E. globulus* to grow best over a wide range of soils. Some of the trials have included the major native species including karri (*E. diversicolor*) and marri (*Corymbia calophylla*) and in these cases the native species have always performed very poorly. Over the last twenty years the Japanese pulp and paper makers have also made it clear the *E. globulus* is by far their preferred hardwood specie

due to its high pulp yield, good basic density, good paper making qualities and low chemical requirement (for both pulping and bleaching). Another advantage of *E. globulus* is that it has proved to be non-invasive in Western Australia, particularly when managed as a short rotation pulpwood crop. Despite this we continue to closely monitor our plantations to ensure any spontaneous regeneration is managed outside of plantation areas. Up until 2007 all of our operational plantings were of *E. globulus*.

Based on the results of some of the species trials referred to above Gully Gum (*E. smithii*) emerged as a viable alternative in 2005, particularly on sites with shallow soils where *E. globulus* is not well suited. Unfortunately, the *E. smithii* plantings have in many cases been severely damaged by the rapid increase in the population of the new species of eucalypt weevil (*Gonipterus sp*) and the planting program has been put on hold.

With the industry and State requirement for an expansion of the Pine Estate in Western Australia, WAPRES is developing *P.radiata* plantations on its managed estate. *P. radiata* is a proven source of commercial fibre for Industrial wood and multiple other products including sawlog. *P. radiata* has the ability to be gown on poorer soil types and in lower rainfall zones (600mm/annum).

8.5. Productivity & Plantation Health

WAPRES continually evaluates our Plantation performance and productivity. Plantation monitoring, measurements and silvicultural review is ongoing to reflect the shifting dynamic of our industry. WAPRES now maintains a collaborative approach to its primary silviculture research with participation in groups such as the Integrated Pest management Group (IPMG) & the Forest Pest Management Consortium. These State and National bodies allow Plantation Managers to coordinate resources into targeted areas of Plantation Management and several key areas of research.

Pest Management & plantation health - Ongoing plantation pest management and plantation health is a priority for WAPRES and the Industry WAPRES is playing a leading role in trying to quantify the impact of plantation pests and to seek effective control measures. This is done through the IPMG and the direct employment of a full time Silviculture Research Coordinator.

The use of a systemic insecticide Shield (Clothianidin) which is widely used in agriculture has been shown to give trees at least 2-3 years protection from all browsing insects including weevils when applied to the roots. This along with other alternatives and biological control methods for one of our major post establishment insect pests, the Eucalyptus weevil (*Gonipterus sp*.).

Spring beetles (*Liparetus and Heteronyx)* have been a major insect pest for many years and are capable of causing a significant amount of damage to seedlings a few months after planting. The yellow belly chrysomelid (*Paropisisterna m-fuscum*) has also started to cause significant damage to recently planted seedlings with this damage being sustained throughout the year after planting. Initially these insects were controlled using the misting of synthetic pyrethroid insecticide (alpha-cypermethrin). This control method is effective but also potentially kills beneficial insects and the use of the targeted systemic insecticide Shield is used as an alternative. Shield (*Clothianidin*) is applied as a very low volume (2-5mls) liquid via a “drenching gun” at the base of the newly planted seedling. As noted earlier, Shield is now being applied to older trees as a more environmentally friendly method of controlling browsing insects, compared with the current method of misting synthetic pyrethroid insecticide.

Information on WAPRES' IPM approach to pest management is contained in "Field guide for *Eucalyptus globulus* plantations in Western Australia and the Green Triangle" developed by the IPMG.

Integrated pest Management (IPM) Steps:

i) correct identification of the pest,

ii) knowledge of the biology of the pest and its natural enemies,

iii) appropriate monitoring of pest populations,

iv) setting of damage (action) thresholds

v) searching for non-chemical control methods and

vi) finally, where there are no acceptable alternatives, using the most appropriate product and the correct rate and at the appropriate time.

Plantation Nutrition - WAPRES also participates in a national nutrition management program, which is currently evaluating the efficacy of our remedial fertiliser programs across the estate. These trials are designed to assess the long-term volume yields realized out of various nutrition programs and the effectiveness of manipulating Nitrogen, Phosphorus and Potassium applications.

Herbicide performance and alternatives – given the ever-changing requirements of chemicals and regulation, WAPRES evaluates many variations of Herbicides for use in the plantation Industry is a host of environments and situations.

8.6. Treatment of Slash Following Harvesting

WAPRES engages multiple harvest contractors with varying harvest systems, to complement our re-establishment regimes.

Where coppice is used to re-establish a plantation WAPRES will seek to harvest these plantations with the "cut to length" harvesting system whereby the trees are debarked "at the stump", resulting in the harvesting slash being retained on the site. While this is an effective harvesting system for organic matter and nutrient conservation, it naturally leads to a significant increase in fire risk for the coppice crop.

Where WAPRES has unmanaged coppice or the site is to be re-established with new seedlings an "In Field Chipping Operation" (IFC) may be engaged to allow all harvest debris to be collated at a central point allowing effective removal for Plantation access.

8.7. Choice of Planting Stock and Establishment Method

Under FSC® POL-30-602, clones, hybrids formed by natural processes, or the products of traditional tree breeding, selection, grafting, vegetative propagation or tissue culture are not genetically modified

organisms (GMOs), unless produced by GMO techniques. WAPRES now has significant reserves of genetically improved seed and all plantings are being established using genetically improved seedling stock to maximize dry matter production from our limited land base. This material is derived from conventional breeding systems and WAPRES currently has no plans to use GMOs in its plantation program. GMOs would only be considered in the future in exceptional circumstances and where their use receives strong support from the majority of our stakeholders.

Whilst coppice will generally result in higher second rotation profitability (measured by Internal Rate of Return or IRR) than replanting due to lower costs, our guideline over the last few years has been to allow up to 40% of 2R sites in any harvest year to be replanted using genetically improved stock rather than retaining coppice. This guideline has been aimed at maintaining a continual improvement in the quality of the estate and to maximize dry matter production per hectare in the belief that replanting on our better sites is likely to lead to higher growth rates (MAI's) but lower IRR's than coppicing. This has proved to be the case on high rainfall sites (>950mm/annum).

However even on these sites improvements in coppice management techniques described above (more fertiliser and more retained stems) are likely to result in similar growth rates to replanting. As a result, our new guideline is that if a second rotation is considered to be economically viable, it should generally be established by coppice unless the coppice fails to develop adequately due to site or climatic factors.

Third rotation sites are favoured for replanting due to concerns with excessive stump size where the stumps are coppiced again along with lower than adequate stump survival after two harvest operations.

8.8. Principles of Plantation Silviculture

8.8.1. Species Selection

Tasmanian Blue gum (*E.globulus ssp globulus*) is currently used for plantation establishments by WAPRES due to its excellent wood properties for pulp and paper making, its rapid growth across a wide range of rainfall zones and soil types, its good disease resistance and its ability to coppice from the stump following harvesting.

Additionally *P.radiata* will also be planted for specific plantation development in lower rainfall and shallow soil zones.

8.8.2. Cultivation

Most sites will require some form of cultivation to ensure their full potential is achieved. The choice of which cultivation method should be used will depend on site factors such as slope, the presence of any impeding layers in the soil, the likelihood of water-logging and whether it is a first rotation site or not. See **WAPRES 4240 – Cultivation**.

8.8.3. Weed Control

It is essential that the young seedlings are able to develop in a weed free environment to ensure that the full potential of the site is achieved. The type and rates of herbicide used should take into account the weed spectrum present, the size of the weeds, the soil type and the time of the season but must be in accordance with the label or permit specifications and certification requirements. Chemicals on the FSC® Highly Hazardous list are not used without an approved ESRA in place.

If perennial weeds are present a broadcast herbicide application is carried out prior to the cultivation treatment.

Following cultivation an application of pre (and if required) post emergent herbicides is carried out. This may not be required on some second and subsequent rotation sites due to the absence of annual weeds and grasses.

In the winter following planting a second year weed control operation will generally be required to ensure that the young trees continue to develop in a weed free environment.

Any additional weed control treatments are implemented taking into account; the cost of the operation, the expected benefit to the plantation and any possible environmental effects.

Chemicals used to control weeds must be used in accordance with the Public Health Guidelines on the use of chemicals in rural areas contained in the "Health Act (1911) - Health (Pesticides) Regulations 1956" and with the "Country Areas Water Supply Act 1947" and related Environmental Protection Policies for water catchments.

Only herbicides that are registered for use in plantations or have been permitted for use by the National Registration Authority, under the national permit scheme can be used. Herbicides are used in accordance with label and permit requirements.

All herbicides utilized will have the appropriate "Environmental Safety Risk Analysis" (ESRA) completed by Forestry and Management System Staff

Only appropriately licensed operators will be allowed to apply herbicides. See **STATEMENT 03 - WAPRES Chemical Usage Statement** and **WAPRES 4245 - Pre-plant Weed Control**.

8.8.4. Fertilising

Fertilisers are applied to plantations to ensure that the full growth potential is achieved taking into account economic and environmental considerations.

Prior to planting a soil nutrient analysis is undertaken to determine the type and rate of fertiliser (if any) to be used at the time of planting. Actual application of this fertiliser may take place either shortly before or after planting depending on the soil nutrient status, soil type and type of fertiliser used.

Plantations are monitored for nutrient status both informally during routine inspections but also formally during major Forest Health Surveys (FHS) carried out during autumn one year after planting where leaf tissue samples are analysed. These will be used as a basis to determine additional fertiliser requirements.

The application of fertilizers in gazetted catchments must conform with the "Country Areas Water Supply Act 1947: and related Environmental Protection Policies for water catchments. Fertilisers will

not be broadcast applied within 10 meters of a waterway. See **STATEMENT 03 - WAPRES Chemical Usage Statement** and **WAPRES 4255 - Fertilising**.

8.8.5. Planting

Stocking rates for plantations will be based on the results of formal spacing trials and will take into account the need to optimize volume production and piece size, as well as the rainfall and soil characteristics of the site.

Hand planting using a potti-putki or similar planting tube gives the best results and is used in preference to machine planting.

8.8.6. Insect control

Plantations receive regular monitoring especially at known times of peak insect activity and insecticides are applied when insect populations exceed threshold levels.

Use of insecticides must be in accordance with the Public Health Guidelines on the use of chemicals in rural areas contained in the Health Act (1911) - Health (Pesticides) Regulations 1956 and in water catchments must be in accordance with the Country Areas Water Supply Act 1947 and related Environmental Protection Policies for water catchments. Chemicals on the FSC® Highly Hazardous list are not used without an approved ESRA in place.

Aerial application of insecticides must be in accordance with the Aerial Spraying Control Act 1966 and if requested by neighbours a "Spray Application Management Plan for Spraying of Insecticides Close to Licensed Aquaculture Industry" will be prepared.

Insecticides will only be used if they are registered by the National Registration Authority or under a permit according to the national permit scheme. Rates and methods of application must be in accordance with permit and label requirements.

All insecticides utilized will have the appropriate "Environmental Safety Risk Analysis" (ESRA) completed by Forestry and Management System Staff

Only appropriately licensed operators will be allowed to apply insecticides. Supervising staff must also hold the appropriate license. See **STATEMENT 03 - WAPRES Chemical Usage Statement** for WAPRES policy on chemical use and **WAPRES 4325 - Insect Control**.

9. Monitoring and Measuring

9.1. Plantation Inspections

Plantation inspections are carried in order to monitor plantation health, schedule maintenance works and fulfil client obligations. The frequency of inspections on WAPRES managed plantations will vary depending on the age of the plantations as follows;

9.1.1. New Plantings (Year 0 - 0.5)

These plantations are visited at least twice weekly while key operations such as ripping and mounding, weed control, planting and fertilizing are being carried out. Inspections are then carried out at least once a month until the end of the December following planting except where replanting is required. In replant areas the inspection frequency reverts to that for a new plantation.

9.1.2. WAPRES Group Plantations Years 0.5 – 4 & Client Managed Years 0.5-harvest

Inspections of these plantations are carried out at six monthly intervals during the year. These generally occur about April and September.

9.1.3. Year 5 + WAPRES Group Plantations

These plantations are inspected annually during the year (about September- October).

See **WAPRES 4345 - Plantation Inspections**.

9.2. Survival Counts and Replanting

WAPRES employees carry out formal survival counts during the autumn after planting, or in the case of coppice 6-8 months post-harvest to determine whether any areas fail to meet the survival objective of 70%). These areas are replanted in the following winter. This process is described in **WAPRES 4335 - Survival Count** and **WAPRES 4340 - Replanting**.

9.3. Forest Health Surveys

WAPRES conducts a formal Forest Health Survey (FHS) in the first autumn after planting. The objectives of the FHS are to identify any factors that are having an adverse impact on plantation health that are not readily identified during the routine plantation inspections (e.g. nutrient deficiencies). See **WAPRES 4350 - Forest Health Survey**.

9.4. Inventory

WAPRES has historically carried out two standard inventories per rotation on plantations it manages at age 4.5 and 7.5. These inventories have however become more targeted over the last couple of years and some plantations may now only receive one inventory per rotation.

10. FIRE CONTROL.

As owners and managers of a substantial investment in plantations and as a processor and exporter of large quantities of high quality woodchips, WAPRES has a strong interest in ensuring that the plantations it manages remain free of damaging agents including fire.

WAPRES has developed a Fire Management Plan and invests in a number of fire mitigation strategies, including maintaining a fire response team and a 24hr Fire Line, liaising with local fire brigades and government agencies, signatory to the "WA Plantation Managers Fire Agreement".

To ensure that this excellent record is maintained WAPRES continues to place great emphasis on fire protection management and will conform to the Fire Protection Management Policy below.

10.1. Duty roster

WAPRES is part of an industry collaborative that maintains a seven day a week, 24-hour a day duty roster throughout the fire season, coordinated by experienced Duty Officers. A dedicated telephone number is maintained for duty officer contact, and this number is made available to all lessors, neighbours, local authorities, bushfire brigades and other relevant individuals and groups including Department of Biodiversity and Attractions (DBCA) and the Department of Fire and Emergency Services (DFES).

The Duty Officer is responsible for placing suppression crews and equipment on standby across WAPRES' entire operational area in accordance with Fire Weather Forecasts and fire activity.

10.2. Equipment

The Duty Officer will in accordance with priorities manage the deployment of this equipment.

All equipment is regularly checked during the fire season through Pre-start checks with a maintenance program carried out prior to the commencement of each fire season in line with the Pre-season Fire refresher.

10.3. Training

WAPRES ensures that personnel involved in fire control activities are trained as outlined in the '**WAPRES 04 - Minimum Fire Training Requirements for WAPRES staff for Fire Control Activities'**.

10.4. Firebreaks

WAPRES install firebreaks in accordance with the relevant local authority firebreak orders for both internal and external firebreaks. WAPRES will also ensure that setbacks from power lines conform to Western Power requirements.

Firebreaks receive a maintenance grade where required to minimise the potential for erosion and to ensure that trafficability for fire equipment is maintained. In rare cases where access along firebreaks is compromised by topography, this will be clearly marked on maps and with signs in the field.

10.5. Maps

WAPRES produces detailed Fire maps for all the plantations under its management showing as a minimum, the main access point, compartment boundaries, firebreaks, roads, water points, power lines native bush, sensitive areas and details of adjoining properties including names and contact details where possible.

The maps are available to the property owner, bushfire brigade, local authority and any other appropriate fire agency e.g. DBCA and DFES. Copies are available in waterproof containers near the main access point on plantations.

10.6. Water points

WAPRES identifies existing plantation water points to ensure that water is readily available for the refilling of fire units. Where this is impractical (generally on a small plantation) it will ensure that water is available within a 20 minute turn-around time outside the plantation.

10.7. Signage

WAPRES signposts all plantations under its management with fire contact information, water point and general access signs to ensure safe access and egress. In particular it will ensure that signs are erected in areas where summer access is 4WD only, where steep slopes exist and where access is impossible past a certain point to ensure fire crews can retreat readily if required.

10.8. Communications

WAPRES installs VHF and UHF radios in all fire units allowing communication with all other fire suppression agencies including local authorities, bushfire brigades as well as DBCA and DFES. WAPRES also installs mobile telephones in all key fire units to further improve communications capability.

10.9. Bushfire Brigades

WAPRES will in most cases rely on the bushfire brigades to provide the initial fire suppression capability in the event of a wildfire occurring on or near one of its plantations. However, we make it clear to all relevant brigades that we are also willing to assist in and be available to carry out fire suppression activities in these brigade areas, even where fires are not directly threatening one of our plantations. Where WAPRES is notified of a wildfire in one of the relevant brigade areas and where assistance is requested, the duty officer will authorise the appropriate equipment to be dispatched if this equipment is not already committed.

10.10. Insurance

WAPRES maintains comprehensive fire insurance cover for its own plantation estate.

SECTION B – HARVESTING PRACTICES

11. HARVESTING.

Bluegums are generally harvested after 10 years. At this stage a tree is ideally about 25 metres tall, 25 centimetres in diameter and produces logs upwards of one third of a tonne.

WAPRES plans and supervises the harvest operations within its estate. Local contracting crews are employed to harvest and haul the timber product whilst complying with WAPRES policy and procedures.

Timber must be provided in a continuous managed flow to the Bunbury Port. The limited stockpile area means there is little surplus capacity, and conversely any timber shortfall can prove very costly in terms of lost production. Unpredictable factors such as market conditions, machine breakdowns or bushfires frequently come into play and harvest management must be adaptive in order to respond to the changing environment.

11.1. Harvesting Objectives

WAPRES objectives during harvest operations are:

- To obtain maximum utilisation from plantations using the most cost effective and appropriate methods.
- To use competent personnel to achieve the necessary standards of safety and environmental care.
- To comply with Company and Industry Standards.
- To complete the Harvesting Inspection Report for each plantation, assessing operational, safety and environmental aspects and ensuring operations comply with obligations.

11.1.1. Haulage Objectives:

- To ensure logs are supplied to designated processing centres and loads are secured safely with minimal damage to roads both on & off the plantation.
- To comply with Company & Industry Standards.
- To use competent personnel to achieve the necessary standards of safety and environmental care.

11.1.2. Post-Harvest Objectives:

- To rehabilitate harvested areas to agreed standards, including roads, firebreaks, erosion control and drainage measures where required.
- To ensure operations have complied with obligations to wood owners, landowners, neighbours, and local community.

11.2. Harvest Planning

Planning for harvest starts years before the plantation is of age, in order to prepare for seasonality constraints, production and shipping requirements. Contractor and harvesting system allocations are

made considering second rotation requirements, including whether to coppice or replant. WAPRES also considers the returns to the grower, taking into account distance to mill, cost of harvesting and second rotation requirements. Lease constraints are also a major factor.

The planning process includes Due Diligence checks to ensure that the harvest operation will not impact on High Conservation Values and that the wood will comply with Chain of Custody and Controlled Wood requirements. See **P16 - Due Diligence System.**

A **Timber Harvest Plan** (THP) is prepared for each harvest operation and copies are distributed to all supervisors, operators and truck drivers. The information provided includes:

- A **Timber Harvest Plan Map**
- Contract numbers
- Certification details
- Contact details of supervisors and contractors
- Period of harvest operation
- Haulage routes and restrictions
- School bus times and bus driver contacts if applicable
- Fire contact details
- Fire unit requirements
- Emergency evacuation points
- Harvest methods to be used
- Environmental controls
- Exclusion zones
- Refuelling and maintenance guidelines
- Reference to **JHAs** for known hazards - e.g. powerlines, steep slopes
- OHS requirements
- Special Values (e.g. threatened species, cultural sites)
- Threatened Species Identikit

See **WAPRES 5050**- **Pre-Harvest Information** and **WAPRES 5060 - Timber Harvest Plan**.

11.2.1. Road Building

Plantation roads generally require upgrading prior to harvest to accommodate haulage vehicles. Ideally this occurs two years prior to the proposed harvest, or as soon as practicable once a plantation is scheduled.

Consideration is given to landowner preferences, existing alignments, expected traffic volume, soil characteristics, drainage, and sensitive areas.

Liaison with local government, landowners, neighbours and the Department of Parks and Wildlife may be required during the planning and building process. Permits are obtained for haulage vehicles to use local government roads.

See **WAPRES 5070 - Road Works Plan** and **WAPRES 5080 - Road Works.**

11.2.2. Neighbour Notification

WAPRES distributes Harvest Notifications to landowners and neighbours to the plantation and along haul routes. The notification contains information on the operation, haul route, harvest period and contact details of WAPRES supervisors.

Any queries or comments from stakeholders are addressed to WAPRES' best ability and are recorded on the relevant plantation file.

11.3. Harvest Operations

Plantations are harvested either with a single grip harvester (fell, process and cut to length at the stump) or a feller buncher (felled, bunched and left in tree length for extraction to roadside).

The logs are collected either using a Forwarder or by a Skidder. The Forwarder grapple is mounted on the boom and hoists groups of logs onto a carry bay. It collects a full bay of logs before returning to a landing at the edge of a haul road. It can then stockpile the wood whilst waiting for a truck or load the logs directly onto a truck. The Skidder extracts bunches of logs to roadside for processing and loading to trucks. Experienced operators are capable of harvesting and loading in excess of 200 tonnes of logs per day in good forest conditions.

Conventional Harvesting - which incorporates a Single Grip processor used to harvest and process the logs, (debark and cut to length) and a forwarder to carry the logs to a loading site. This technique is suitable for high production sites with rough steep ground, and small difficult blocks.

Roadside Harvesting - which uses a Feller Buncher (using either shears or a bunching saw) to harvest the trees and a skidder to extract the trees to roadside where a Single Grip processor processes the logs, which are then loaded onto trucks. This technique is suitable for very good stands of timber with level ground for the log landing/processing areas.

Mobile chipping units are also used to process logs into chips in the field. This method utilises a Feller Buncher (using either shears or a bunching saw) to harvest the trees and a skidder to extract the trees to roadside where the Infield Chipper processes the trees into chips. The chips are either loaded directly, or via a portable screen, onto the haulage trucks. This technique is most suitable for plantations with low yields and poor form trees, along with relatively level areas for the infield chipper processing site.

11.3.1. Supervision

The level of supervision by WAPRES varies with the complexity of the operation, quality of the contractors' work and site conditions. Daily supervision may be required during commencement of operations, when new contractors are engaged and when operating conditions are changing or approaching sensitive levels where risks of impact on soil, water, road or landscape quality increase.

See **WAPRES 5090 - Supervision of WAPRES Harvesting Operations.**

11.3.2. Safety

Harvesting in Progress signage is placed at the entry to plantations or relevant compartments warning of restricted access and specifying the UHF call up channel. Signage also states the required PPE - at a minimum high visibility clothing, safety boots and a hardhat to be worn at all times when outside a vehicle. Machinery exclusion zones are to be observed at all times.

JHAs are prepared for potentially dangerous tasks such as operating on steep slopes and near powerlines.

When loading trucks, the Truck Driver must stand outside the vehicle in a safe location and be visible to the loader operator during the loading of each bay.

11.3.3. Environmental Considerations

Pre-harvest planning identifies special values relevant to each operation. A threatened species identikit tailored to each plantation is provided to the harvest crew. Operators also have access to the booklet Special Values of the SW Plantation Estate which contains more information on threatened species and ecosystems. If a threatened species is identified in the harvest area, operations are to stop and a WAPRES supervisor is to be notified. The species will be reported to DPaW with a Fauna/Flora Report Form.

Any oil or hydrocarbon spills are required to be cleaned up, regardless of size. Spills over 20L are to be reported and raised as a **WAPRES F2.0 - Incident Note**. Refuelling and vehicle maintenance is prohibited to occur near watercourses.

See **WAPRES 9020 - Chemical and Hydrocarbon Incident Management Guidelines.**

All areas of remnant vegetation are operational exclusion zones and vehicle entry is prohibited unless authorised by a WAPRES Supervisor.

Buffer zones around watercourses are in place with the following certification requirements.

For FSC® Forest Management requires buffer zones to be10 metres from both river/stream edges, and 2 metres from either side from the centre of drainage lines.

For FSC® Controlled Wood requires buffer zones to be 6 metres from both river/stream edges.

Additionally, any water course crossing require approval by WAPRES before being used.

Harvest debris is not permitted to be deposited in watercourses (temporary crossings may be constructed using harvest debris however must be approved by WAPRES Supervisor and be removed when harvesting has been completed).

If soil damage exceeds the trigger point of 30m long by 30cm deep, operations are to cease and the **Harvesting Supervisor** is to assess the situation and consider strategies to avoid further damage. An **WAPRES F2.0 - Incident Note** is raised. If more than 2% of a compartment is affected, operations must cease until conditions improve. See **WAPRES 5400 - Field Assessment of Soil Damage**

Dust from haulage vehicles on unsealed roads can be an issue to residents along haul routes. Strategies such as reducing speed limits, using dust suppressants, or altering routes or times may be implemented by the **Harvesting Supervisor**.

Turbidity (the level of cloudiness of water) is monitored by the **Harvesting Supervisor** when streams run through harvest areas. Any increase in turbidity is raised as an **WAPRES F2.0 - Incident Note** and measures are taken to identify and address the cause. See **WAPRES 9010 - Environmental Monitoring Guidelines**.

Spread of weeds or Phytophthora dieback is prevented by keeping to tracks, the washdown of vehicles and avoiding machine operation in excessively wet areas. See **WAPRES 9040 - Hygiene Control in Plantations.**

11.3.4. Weather Conditions

Operations may be halted during periods of high fire risk, extended or heavy rain or high wind. All harvesting, extraction and vehicle movements on plantations must cease when a Shire introduces a Vehicle Movement Ban or Harvest Ban, unless prior permission to continue has been obtained in writing.

11.3.5. Fire Prevention

Each harvesting unit is required to have a fire unit and for this to be fitted and operational during the restricted burning period. Each machine is fitted with a fire extinguisher.

11.3.6. Asset Utilisation

Waste Assessments are conducted if it appears that wasted wood fibre (eg excess stump height, discarded logs) is exceeding a level of 2.5 tonnes per hectare. See **WAPRES 5090 - Supervision of Harvesting Operations** for details.

11.3.7. Haulage

Logs and chips are transported to processing facilities by heavy haulage vehicles operated by specialist contractors. The trucks are equipped with many features designed to optimise efficiency without any compromise to safety or road wear. Such features include fixed high stanchion log trailers and trucks fitted with Central Tyre Inflation (CTI). All contractors must comply with load and vehicle length specifications required by road authorities and with the FIFWA Code of Conduct for Timber Haulage. WAPRES also complies with the National Heavy Vehicle Regulator Chain of Responsibility requirements.

11.3.8. Chain of Custody

Unique barcoded delivery tickets are developed for each harvest operation and are provided to truck drivers for each load. This barcode is required for entry to the Port and allows the tracking of product from each plantation.

See: **WAPRES P15 - Chain of Custody**

11.4. Post Harvest

On completion of a harvest operation, WAPRES **Harvest Supervisors** conduct a Harvest and Haulage Inspection to determine all conditions were followed. Any breaches result in **WAPRES F2.0 - Incident Note** being raised against the relevant contractor.

No rubbish is permitted to be left onsite. Any damage to fences or infrastructure must be repaired.

This inspection may also note requirements for remedial work such as grading rutted firebreaks, repairing road damage, ripping areas of compacted soil, rehabilitating gravel pits or repairing fences.

WAPRES advises and supervises contractors to complete the required work.

The tree stumps remain, and the slash material is usually left to break down naturally on the ground. See: 7.6 - Treatment of Slash Following Harvesting.

If the plantation lease continues, management reverts back to **Foresters** who will make preparations for the establishment of the next rotation.

DOCUMENT REVIEW:

To be updated as required or reviewed within a 12-month period by **Management Systems personnel,** the **Compliance and Systems Manager,** and **Fibre Procurement and Supply Manager, Estate Manager, Plantation and Nursery Manager** and approved by the **Chief Executive Officer**.

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WAPRES 05 - WAPRES High Conservation Value Management Plan

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WAPRES 07 - WAPRES Fire Management Plan

WAPRES Statement 01 - Good Neighbour Statement

WAPRES Statement 03 - Chemical Usage Statement

WAPRES Policy 02 - Plantation Management Policy

WAPRES P16 - Chain of Custody

WAPRES 04 - Minimum Fire Training Requirements for WAPRES staff for Fire Control Activities

WAPRES 4240 - Cultivation

WAPRES 4325 - Insect Control

WAPRES 4335 - Survival Count

WAPRES 4340 - Replanting

WAPRES 4345 - Plantation Inspections

WAPRES 4350 - Forest Health Survey

WAPRES 5070 - Road Works Plan

WAPRES 5090 - Supervision of Harvesting Operations

WAPRES 5092 - Harvesting Operational Requirements

WAPRES 5098 - Post Harvest Remedial Work

WAPRES 5400 - Field Assessment of Soil Damage

WAPRES Environmental Care Manual Documents

WAPRES 9000 - The Principles of Environmental Care

WAPRES 9010 - Environmental Monitoring Guidelines

WAPRES 9040 - Hygiene Control in Plantations

WAPRES 9020 - Chemical and Hydrocarbon Incident Management Guidelines

WAPRES 9050 - Hygiene Control in Plantations

WAPRES 9060 - The Protection of Soil and Water Resources in Plantations

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REVISION HISTORY:

REVISION	DATE	DESCRIPTION	PREPARED BY	REVIEWED BY	APPROVED BY
00	Mar 2006	Initial issue	J. Hales	W. Hammond	R. Breidahl
01	Oct 2007	Revision 01	J. Hales	W. Hammond	R. Breidahl
02	May 2008	Revision 02	A. Archer	W. Hammond	R. Breidahl
03	Sept 2009	Update for smithii site requirements & expected harvest volumes	A. Archer	W. Hammond	R. Breidahl
04	Nov 2009	Included DFA	A. Archer	W. Hammond	R. Breidahl
05	Jan 2010	Reviewed regarding incorporation of FSC® CoC	A. Archer	W. Hammond	R. Breidahl
06	Jul 2011	Changes to Silvicultural Systems	A. Archer	R. Breidahl	R. Breidahl
07	Oct 2011	Major review - many changes	A. Archer	R. Breidahl	R. Breidahl
08	Jun 2013	Many changes, add contents, numbering, addition of 2.2, 2.3	D. Rumenos	I. Telfer W. Hammond D. Gibellini G. Johnson	I. Telfer
09	Feb 2014	Update DFA, minor changes	D. Rumenos	I. Telfer D. Gibellini W. Hammond	I. Telfer
10	July 2014	Add section 2, major changes to productivity decline discussion, minor changes throughout	D. Rumenos	I. Telfer D. Gibellini W. Hammond R. Breidahl S. Mathieson	I. Telfer
11	Dec 2015	Edited information regarding the HCV cultural heritage	A. Clifton	A. Clifton	W. Hammond
12	May 2016	Expand Harvesting section, update figures, changes to wording throughout, remove refs to Carpenters	D. Rumenos	I. Telfer D. Gibellini W. Hammond	I. Telfer
13	Dec 2016	Updated DFA and net stock area figures for EOY 2016	A. Clifton	A. Clifton	W. Hammond
14	Nov 2017	Addition to 2.2 added reference to tree farmer evenings	A. Clifton	A. Clifton	W. Hammond
15	Dec 2017	Update DFA	A. Clifton	A. Clifton	W. Hammond
16	May 2018	Add reference to and address Schirmer 2017 report.	D. Rumenos	W. Hammond D. Gibellini I Telfer	I. Telfer
17	Jun 2019	Updated buffer zones and updates to RW Acronyms	A. Clifton	A. Clifton	W. Hammond
18	Jul 2019	Updated to FSC® Trademark info	A. Clifton	A. Clifton	W. Hammond
19	July 2020	Update DFA figures	A. Kiely	W. Hammond	W. Hammond
20	Aug 2021	Added statement regarding Bribery and Corruption	W. Hammond	W. Hammond	W. Hammond
21	Mar 2023	Major review including change in title of document to Forest Management Plan	A. Kiely	W. Hammond M. Giles G. Johnson C. Newman	I. Telfer

APPENDICIES:

None.