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Objective

Describe the systematic process for identifying, assessing, managing and monitoring natural property values such as biodiversity, water, soil, social and cultural heritage.

Scope

This procedure is applicable to the entire Australian Bluegum Plantations (ABP) estate.

Related Documents

Internal Documents

OP 7098 Natural Values Management and Monitoring Register – WA and GT
CL 7018 Evaluation Summary
OP7423 Koala Plan
Special Values Booklets

External Documents

Proforest HCVF Global Toolkit
Heritage Rivers Act 1992
Rivers and Streams Special Investigation (LCC, 1991)
Identification and Mapping of High Conservation Value Areas Across the Australian Bluegum Plantation Estate By Dr Paul Koch, Senior Ecologist, Greening Australia March 2012.
Aboriginal Heritage Act 2006 (VIC)
Aboriginal Heritage Regulations 2007 (VIC)
Aboriginal Heritage Act 1988 (SA)
Aboriginal Heritage Act 1972 (WA)
Aboriginal Heritage Due Diligence Guidelines (WA) Version 3 30 April 2013
Directory of Information Sources (<http://au.fsc.org/high-conservation-values.208.htm>)
ICOMOS Burra Charter for
Places of Cultural Significance 2013 (<http://australia.icomos.org/wp-content/uploads/The-Burra-Charter-2013-Adopted-31.10.2013.pdf>)

Definitions & Terms

Term	Definition
Cultural heritage	Includes natural, historic and Indigenous aspects and is made up of those things that people value, objects, places, artefacts and concepts such as ideas, beliefs, traditions and behaviours. A cultural heritage site can be a whole region or landscape, or a small area such as a land feature, object or building, which is valued by people for its historical significance, or social significance.
Cultural significance	<i>Aesthetic, historic, scientific, social or spiritual value for past, present or future generations. Cultural significant is embedded in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects. Place may have a range of values for different individuals or groups (ICOMOS Burra Charter)</i>
EVC (Victoria only)	Ecological Vegetation Classes (EVC) is a level of classification. An EVC consists of one or a number of floristic communities that appear to be associated with a recognisable environmental niche. Each EVC is described by a combination of its structure, floristic, life-form and reproductive strategy features, and through an inferred fidelity to particular environmental attributes.
Endangered EVC (Victoria only)	EVC where less than 10% of former range OR less than 10% pre-European extent remains (or a combination of depletion, loss of quality, current threats and rarity that gives a comparable status e.g. 10 to 30% pre-European extent remains and severely degraded).
FMU	Forest Management Unit
High Conservation Value Forest (HCVF)	An area of forest required to maintain or enhance a High Conservation Value (HCV) that must possess one or more of the following attributes: <ul style="list-style-type: none"> • Forest areas containing globally, nationally, or regionally significant concentrations of biodiversity values (threatened, endemism, refugia) and/or large landscape level forests contained within or containing the management unit, where viable populations of most, if not all, naturally occurring species exist in natural patterns of distribution and abundance. • Forest ecosystems within or containing rare, threatened or endangered ecosystems. • Forest areas that provide basic services of nature in critical situations (eg. erosion, watershed protection). • Forest areas fundamental to meeting basic needs or critical to a local community's cultural identity.
Natural value	Biodiversity, Aboriginal, Cultural or European heritage value
Precautionary management	A course of action that makes the best use of the available information about the impacts of your operations, and takes steps to implement best practice, while recognising that ongoing monitoring is necessary to fully understand how to maintain the value.
Precautionary principle	Where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat.

Identify and assess natural values

Identify

Prior to land acquisition preliminary information on natural values is obtained from various sources including the previous landowner.

Areas of cultural significance

At acquisition and prior to harvesting of ABP and third party (controlled wood) sites, relevant cultural heritage databases are consulted for each property. The [FSC Australia Directory of Information Sources](#) and Appendix 1 provide more information about these databases. Further consultation with local Aboriginal groups may be required if a site is identified during this process. Land acquisition is conditional upon the results of the cultural heritage check. Cultural heritage sites are recorded in the Natural Values Management and Monitoring Registers.

In the event of a previously unknown site being discovered during operations, the following will occur. Staff and contractors are told about this process during their induction.

- All works will cease immediately
- The area will be secured to prevent consequential damage
- The ABP Supervisor/Representative will be notified
- The ABP Supervisor/Representative will consult with relevant Indigenous groups or authorities about the long term protection of the site
- Work will recommence only after approval by ABP has been given

Where applicable, The Aboriginal Heritage Due Diligence Guidelines and the Burra Charter: The Australia ICOMOS Charter of Places of Cultural Significance 1999 will be used to guide the above.

European heritage

Prior to property establishment and harvesting of ABP and third party (controlled wood) sites the HSEC will identify any known European heritage areas using the [FSC Australia Directory of Information Sources](#) and/or sources listed in Appendix 1.

Regional catchment goals

In consultation with relevant stakeholders listed in Appendix 1, any authorised regional catchment goals will be identified where available and recorded into the relevant Natural Values Management and Monitoring Register.

Biodiversity

Prior to establishment and harvesting of ABP and third party (controlled wood) sites HSEC will identify any known biodiversity values (including any standing and fallen dead wood habitats) using the [FSC Australia Directory of Information Sources](#) and/or sources listed in [Appendix 1](#) and through consultation with operations staff.

Records of searches will be saved to property folders.

EVCs

For Victorian plantations, the endangered EVC layer from the Biodiversity Mapping Tool is overlaid with the plantation. Endangered EVCs not intersecting with plantations are displayed on the Environment and Hazard Maps. These areas are to be treated as strict exclusion zones from forest operations. There are certain EVCs that meet the criteria of HCVF and will be displayed as HCVF on the plantation maps. These are EVC 55_61, 55_63, 651, 649, and 897.

Assess, consult and document

HSEC will assess each of the identified values for significance against the criteria listed in Appendix 2. Further consultation with relevant stakeholders may then be conducted for any potential High Conservation Values (HCV) identified. Records of consultation will be logged into the appropriate Stakeholder Register. Once HCV and other values have been confirmed details of their location, values, threats, management, and monitoring will be recorded in the relevant Natural Values Management and Monitoring Register, and then communicated to ABP staff via email and/or regional meetings. Where appropriate, results are made publically available through industry forums and community workshops.

Regional Special Values Booklets are an additional resource to communicate values and educational resources for staff and contractors. Booklets are updated as required. Contractors are made aware of values through inductions; Special Values Booklets; environment and hazard maps and harvest plans.

Management of high conservation and other values

As a priority each identified HCV will be maintained, protected or enhanced and its management outlined in the relevant Natural Values Management and Monitoring Register. Primarily areas of HCVF and other values are excluded from our key operations. Where available, recovery plans, conservation advices and/or equivalent instruments will be considered when developing management prescriptions for threatened species. To ensure this information is up to date ABP will use the following sources.

WA – Department of Parks and Wildlife (DPaW)

Approved recovery plans

<http://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/197-approved-recovery-plans>

Approved interim recovery plans

<https://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/198-approved-interim-recovery-plans>

VIC – Department of Environment, Land, Water and Planning (DELWP)

<http://www.depi.vic.gov.au/environment-and-wildlife/threatened-species-and-communities/flora-and-fauna-guarantee-act-1988/action-statements>

SA – Department of Environment, Water and Natural Resources

Plants - http://www.environment.sa.gov.au/managing-natural-resources/Plants_Animals/Threatened_species_ecological_communities/Recovery_planning/Plans_for_threatened_plants_in_SA

Animals - http://www.environment.sa.gov.au/managing-natural-resources/Plants_Animals/Threatened_species_ecological_communities/Recovery_planning/Plans_for_threatened_animals_in_SA

Ecological communities - http://www.environment.sa.gov.au/managing-natural-resources/Plants_Animals/Threatened_species_ecological_communities/Recovery_planning/Plans_for_nationally_threatened_ecological_communities_in_SA

SPRAT - <http://www.environment.gov.au/cgi-bin/sprat/public/publicshowallrps.pl>

Identifying, assessing, prioritising and controlling damage agents

Damaging agents have been prioritised according to legislative requirements and management recommendations of the values to be conserved. The priorities in the table below are ranked in order of importance, from 1 (highest) to 6 (lowest).

<i>Damage Agent</i>	<i>WA Priority</i>	<i>GT Priority</i>
Dieback (<i>P. cinnamomi</i>)	1	4
Myrtle Rust	2	1
Weeds	3	2
Wildlings	4	3
Feral animals	5	5
Domestic livestock	6	6

Dieback

Australian biodiversity assets are threatened by the spread of *Phytophthora cinnamomi*, commonly referred to as dieback. Susceptible plants may die out completely where infection is present. Figure 1 below shows the location of *P. cinnamomi* records throughout Australia.

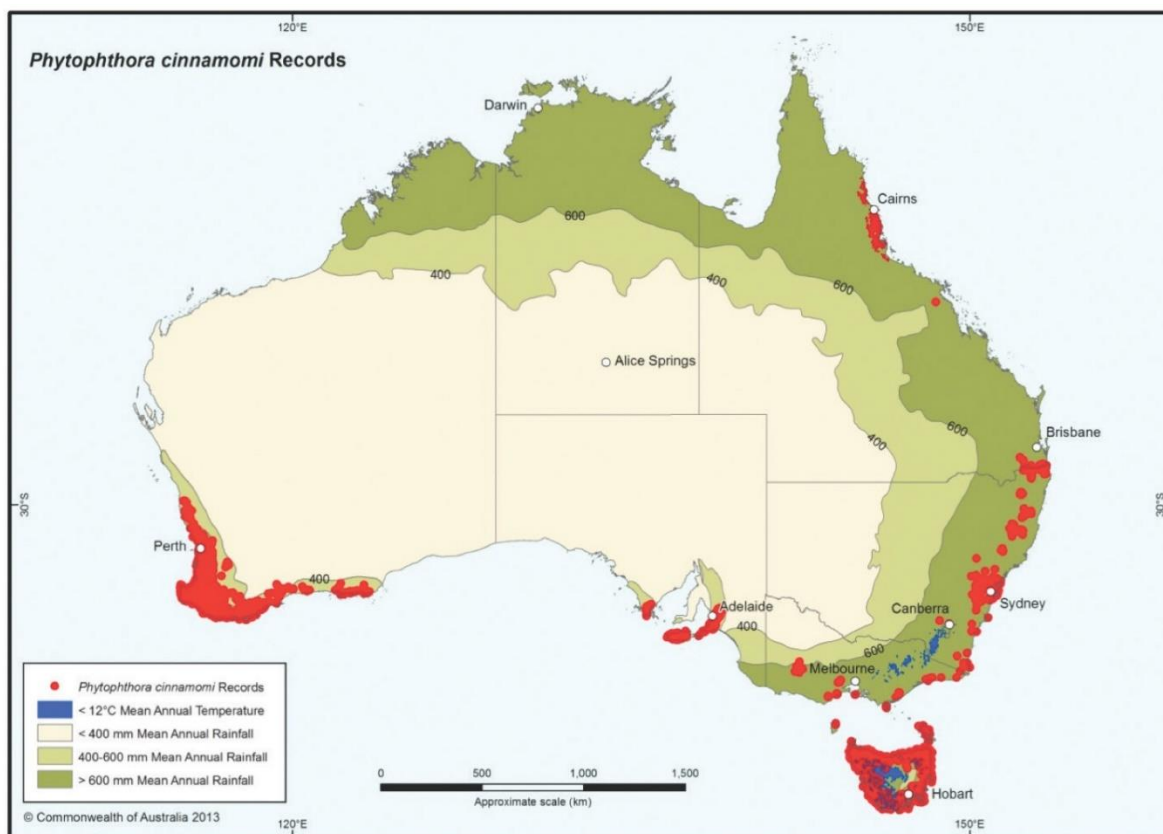


Figure 1. Records of *P. cinnamomi* throughout Australia (Commonwealth of Australia, 2014a)

P. cinnamomi is found throughout areas of Mediterranean climate which receive above 600 mm annual rainfall. Where annual rainfall is between 400 mm and 600 mm, *P. cinnamomi* tends to be confined to stream systems and road verges (especially table drains).

Figure 1 shows that dieback is widespread throughout the southwest of Western Australia, extending between Eneabba and Esperance. More than 40% of plant species in this region are susceptible to dieback and once infected are killed. There are also records of dieback from the Grampians in Victoria, however

the spread of dieback has not been comprehensively documented in Victoria. Common native plants that are susceptible include Jarrah, Banksia, grass trees, Zamia palms, Dryandra and Hakea species.

Signs that plant death could be caused by *P. cinnamomi* include:

- Lines, groups or localised areas of plant deaths are more likely to be caused by *P. cinnamomi* than odd, scattered individual plant deaths in otherwise healthy vegetation.
- An edge effect. Edge effects are most obvious when there is a clear distinction between healthy and diseased vegetation.
- Old deaths and recently killed plants, that is, an 'age range' in the deaths. This is because *P. cinnamomi* moves from plant to plant over time, killing each plant as it goes.
- Plant deaths that are localised within a distinct area of the property often at a low lying water accumulating area. Lines, groups or localised areas of plant deaths are more likely to be caused by *P. cinnamomi* than odd scattered individual plant deaths in otherwise healthy vegetation.
- Signs of the disease in a range of susceptible plant species.
- Something that could have introduced the disease, for example a track, road or vehicle activity.

ABP has assessed the risk of operational activities spreading dieback as high in Western Australia and as moderate within the Green Triangle. The 'Framework for Hygiene Management Planning' in Appendix 3, outlines the assessment process that all ABP blocks are assessed against prior to activities commencing.

In general the following standard hygiene strategies are recommended across all high risk areas (SCNRM, 2011).

1. Restrict activities to dry soil conditions whenever possible and/or low rainfall months (Nov-Mar). 'Dry' means at a level where there is no significant pickup of soil/gravel/mud from road/track surfaces. This practice will reduced the time needed for vehicle clean down at hygiene points.
2. Ensure all vehicles/equipment/footwear are free of soil prior to entering and exiting bushland or adjacent areas and clean down between sites.
3. Minimise soil disturbance wherever possible.
4. Develop plan for traffic management to protect uninfected areas.
5. Develop plan for movement between sites within bushland area to flow from uninfested to infested areas.
6. Only uninfested raw material will be used for all earthworks within dieback free or protectable areas and/or in-situ material in uninterpretable areas.
7. Staff to attend a dieback information workshop such as Green Card prior to commencement of on-ground works.

For more information on dieback see Dieback.org.au or [Dieback - Natural Resource Management Regions in southwest Australia](#).

Where dieback is present in the GT, and there is a threat that it could be spread, ABP will operate in accordance with the Victorian Code of Practice for Timber Plantations (2014) and the Guidelines for Plantation Forestry in South Australia (2009) and appropriate hygiene measures will be implemented.

Dieback has been identified in the EPBC Act as a threatening process. As outlined in the *Threat abatement plan for disease in natural ecosystems caused by *Phytophthora cinnamomi** (Commonwealth of Australia, 2014b), Commonwealth, State, Territory and local Governments have identified priorities listed to better inform the threat of *P. cinnamomi* in Australia. As these priorities are completed, ABP will ensure that the information obtained is incorporated into future revisions of this Natural Values Management Plan as '*The costs of on-ground survey and sample analyses have made the initial mapping or updating of maps expensive and only applicable ahead of major operations requiring disease demarcation* (Commonwealth of Australia, 2014a).'

Myrtle Rust

The primary biosecurity threat to ABP is Myrtle Rust. ABP's management response is guided by the 4 categories for emergency plant pests and diseases according to [Plant Health Australia](#). The Australian plantation industry is signatory to the Emergency Plant Pest Response Deed which is a legally binding agreement between PHA, the Australian Government, all state and territory governments and national plant industry body signatories.

Weeds/Wildlings

Declared weeds and Weeds of National Significance (WONS) are controlled as per legislative requirements. Control of regional priority and agricultural weeds is undertaken in consultation with relevant stakeholders and where it is cost effective to do so. Wildlings are monitored through property inspections and control programs discussed, prioritised and actioned at regional operational meetings.

Refer to Weed and Pest Control procedure (OP-7018) and Weed and Pest Control Reference Guide for procedures and chemical rates etc.

Feral Animals

Fox, rabbit, pig and dog control programs are undertaken in accordance with schedules outlined in the Natural Values Management and Monitoring Registers and in conjunction with community programs (eg. conservation action plans, catchment group programs) where a population is of concern to neighbours or there is an increase in numbers which threaten natural areas and the fauna they support. Where possible to improve effectiveness programs are undertaken in conjunction with others conducted by stakeholders.

Fencing and Stock Exclusion

Livestock is considered a threat to all natural values and will be excluded.

Other Management

Standing and fallen dead wood habitats

Standing and fallen dead wood habitats should be retained. In Victoria and South Australia a permit is required to remove large standing dead trees which have a trunk diameter of 40 centimetres or more at a height of 1.3 metres above ground level. In WA dead trees are no longer classed as flora so a Wildlife Conservation Licence is not required for removal. In relation to standing trees an assessment must be undertaken by the Department of Environment Regulations Native Vegetation Branch before any tree is removed. These large dead trees and associated tree hollows provide important habitat and should not be removed without a permit. Large dead trees, associated with tree hollows and other dead vegetation can provide important nesting sites for many bird species and shelter for bats and small marsupial species.

Koala Program

Whilst koalas are not listed under the *EPBC Act 1999* (Commonwealth) in Victoria or South Australia, koalas are an important national icon. Koalas are resident in an area of the Green Triangle ABP estate. There is a risk to koalas on ABP plantations when undertaking harvesting and silviculture activities. A Koala Plan (OP-7423) details requirements for surveying, controlling risks, incident reporting and monitoring of koalas during and post operational activities. All staff and contractors working in these areas must be trained in this procedure and the appropriate Standard Operating Procedures.

EVC Management

EVC are treated as strict exclusion zones when undertaking forest operations. They have the same level of protection as HCVF, however the management and monitoring requirements may differ. Controlling high impact weeds, rabbits, fencing, stock exclusion or grazing are the most common management tools as outlined above. Decisions on what management is to be applied depends on location, extent, degree of threat, budget/cost, inclusion in other programs, and community involvement. HCVF has priority over other values. Below are links to fact sheets for management options and considerations.

<http://www.depi.vic.gov.au/environment-and-wildlife/biodiversity/native-vegetation/native-vegetation-permitted-clearing-regulations/native-vegetation-offsets/bushbroker/publication-and-statistics>

Soil and water protection

Soil and water protection is vital to ensure the ongoing sustainability of the land resource. ABP will take reasonable steps to mitigate any real or potential offsite environmental and or social impacts.

Soil

Operational procedures and controls ensure measures are in place to evaluate the potential impacts on the soil prior to commencing operations and to take any necessary actions to manage these risks.

During operations and once they have been completed, monitoring takes place to evaluate the effectiveness of the controls and revise them if necessary.

1. *Soil erosion*

Under normal circumstances, Forestry operations on ABP's Blue Gum plantations do not produce a significant risk of erosion. Soil erosion can be caused by Forestry operations and ABP actively minimises soil erosion through the implementation of the following procedures.

- Land Preparation (OP-7009)
- Plantation Access and Roding Specifications (OP-7439)
- Harvest Operation (OP-7403)
- Harvest Planning (OP-7400)

2. *Nutrient Retention*

ABP monitors the nutrient status of the plantations through foliar sampling and or soil analysis and can apply fertiliser to sites that are deficient in nutrients. Forestry practices are conducted to take nutrient status into consideration.

The following procedures outline how residues are managed and soil nutrients are maintained.

- Harvest Operation (OP-7403)
- Nutrition Procedure (OP-7021)
- Research (external and Internal)
- Harvest Planning (OP-7400)

3. *Compaction*

Soil compaction may occur on our operations due to excessive skidding or machinery traversing the same terrain frequently. Methods to minimise compaction include using broadcast slash and minimising movement over the same tracks. The following procedures outline how residues are managed.

- Land Preparation (OP-7009)
- Harvest Operation (OP-7403)
- Harvest Planning (OP-7400)

4. *Pollution*

Soil pollution may occur during operations through accidental discharge (spill) of fuels, oils, pesticides and fertilizer. ABP has developed the following procedures to substantially reduce the risk of accidental discharge and to clean up and properly dispose of contaminated soil is accidental discharge of pollutants occur.

- Contractor HSE Information and Induction Booklet (MP 001)
- Spill response Plan (OP-2001)
- Weed and Pest Management
- Nutrition Procedure (OP-7021)
- Harvest Planning (OP-7400)

Water

Forestry activities have the potential to interact both positively and negatively with aquatic resources. ABP's planning and management of their plantations will look to mitigate and/or eliminate potential negative impacts while taking into account the positive aspects of forestry, such as aquatic biodiversity enhancement. Water pollution may be caused by soil erosion or the uncontrolled discharge of chemicals.

1. Water pollution is caused in part by soil particles entering the water as a result of soil erosion. Correct planning, especially on certain sites where there is a greater risk of erosion and subsequent water pollution is essential. Correct use of setbacks and buffers is also essential to protect water quality. ABP has written the following procedures to substantially reduce the risk of water pollution from soil particles entering the water.
 - Land Preparation (OP-7009)
 - Plantation Access and Roding Specifications (OP-7439)
 - Harvest Operation (OP-7403)
 - Harvest Planning (OP-7400)
2. Water pollution from hydrocarbons, pesticides and fertilizers. Accidental spillage or leakage is detrimental to aquatic flora and fauna and can impair water quality. Training and safety are of primary importance to ensure correct use of pesticides and fertilizers. ABP has written the following procedures to substantially reduce the risk of water pollution from chemicals entering the water.
 - Contractor HSE Information and Induction Booklet (MP 001)
 - Spill response Plan (OP-2001)
 - Weed and Pest Control (OP-7018)
 - Nutrition Procedure (OP-7021)

Prescribed burning

Natural areas for ecological burning programs will be identified during plantation monitoring, annual HCVF assessments and in consultation with ABP staff and relevant environmental stakeholders. A burn plan and report will be completed by the Silvicultural Manager and HSEC staff. ABP in consultation with local landowners and authorities such as Department of Parks and Wildlife (DPaW); Department of Environment and Primary Industries (DEPI), Department of Fire and Emergency Services (DFES), Country Fire Authority (CFA) and Country Fire Services (CFS) will give consideration to any state legislative requirements, the objectives of the burn, plant and animal species known or assumed to be present, and the potential fire hazard of the native vegetation and adjacent land use.

At least 48 hours before a burn, neighbours and local brigades (if in restricted fire period) will be notified by the relevant Silvicultural Forester. Permits will be obtained where required. On the morning of the impending burn, a spot weather forecast with 4 day outlook will be obtained from the Bureau of Meteorology ensuring the optimum weather requirements outlined in the burn plan will be met ie. Suitable wind speed/direction, temperature and relative humidity. Once it is clear weather conditions are favourable, confirmation should then be given to the local Fire Control Officer that the burn will proceed. This should be done on the morning of the fire, prior to any lighting.

Once it has been confirmed the burn will go ahead roadside signs will be erected where required. All personnel participating in the burn will have the appropriate training and personal protection equipment (PPE). All staff involved in the burn will be made aware of the burn plan, lighting pattern and be in constant communication with the burn supervisor.

Completed burn plans and reports are saved electronically and in hard copy. A post burn inspection may be conducted periodically to monitor regrowth and burn success. Results are reviewed annually as part of management review.

Regional catchment goals and hydrological flows

Forest operations will be managed to ensure hydrological flows are in accordance with any authorised regional goals, where available. Where these goals are not available, the adverse environmental impacts of changes in hydrological flows will be minimised by ensuring that:

- the long term and short term disturbances to hydrological flows relative to the existing situation are considered; and
- the environment impacts of both increased and reduced hydrological flows are taken into account.

Any goals and management thereof will be documented in the relevant state Natural Values Management and Monitoring Register.

Rehabilitation, enhancement and restoration

On occasion opportunities for surveying, rehabilitation, enhancement and restoration of areas with HCVF or other values may arise. When selecting areas for such work the following will be considered in consultation with relevant stakeholders:

- Benefit to biodiversity protection;
- Benefit to community;
- Cost and availability of funding;
- Cost effectiveness;
- Condition ratings;
- Ecosystem representativeness and significance;
- Ownership of the land; and
- Size and connectivity
- The potential to create wildlife corridors.

Any regeneration activities must be undertaken in accordance with relevant Standard requirements and detailed records including suitable selection of trees species and weed management maintained.

Wildlife corridors

Wildlife corridors will be managed appropriate to rare, threatened and endangered species present within the ecological landscape. This will be done in consultation with relevant stakeholders and management documents such as Recovery Action Plans and Conservation Advices.

Monitoring

HCVF

Monitoring regimes for specific management objectives from external consultant assessments such as Greening Australia are based on their recommendations and taking into consideration relevant recovery plans, conservation advices and other stakeholder input. These regimes are recorded in the Natural Values Management and Monitoring Registers and monitored as part of annual assessments.

Annual assessments are undertaken by ABP staff and/or consultants using the Natural Values Assessment form on I Forms. These checks assess current management practices; weeds, pest and disease; grazing; wildfire; any previously undertaken prescribed burning or revegetation programs; off-site impacts; indicator species (where identified) and condition. The most appropriate indicator species are selected which can demonstrate whether the current management actions are being effective. If current management practices are found to be ineffective or there has been a significant change a review is conducted and management changed/improved where required in consultation with staff and relevant stakeholders such as DPaW, DEPI and local natural resource management organisations.

Other remnant vegetation areas

Other remnant vegetation is monitored during the year as part of routine plantation inspections. This is recorded using I-Forms.

Offsite impacts

Offsite impacts such as fire, weeds, soil erosion, spray drift and wildings are monitored during the year through routine plantation inspections, operations and as part of HCVF monitoring.

External monitoring programs

Where available ABP will review results from external monitoring programs and consider these when developing management and monitoring regimes. Some examples include:

- [Red Tailed Black Cockatoo Recovery Project](#)
- Carnaby's Black Cockatoo Recovery Project
- Conservation Action Planning (CAP) programs

- Catchment group community coordinated programs eg. Fox-off, weed control

Training

Contractors and employees will be made aware of any values at inductions using the regional Special Values Booklets and environment and hazard maps. After this time meetings, newsletters, maps, plans and bulletins will be used to communicate any additional values or changes.

Staff will also undergo cultural heritage awareness training every five years.

References

Commonwealth of Australia (2014a). *Background: Threat abatement plan for disease in natural ecosystems caused by Phytophthora cinnamomi*, Commonwealth of Australia.

Commonwealth of Australia (2014b). *Threat abatement plan for disease in natural ecosystems caused by Phytophthora cinnamomi*, Commonwealth of Australia.

Koch, P. (2012). Summary Report: Identification and Mapping of High Conservation Value Areas across the Australian Bluegum Plantation Estate.

Appendix 1 - Values and tools used for identification

Value to be Identified	Source of Information	Features
Protected areas on or adjacent to the Forest Management Unit (FMU), including RAMSAR wetlands, nationally significant wetlands, national parks, formal reserves, protection covenants	<u>Global</u> UNESCO http://whc.unesco.org/en/list World Heritage finder	<ul style="list-style-type: none"> World heritage sites
	<u>Wetlands International</u> www.wetlands.org	<ul style="list-style-type: none"> Maps showing wetlands of international importance
	<u>National</u> Protective Matters Interactive Search Tool http://www.environment.gov.au/arcgis-framework/apps/pmst/pmst.jsf	<ul style="list-style-type: none"> RAMSAR Wetlands Nationally protected areas Commonwealth Heritage Commonwealth Cultural heritage
	All states Environmental Reporting Tool http://www.environment.gov.au/erin/ert/index.html	Regional information including: <ul style="list-style-type: none"> World heritage properties Australian Heritage sites RAMSAR sites Nationally Important Wetlands Reserves and Conservation Areas
	<u>Victoria</u> Biodiversity interactive map http://mapshare2.dse.vic.gov.au/MapShare2EXT/imf.jsp?site=bim	<ul style="list-style-type: none"> RAMSAR wetlands
	<u>South Australia</u> Department of Environment and Natural Resources http://www.environment.sa.gov.au/parks/	<ul style="list-style-type: none"> List of national parks
	<u>Western Australia</u> Department of Environment and Conservation https://www.dpaw.wa.gov.au/parks https://parks.dpaw.wa.gov.au/	<ul style="list-style-type: none"> List of national and conservation parks
	Consultation with local people and forest workers about recent sightings	
Areas that contain species that are depleted or poorly reserved at the IBRA region scale	<u>National</u> http://www.environment.gov.au/system/files/pages/3a086119-5ec2-4bf1-9889-	<ul style="list-style-type: none"> Under represented bioregions (IBRA regions with less than 10% protection)

	136376c5bd25/files/underrepresented-capad-2014.pdf	
Vegetation type and conservation status (under state and commonwealth legislation)	<p><u>South Australia</u> Native vegetation mapping http://www.environment.sa.gov.au/Science/Science_research/Seascapes_landscapes_and_communities/Ecological_community_mapping/Native_vegetation_mapping_techniques</p> <p>http://www.environment.sa.gov.au/managing-natural-resources/native-vegetation/maps-assessment-monitoring</p> <p>http://www.environment.gov.au/land/native-vegetation/national-vegetation-information-system</p>	<ul style="list-style-type: none"> identifies vegetation types that are not well protected in reserves illustrates the location and extent of communities of conservation significance.
	<p><u>Victoria</u> Ecological Vegetation Classes http://mapshare2.dse.vic.gov.au/MapShare2EXT/imf.jsp?site=bim</p>	<ul style="list-style-type: none"> plant communities and forest types (including species and structural information); Ecological information relevant to the species that comprise the communities (including life-form and reproductive strategies).
	<p><u>Victoria</u> Biodiversity interactive map http://mapshare2.dse.vic.gov.au/MapShare2EXT/imf.jsp?site=bim</p>	<ul style="list-style-type: none"> vegetation
	<p><u>Western Australia</u> Native Vegetation Viewer https://www2.landgate.wa.gov.au/web/guest https://www2.landgate.wa.gov.au/bmvf/app/waatlas/ https://secure.dec.wa.gov.au/idelve/nv/home.html</p> <p>Albany Vegetation Survey (On CD) Beard mapping – L/ALB/HSEC/Natural Values</p>	<ul style="list-style-type: none"> location of environmentally sensitive areas, as declared by a Notice under section 51B of the Environmental Protection Act 1986

Presence of threatened and endangered and endemic flora and fauna (under state and commonwealth legislation)	<u>Global</u> IUCN Red List of Threatened Species (vulnerable, endangered or critically endangered) http://www.iucnredlist.org/	<ul style="list-style-type: none"> highlights those plants and animals that are facing a higher risk of global extinction
	<u>Birdlife International</u> www.birdlife.net	<ul style="list-style-type: none"> lists of Important Bird Areas (IBAs) and Endemic Bird Areas (EBAs)
	<u>WWF Global 200 Ecoregions</u> http://wwf.panda.org/about_our_earth/ecoregions/ecoregion_list/	<ul style="list-style-type: none"> Ecoregions with exceptional levels of biodiversity, such as high species richness or endemism, or those with unusual ecological or evolutionary phenomena.
	<u>Conservation International Hotspots Biodiversity Hotspots</u> http://www.conservation.org/How/Pages/Hotspots.aspx	<ul style="list-style-type: none"> Areas supporting natural ecosystems that are largely intact and where native species and communities associated with these ecosystems are well represented. Areas with a high diversity of locally endemic species, which are species that are not found or are rarely found outside the hotspot.
	<u>National</u> Environmental Reporting Tool http://www.environment.gov.au/erin/ert/index.html	Regional information including: Threatened species under the EPBC Act
	<u>National</u> Species Profile and Threats Database (SPRAT) - Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl	List of migratory species under the EPBC Act
	<u>Victoria</u> Department of Sustainability and Environment Threatened Species Advisory Lists http://www.depi.vic.gov.au/environment-and-wildlife/threatened-species-and-communities/threatened-species-advisory-lists	<ul style="list-style-type: none"> Rare and threatened plants Threatened vertebrate and invertebrate fauna

	Threatened species education and information resources http://www.depi.vic.gov.au/environment-and-wildlife/threatened-species-and-communities	<ul style="list-style-type: none"> Information on threatened plants, animals and communities
	<u>South Australia</u> Nature Map SA	<ul style="list-style-type: none"> Nature Links corridors flora and fauna vegetation protected areas landscapes heritage fire planning and management topography and imagery
	<u>Western Australia</u> Nature Maps	<ul style="list-style-type: none"> threatened and priority plant species
	Requested data files through Department of Environment and Conservation (DEC)	<ul style="list-style-type: none"> threatened communities, animals and plants
<u>Registered</u> Indigenous and non-Indigenous natural heritage and cultural, religious, spiritual and social heritage sites	<u>National</u> Department of Sustainability, Environment, Water, Population and Communities 'Heritage' mapping http://www.environment.gov.au/heritage/	<ul style="list-style-type: none"> Places protected under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).
	Register of the National Estate http://www.environment.gov.au/heritage/heritage-places	<ul style="list-style-type: none"> natural, Indigenous and historic heritage places throughout Australia
	Local Government inventories (all states)	<ul style="list-style-type: none"> provide a cultural and historic record of the local district determine local government conservation policies provide information about local heritage that may be required under a town planning scheme for that district
	<u>Victoria</u> http://www.dpc.vic.gov.au/index.php/aboriginal-affairs/aboriginal-cultural-heritage/victorian-aboriginal-heritage-register	<ul style="list-style-type: none"> detailed information on cultural heritage places and objects to protect and manage them
	<u>South Australia</u>	<ul style="list-style-type: none"> stakeholder consultation

	http://www.environment.gov.au/system/files/pages/174d01d5-7092-41e3-9824-8dd3960f9f6d/files/indigenous.pdf http://www.statedevelopment.sa.gov.au/aboriginal-affairs/aboriginal-affairs-and-reconciliation/aboriginal-heritage	
	<u>Western Australia</u> Aboriginal Heritage Enquiry System http://maps.dia.wa.gov.au/AHIS2/	<ul style="list-style-type: none"> • Location of any Aboriginal sites • Site survey information
	<u>Heritage websites</u> National http://www.environment.gov.au/cgi-bin/ahdb/search.pl WA http://stateheritage.wa.gov.au/state-heritage-register SA http://www.environment.sa.gov.au/our-places/Heritage/SA_Heritage_Register VIC http://vhd.heritage.vic.gov.au/vhd/heritagevic http://www.dpced.vic.gov.au/heritage	<ul style="list-style-type: none"> • location and information on listed heritage sites for each state
<u>Non-registered</u> Indigenous and non-Indigenous natural heritage and cultural, religious, spiritual and social heritage sites	Department of Indigenous Affairs All states http://www.indigenous.gov.au/ http://www.daa.wa.gov.au/	<ul style="list-style-type: none"> • stakeholder consultation
Existing legal or traditional uses of forests	Department of Indigenous Affairs All states	<ul style="list-style-type: none"> • stakeholder consultation
	Local Indigenous groups	<ul style="list-style-type: none"> • stakeholder consultation
	Previous landowners	<ul style="list-style-type: none"> • history
Declared water catchments	<u>Victoria</u> http://www.dpi.vic.gov.au/dpi/vrosite.nsf/pages/landuse-water-supply-catchments	<ul style="list-style-type: none"> • list of declared water catchment areas for Victoria
	<u>Western Australia</u> Department of Water – Geographical Data Atlas	<ul style="list-style-type: none"> • groundwater • irrigation districts • public drinking water sources

	http://www.water.wa.gov.au/maps-and-data http://www.water.wa.gov.au/maps-and-data/maps/water-register	<ul style="list-style-type: none"> •
	Department of Environment and Resource Management www.derm.qld.gov.au	<ul style="list-style-type: none"> • stakeholder consultation
	<u>South Australia</u> Department of Environment and Natural Resources www.environment.sa.gov.au	<ul style="list-style-type: none"> • stakeholder consultation
Ecosystem types	WWF Global 200 Ecoregions http://www.panda.org/about_our_ea/rth/ecoregions/ecoregion_list/	<ul style="list-style-type: none"> • Ecoregions with exceptional levels of biodiversity, such as high species richness or endemism, or those with unusual ecological or evolutionary phenomena.
	Conservation International Hotspots Biodiversity Hotspots http://www.conservation.org/How/Pages/Hotspots.aspx	<ul style="list-style-type: none"> • Areas supporting natural ecosystems that are largely intact and where native species and communities associated with these ecosystems are well represented. • Areas with a high diversity of locally endemic species, which are species that are not found or are rarely found outside the hotspot.
	<u>National</u> Environmental Reporting Tool http://www.environment.gov.au/eri/ert/index.html	Regional information including: <ul style="list-style-type: none"> • Ecological communities and critical habitat under the EPBC Act • Threatened ecological communities
	<u>Victorian ecosystems</u> http://www.viridans.com/ECOVEG/ http://www.depi.vic.gov.au/environment-and-wildlife/biodiversity/evc-benchmarks	Ecosystem types of Victoria
Habitat of migratory species listed under the Commonwealth's Environment Protection and Biodiversity Protection Act 1999	<u>All states</u> Species Profile and Threats Database (SPRAT) - Department of Sustainability, Environment, Water, Population and	List of migratory species under the EPBC Act

	Communities (DSEWPC) http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl	
	<u>Western Australia</u> Department of Environment and Conservation https://www.dpaw.wa.gov.au	• stakeholder consultation
	<u>Victoria</u> Department of Sustainability and Environment http://www.depi.vic.gov.au/home	• stakeholder consultation
	<u>South Australia</u> Department of Environment and Natural Resources www.environment.sa.gov.au	• stakeholder consultation
Forests critical to erosion control	<u>Western Australia</u> Department of Environment and Conservation https://www.dpaw.wa.gov.au/	• stakeholder consultation
	<u>Victoria</u> Department of Sustainability and Environment http://www.depi.vic.gov.au/home	• stakeholder consultation
	<u>South Australia</u> Department of Environment and Natural Resources www.environment.sa.gov.au	• stakeholder consultation
Forests providing barriers to destructive fire	<u>Western Australia</u> Department of Environment and Conservation https://www.dpaw.wa.gov.au/	• stakeholder consultation
	<u>Victoria</u> Department of Sustainability and Environment http://www.depi.vic.gov.au/home	• stakeholder consultation
	<u>South Australia</u> Department of Environment and Natural Resources www.environment.sa.gov.au	• stakeholder consultation
Local people's needs	Socio economic impact assessments	• needs and perceptions of local community
Authorised regional catchment goals	<u>Western Australia</u> Department of Water www.water.wa.gov.au/	• stakeholder consultation

	<p>South Coast Natural Resource Management www.southcoastnrm.com.au/ South Australia Water for Good www.waterforgood.sa.gov.au Department of Environment, Water and Natural Resources www.environment.sa.gov.au/ Victoria Department of Sustainability and Environment http://www.depi.vic.gov.au/home</p>	
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Appendix 2 - High Conservation Value Criteria and Guidance for Assessment

High Conservation Value (HCV)	
Criteria	Guidance for Assessment
HCV1. Forest areas containing globally, regionally or nationally significant concentrations of biodiversity values (eg. Endemism, endangered species or refugia)	

HCV1.1 Protected Areas	For the identified protected areas, are they on or within the FMU?
HCV1.2 Threatened and endangered species	Does the FMU contain (or likely to contain) several species listed as vulnerable, endangered or critically endangered under the EBPC Act? If YES.... Does the property contain habitat that is of known value to one or more of these species? YES = HCV
HCV1.3 Endemic species	Are there several endemic species that are likely to occur within the FMU area? YES = HCV
HCV1.4 Critical seasonal use	Does the FMU provide habitat for a large concentration of migratory species at a critical phase in their life cycle? YES = HCV
HCV2. Forest areas containing globally, regionally or nationally significant large landscape level forests, contained within, or containing the management unit, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance.	
Priority Landscape Forest	Does or is the FMU? All or part of an intact forest landscape i.e. uncleared, undisturbed? All or part of a large (tens of thousands of hectares) protected area? Border with a large protected area (>tens of thousands of hectares)? Connect two or more protected areas in total >tens of thousands of hectares? IF YES TO ANY OF ABOVE = HCV
	IF YES TO ANY OF ABOVE, HCV will normally exist UNLESS... It is very small in relation to the landscape (e.g. tens or hundreds of hectares in a landscape forest tens of thousands of hectares in size), or is small compared to other FMUs within the same landscape; It is all or largely covered by plantations of exotic species.
Significant large Landscape level forest	Does or is the FMU? All or part of a large landscape forest at least tens of thousands of hectares (including landscapes where natural non-forest and forest communities form a mosaic)? If YES, does the area... Considered rare in the country Not well represented in the reserve system One of the largest in the country? Generally undisturbed by human activity? More natural (species composition, disturbance regimes, stand structure etc) than others in the country If the answer is Yes to any of the above...Is the FMU

	<p>Small (10s or hundreds of hectares) within a protected forest that is tens of thousands of hectares, or</p> <p>Small compared to the size of other FMUs in the area</p> <p>If YES, then does NOT = HCV</p> <p>IF NO, THEN = HCV</p>
HCV3. Forest areas that are in or contain rare, threatened or endangered ecosystems	
Rare, threatened or endangered ecosystems	<p>Does the FMU...</p> <p>Contain particular ecosystems that are identified as significant (e.g. threatened/rare) at the national, regional or international level?</p> <p>If YES, do these ecosystem types support some of the species identified under HCV1?</p> <p>If YES, is the ecosystem area within the FMU:</p> <p>a small patch of the forest type where several larger patches are known to exist locally,</p> <p>very degraded compared to other local examples of the forest type</p> <p>a type of forest that is well protected by the existing protected area network</p> <p>IF NO = HCV</p>
HCV4. Forest areas that provide basic services of nature in critical situations (eg. Watershed protection or erosion control).	
HCV4.1 Forests critical to water catchments	<p>Does the FMU...</p> <p>Fall within identified critical catchment or watershed areas?</p> <p>If YES, does the FMU play a critical role in protecting the catchment area? (The FMU will play a critical role if the catchment area is not largely forested or the FMU covers a large proportion of the catchment)</p> <p>IF YES = HCV</p>
HCV4.2 Forests critical to erosion control	<p>Does the FMU fall within an existing erosion protection prioritisation scheme or critical erosion area? (Critical erosion areas would include where there is a risk of serious erosion, landslides and avalanches.)</p> <p>If YES, does the FMU play a critical role in protecting against erosion? (The FMU will NOT play a critical role if the FMU only contains a small area of vulnerable soils or the topographic situation of the FMU protects against severe erosion).</p> <p>IF YES = HCV</p>
HCV4.3 Forests providing barriers to destructive fire	<p>Is the FMU within a high risk fire area?</p> <p>If yes does the FMU...</p> <p>Contain forest types that naturally act as a barrier to fire? YES=HCV</p> <p>Contain areas covered by forest types too small to act as barriers against uncontrolled destructive fire? YES. DOES NOT = HVC</p> <p>Contain human settlements or communities within or adjacent to the FMU? YES=HCV</p> <p>contain places of important cultural value that (e.g. sacred places, archaeological sites) within or are adjacent to the FMU;</p>

	There are no protected areas that contain threatened or endangered species or ecosystems within or are adjacent to the FMU.
HCV5. Forest areas fundamental to meeting basic needs of local communities (eg subsistence, health).	
Basic needs to local communities	<p>Is the FMU used by any local communities?</p> <p>If yes, is the FMU likely to provide one or more 'basic needs' to these communities?</p> <p>If yes, does the FMU potentially provide irreplaceable levels of these resources?</p> <p>If yes, plan and implement a programme of consultation with the communities in question.</p> <p>In consultation with the communities is the basic need that the FMU provides fundamental to their local community?</p> <p>YES = HCVF</p>
HCV6. Forest areas critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).	
Traditional cultural identity	<p>Are there any cultural groups that are likely to have a strong cultural association with the FMU?</p> <p>If so, in consultation with the communities (in question) is the FMU critical to the cultural identity of the community?</p> <p>YES = HCVF</p>

Appendix 3 – Framework for Hygiene Management Planning

