



TIMBERLANDS
Pacific

SPECIAL VALUES MANAGEMENT PLAN

TASWOOD ESTATE





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TABLE OF CONTENTS

DEFINITIONS.....	1
Special Values.....	1
Biodiversity	1
Cultural heritage	1
Remnant vegetation	1
Threatened species.....	2
Wetlands.....	2
Woody debris and dead wood habitat	2
High Conservation Value Forests (HCV)	2
HCV 1 Globally, regionally or nationally significant concentrations of biodiversity values	3
HCV 2 Globally, regionally or nationally significant large landscape level forests.....	3
HCV 3 Rare, threatened or endangered ecosystems.....	3
HCV 4 Forest areas that provide basic services of nature in critical situations	4
HCV 5 Forest areas fundamental to meeting basic needs of local communities	4
HCV 6 Forest areas critical to local communities’ traditional cultural identity	4
INTRODUCTION	5
Defined Forest Area.....	7
GOVERNANCE.....	8
Permanent Forest Estate	11
Reserves bounding the Estate	11
EVALUATING SPECIAL VALUES IN THE FOREST	12
Identification	12
Field Assessment	13
EVALUATING HIGH CONSERVATION VALUE FORESTS	15
HCV 1 Globally, regionally or nationally significant concentrations of biodiversity values	15
HCV 1.1 Protected areas.....	15
HCV 1.2 Threatened and endangered species.....	16
HCV 1.3 Endemic species.....	19
HCV 1.4 Critical temporal use sites.....	19
HCV 2 Globally, regionally or nationally significant large landscape level forests	20



HCV 3 Rare, threatened or endangered ecosystems	21
HCV 4 Forest areas that provide basic services of nature in critical situations	21
HCV 4.1 Forests critical to water catchments	21
HCV 4.2 Forests critical to erosion control.....	23
HCV 4.3 Forests providing barriers to destructive fire.....	25
HCV 5 Forest areas fundamental to meeting basic needs of local communities.....	26
HCV 6 Forest areas critical to local communities traditional cultural identity.....	26
Indigenous peoples access.....	26
MANAGING AND MONITORING SPECIAL VALUES	27
Biodiversity	27
Threatened species	27
Remnant vegetation	28
Phytophthora cinnamomii management.....	29
Informal Reserves	30
Fire management	30
Game control	30
Cultural Heritage	30
Stakeholder consultation and engagement	31
Soil and Water Management.....	31
Soil protection.....	31
Stream protection.....	31
Catchment Management Plans.....	32
Seeded eucalypt plantations.....	33
Wetlands.....	34
ASSOCIATED DOCUMENTS.....	35
Additional Information.....	35
Management Plans.....	35
TPPL Policies.....	35



DEFINITIONS

SPECIAL VALUES

These are intrinsic values associated with a particular site, species or ecosystem type. They can be cultural, biodiversity, geomorphologic, visual, soil and water or combinations of these.

The term 'Special Value(s)' within this document and all other Timberlands Pacific (TPPL) associated documents is synonymous with High Conservation Values (HCV).

Biodiversity

This is a generic term that collectively describes all the flora and fauna species occurring within an area or region.

Cultural heritage

Cultural heritage refers to those places and sites that have been passed down to us from the actions of people in the past, both Aboriginal and European (Forest Practices Authority definition). It encompasses constructed objects, huts, water races, stone tools etc, and places of spiritual and cultural significance. Refer to the **Taswood Cultural Heritage Management Plan** for details on planning management prescriptions and implementation.

Remnant vegetation

The Tasmanian Regional Forest Agreement (RFA) requires that the values of remnant vegetation are considered at a regional level as part of forest practices planning. In this regard remnant native forests and woodlands comprise of stands:

- Greater than 1 hectare in size.
- Separated by more than 2 kilometres from the closest area of native forest or woodland that exceeds 20 ha in area.

Remnant vegetation defined under the RFA is managed in Tasmania under the *Forest Practices Act 1985*.

For the purposes of managing remnant stands of native forest within the Taswood Estate this definition has been expanded. TPPL understands remnant vegetation to mean:

- Native forest, in Tasmania this is dominated by Eucalypt species, Blackwood or Myrtle, that were not felled during the conversion process.
- Consolidated clumps of regenerated native forest, greater than 300m², that is as old or older than the plantation surrounding it and not impeding other operations.
- Large mature or over mature isolated trees bearing hollows or of other ecological importance.



Threatened species

A collective term used in Tasmanian legislation and Forest Planning tools to describe all species that are rare, threatened or endangered as outlined in the Tasmanian [Threatened Species Protection Act 1995](#). There are more than 600 species listed as threatened within Tasmania, with many being endemic to the state.

Wetlands

Wetlands are managed in the context of the Special Values they contain. TPPL acknowledge that “...wetlands are areas of marsh, fen, peat land or water, whether permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide, does not exceed six metres.” Article 1.1 of the Ramsar Convention (1971).¹ There are no wetlands within the Taswood Estate, or surrounding it, that are identified under the Ramsar Convention.

Wetlands and swamps within the Taswood Estate are generally highly localised areas of poor drainage within a stand. These areas are usually identified as features of broader drainage patterns within the landscape; as such they are afforded similar protection to classified streams. This includes machinery exclusion zones during harvest and streamside reserve classification (replanted with locally sourced eucalypt seedlings if no native vegetation is present) during reforestation.

Woody debris and dead wood habitat

This refers to native downed logs and other native woody material within pine plantation stands and found within patches of Remnant Vegetation. As the Taswood Estate is on land largely converted from native forests, much of this material was windrowed up during the initial conversion process. These large native windrows within the plantation area provide potential habitat for some denning fauna such as the Tasmanian Devil and Quolls. Where ever possible native windrows are left undisturbed, and are not broken up. TPPL generally does not burn stands as part of the site preparation process unless an unacceptable arson risk is identified. Hollow bearing trees, also providing dead wood habitat, are managed under the Remnant Vegetation management prescriptions.

Woody debris or dead wood habitats are most commonly found within Streamside Reserves or patches of Remnant Vegetation within or running through the Taswood Estate, outside the plantation area. These areas are machinery exclusion zones (MEZ) and are not disturbed by forestry operations.

HIGH CONSERVATION VALUE FORESTS (HCV)

This terminology is used to describe the forests and ecosystems that support the diverse range of Special Values or High Conservation Values (HCV's) found within them. There are six different categories of High Conservation Value Forests that highlight the different ecological attributes and

¹ Refer to <http://www.environment.gov.au/water/topics/wetlands/ramsar-convention/index.html> for how the convention is implemented in Australia



uses that, to be eligible Forest Stewardship Council (FSC®) certification, requires protection. Definitions come from the [High Conservation Value Forest Toolkit](#), Edition 1 (December 2003), prepared by ProForest and [The Common Guidance for the Identification of High Conservation Values](#) (October 2013) by the HCV Resource Network.

HCV 1 Globally, regionally or nationally significant concentrations of biodiversity values

These forests will contain habitat critical for many threatened species, known as “biodiversity hot spots”. There are four main elements that make a forest HCV1:

- **HCV 1.1 Protected areas** includes areas such as national parks, formal reserves and private land conservation covenants.
- **HCV 1.2 Threatened and endangered species** that are listed under international agreements, national (*Environment Protection and Biodiversity Conservation Act 1999*) or state based legislation as critically endangered, endangered, or vulnerable². Forests where significant populations of these species occur are considered to be HCV.
- **HCV 1.3 Endemic species** are species that have evolved to be highly specialised occurring only in specific regions. Due to the extremely localised nature of these species, populations may be confined to one or two localities and highly vulnerable to change and disturbance.
- **HCV 1.4 Critical temporal use sites** are sites of seasonal use for example breeding or foraging sites for threatened, endangered or endemic species.

Species that are considered in this category are listed on Australian and Tasmanian registers, under the Federal *Environment Protection and Biodiversity Conservation Act 1999* and the Tasmanian *Threatened Species Protection Act 1995*.

HCV 2 Globally, regionally or nationally significant large landscape level forests

These forests cover vast areas and support ‘natural’ populations of species that may not be present in ‘natural’ numbers elsewhere. These areas must be large, intact forests or vegetative communities that boarder or provide connectivity between ‘protected areas’ and are fundamental to the integrity of the system.

To be considered at a ‘landscape’ scale, these types of forests are tens of thousands of hectares in size. They must also be uncommon or underrepresented in ‘protected areas’ and relatively undisturbed by development.

HCV 3 Rare, threatened or endangered ecosystems

These forests may have been widespread in the past but have been significantly reduced in area due to land conversion for example. These forests may also contain threatened species (threatened species are defined in the **Special Values, Threatened species** section above). In Tasmania these ecosystems are listed in Federal and State legislation under the Tasmanian Regional Forest

² Federal and state legislation has adopted the terminology recommended by the International Union for Conservation of Nature (IUCN) refer to the Red List website <http://www.iucnredlist.org/>



Agreement and the Forest Practices Botany Manuals. The Botany Manual provides a useful field orientated assessment guide for the identification of these communities.

HCV 4 Forest areas that provide basic services of nature in critical situations

These forests provide ongoing protection of a natural resource and without it, catastrophic or negative outcomes are likely to occur. Forests within this category are often essential in protecting water supplies from sedimentation or regulating river levels which may buffer down stream communities from flood events. There are three elements to this category:

- **HCV 4.1 Forests critical to water catchments** where the forests help buffer the impacts of floods, provide protection for water sources, drinking, irrigation etc, provide habitat for fisheries etc. These forests are especially important if the majority of catchment are un-forested, or the forest covers the majority of the catchment.
- **HCV 4.2 Forests critical to erosion control** where for forests help mitigate the risk of severe sedimentation of critical water catchments, landslips, soil erosion and degradation etc.
- **HCV 4.3 Forests providing barriers to destructive fire** where the forest provides a physical barrier to stop, redirect or minimise the risk of fire to susceptible communities (both ecological and anthropological). The forest type and architecture is the critical element in the category, forests of importance include tracts of rainforests, wet sclerophyll gullies adjacent to dry sclerophyll banks etc.

HCV 5 Forest areas fundamental to meeting basic needs of local communities

These forests help provide fundamental resources for communities surrounding or living within. The forest needs to supply or provide most of a community's needs such as employment, food etc, where there is no affordable or practical alternative.

HCV 6 Forest areas critical to local communities' traditional cultural identity

These forests are critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities). These values go beyond the provision of food or basic services and without access to the forest these traditional values would be irrevocably altered.

(FSC international definition Ref FSC-STD-01-001 V4-0 EN FSC Principles and Criteria for Forest Stewardship)



INTRODUCTION

Timberlands Pacific (TPPL) is a forest management company, based in Launceston, Tasmania. TPPL currently manages the Taswood Estate which is 54,000 hectares of predominately *Pinus radiata* forest across northern Tasmania. The trees within the Taswood Estate are owned by the Australia New Zealand Forest Fund (ANZFF), a forestry investment fund, comprising of Australian and international institutional investors managed by New Forests Asset Management Pty Ltd (NFAM). NFAM is based in Sydney and is an investment management company specialising in forestry and environmental markets. All land currently in the Taswood Estate is Permanent Timber Production Zone (PTPZ) land and is leased under a 70 year Forestry Right agreement to the ANZFF, beginning in 1999.

TPPL also manages 47,000 hectares of *Pinus radiata*, known as the Penola Plantations, in the Green Triangle region on the boarder of South Australian and Victoria. The Special Values assessments for the Penola Plantations will be addressed in a separate management document. This Special Values Management Plan is for the Taswood Estate only.



Photograph 1: The harvested cable coupe and stream eroded significantly after a major flooding event in 2004



Photograph 2: The same catchment in 2008. This stream and a wide buffer on either side were seeded with native species to help mitigate runoff and flooding.

TPPL acknowledges its responsibility to manage the natural and cultural values within the Estate; sustainable forest management goes beyond economic returns to the forest owners.

Although the Taswood Estate is a predominately *Pinus radiata* plantation, many species, including threatened flora and fauna, occur within or immediately adjacent to the Estate boundary. TPPL collectively refers to these values as **Special Values**. Special Values may be rare or endangered fauna and flora, wetlands, waterways or cultural heritage sites. These are described in detail by the Forest Practices Code 2015 (FPC 2015). TPPL's classification and identification of Special Values, strictly adheres with the FPC 2015. TPPL also abides by the guidelines of the Australian Forestry Standard AS



4708 and Forest Stewardship Council Principles and Criteria- SCS Interim Forest Management Standard Australia³.

CERTIFICATION STANDARD	WEB LOCATION
AS 4708 Australian Forestry Standard	http://www.forestrystandard.org.au//resources/standards/4708.pdf
AS 4708 Supplement 2- 2007 The Australian Forestry Standard- Guidance for medium and large plantation owners	http://www.forestrystandard.org.au//resources/standards/4708S2.pdf
Forest Stewardship Council Certification International Standards	https://ic.fsc.org/principles-and-criteria.34.htm
SCS Forest Stewardship Interim Forest Management Standard Australia	http://au.fsc.org/forest-management.204.htm

TPPL identifies and manages Special Values across the whole of the Taswood Estate. This document is one of several planning documents used to describe TPPL's forest management regime.

- The **TPPL Forest Management Plan** outlines TPPL's overarching philosophies and goals for forest management:
 - The **Taswood Estate Management Plan** details Tasmania specific systems and achievements
 - The **Taswood Cultural Heritage Management Plan** details Tasmania specific methodology for the identification, protection and management of Aboriginal and European Cultural Heritage sites within the Taswood Estate
 - The **Taswood Special Values Management Plan** details Tasmania specific methodology for the identification, protection and management of intrinsic values associated with a particular site, species or ecosystem type
 - The **Taswood Monitoring Summary** details TPPL's progress towards its goals and summaries a range of variable over time.

The **Taswood Special Values Management Plan** outlines the processes followed by TPPL's Forest Practices Officers and operational staff to ensure these values are identified, how management prescriptions are developed, how the prescriptions are implemented in the field and how the effectiveness of the prescriptions is monitored over time. This document will also identify and provide guidance for the detection and effective management of Special Values to TPPL staff when preparing Forest Practices Plans and all other operational campaigns.

³ There is currently no FSC standard for Australia. TPPL adhere to our certifying body, Scientific Certification Systems' (SCS) Interim Standard



DEFINED FOREST AREA

The Taswood Estate is comprised of one Defined Forest Area (DFA) or Forest Management Unit (FMU). It contains 54,099 hectares of *Pinus radiata* and 1,739 hectares of seeded eucalypt plantation, 1,550 planted Streamside Reserves (example in Photograph 1) 6,194 hectares of informal reserve and 752 hectares of other non-production areas.

The non-productive area is still within the DFA and consists of areas including infrastructure (extensive road network and associated quarries) and unplatable areas such as wet soaks, swampy areas and rocky outcrops.

The Taswood Estate produces a range of forest products. Each year it provides around 650,000 tonnes of logs from clear fall and thinning operations including:

- 80,000 tonnes of high value pruned sawlog.
- 380,000 tonnes of sawlog.
- 175,000 tonnes of pulpwood.
- Up to 15,000 tonnes of round wood posts.

The bulk of the logs are sold to Tasmanian based customers, where it is processed into structural and appearance grade timber, decking boards, pallets, treated pine posts, wood chip and newsprint. Volume that exceeds local demand may be exported internationally.



GOVERNANCE

In Tasmania, there are strict and comprehensive legislative and policy frameworks that dictate all aspects of forest planning, forestry operations and forest maintenance. This is administered by the Forest Practices Authority, www.fpa.tas.gov.au. The FPA is an independent, statutory government body.

All harvesting and reforestation operations, as well as significant roading works, require the development of a Forest Practice Plan (FPP). FPP's are created in line with the Tasmanian Forest Practices Code (2015), [http://www.fpa.tas.gov.au/ Forest Practices Code 2015](http://www.fpa.tas.gov.au/ForestPracticesCode2015). This is a legally binding Code of Practice, under the [Forest Practices Act \(1985\)](#), that outlines operational standards and management guidelines for the conservation or protection of the suite of cultural and natural values that may be impacted by forestry operations.

There are several other codes of practice that regulate forest activities including the [COP Aerial Spraying 2000](#), [COP Ground Spraying 2001](#), [COP Quarry's Heavy Vehicle National Law](#) and [Tasmanian Cable Harvesting Code 2006](#). The development of all TPPL harvesting, reforestation and management plans comply with the above legislations and codes of practice.

All workplace health and safety requirements are governed by the [Work Health and Safety Act 2012](#) and the [Work Health and Safety Regulations 2012](#). Within this legislation sits the Tasmanian [Forest Safety Code \(2007\)](#). The Forest Safety Code regulates all aspects of working within the forest, and like the Forest Practices Code, is legally binding and enforceable.

The legal requirements to protect Special Values, or 'high conservation values', within the operational forests is the basis for the Tasmanian Forest Practices System. However, operations, other than those mentioned above, can occur without an FPP in place. It is important to understand the other key legislative requirements to ensure adequate and comprehensive conservation and management of Special Values under these conditions.

Table 1: Relevant key legislation and regulations governing *environmental* protection. A more comprehensive register is maintained by TPPL covering all other aspects of the business.

LEGISLATION	FUNCTION	ENFORCEMENT	RELATES TO
Commonwealth			
Aboriginal and Torres Strait Islander Heritage Protection Act 1984	To preserve and protect areas (including Australian waters) and object of particular significance to Indigenous people in accordance with their traditions when there is no effective protection under state or territory law.	Dept of Environment and Energy	Special Values assessments
Environmental Protection and	Protects matters of national environmental significance. It	Dept of Environment and Energy	Special Values assessments



Biodiversity Conservation Act 1999	also regulates actions affecting Commonwealth land and Commonwealth agencies.		
Heavy Vehicle National Law and Regulations	Details the load and other requirements of truck and other heavy vehicles which operate in Tasmania	Dept. of Infrastructure and Regional Development and Cities	All heavy vehicle movements
Tasmania			
Aboriginal Relics Act 1975 Currently being revised	To ensure the protection of Aboriginal artefacts and sites of significance	DPIPWE ⁴ Aboriginal Heritage Tasmania	Special Values Assessments
Agricultural and Veterinary Chemicals (Control of Use) Act 1995	Regulate the storage, handling and use of agricultural chemicals	DPIPWE Spray Information and Referral Unit	Herbicide and fertiliser usage
Agricultural and Veterinary Chemicals (Control of Use) Regulations 2012	Detail specifics of neighbour notifications, training of operators, handling and storage and penalties for breaching the Act	DPIPWE Spray Information and Referral Unit	Herbicide and fertiliser application
Animal Welfare Act 1993	To ensure that animals are not treated cruelly, and outline power of enforcement officers; this act covers shooting of pest species	DPIPWE Wildlife Management Branch	Browsing mammal control (shooting operations)
Dangerous Goods (Road and Rail Transport) Act 2010	To ensure that the transport of dangerous goods by road or rail is safe to protect the public, surrounding property and the environment	DPIPWE Spray Information and Referral Unit and Workplace Standards Tasmania	Herbicide and fertiliser application, diesel and oil transport and storage
Environmental Management and Pollution Control Act 1994	To manage and control environmental pollution through the use of Best Practice Environmental Management	DPIPWE Environmental Protection Authority	Best management standards
Firearms Act 1996	To provide for the regulation, registration and control of firearms	Tasmania Police	Game control operations
Fire Services Act 1979	To provide for the prevention and extinguishing of fires and	Tasmanian Fire Services and	Smoke and emissions during

⁴ Dept of Primary Industries, Parks, Water and Environment



	for the protection of life and property in Tasmania	Sustainable Timber Tasmania	burns
Forest Management Act 2013	To outline the roles of the state “Forest Manager” a forestry corporation, define “Permanent Timber Production Zone” and “Forest Reserves”, to provide for public access to the forest and provide for fire protections within the PTPZ’s	Sustainable Timber Tasmania	All operations within the Forestry Right
Forest Practices Act 1985	Legislates the Forest Practices System, which requires Forest Practices Plans to be developed for all Forest Operations, the Forest Practices Code and the Forest Practices Authority to oversee the system.	Forest Practices Authority	All FPP development, roading, harvesting (clearfall, waste and production thinning), and reforestation activities
Forest Practices Regulations 2007	Dictates exceptions to the Act, fees and other charges associated with Forest Practices Plans	Forest Practices Authority	FPP development and certification
Historic Cultural Heritage Act 1995	To identify, protect and conserve historic European cultural heritage	DPIPWE Heritage Tasmania	All forest operations
Nature Conservation Act 2002	The conservation and protection of the fauna, flora and geological diversity of the State, to provide for the declaration of national parks and other reserved land and for related purposes	DPIPWE Threatened Species Unit	Management of threatened species and Special Values
Threatened Species Protection Act 1995	An Act to provide for the protection and management of threatened native flora and fauna and to enable and promote the conservation of native flora and fauna	DPIPWE Threatened Species Unit	Identification and management of threatened species and Special Values
Weed Management Act 1999	To provide for the eradication and control of declared weeds	DPIPWE Weed Management Branch	Declaration and management of invasive weeds



PERMANENT FOREST ESTATE

The Tasmanian forest reserve system is arguably one of the most comprehensive in Australia. The initial implementation of the RFA in 1997 has meant that a formal scientific assessment has occurred across the state's forests and non-forest communities to analyse their current extent compared to pre European coverage and their likely ongoing vulnerability (among other values). From this assessment a list of RFA Priority Species and Communities has been developed so these values can be maintained in perpetuity. In other words, forests at a landscape scale, have been assessed for their 'representativeness' and where current levels of retained forest communities was found to be inadequate, the remaining areas have incorporated into the reserve system.

Overarching this approach is the [Permanent Forest Estate Policy](#). This is a state based policy that ensures that the permanent native forest estate does not fall below 95% of that identified in the 1996 Comprehensive Regional Assessment (CRA), part of the RFA process. This Policy limits the amount of clearing of most forest areas and prohibits it in forest types that are already at the minimum threshold. This process is managed effectively by the Forest Practice Authority through the Tasmanian Forest Practices System.

Reserves bounding the Estate

There are no priority forests located within the Taswood Estate, as the forest reserve system and Permanent Forest Estate relates exclusively to native forest types. However, TPPL does have a series of Informal Reserves and priority forests bounding the plantation area and this area (particularly informal reserves) has increased significantly since a lease agreement was formulated with Sustainable Timber Tasmania. TPPL manages impact on these areas through its Special Values Evaluation process and the [TPPL Introduced Weed Species Management Policy](#). Due to the established 'Forestry Right' under which the Taswood Estate once operated, it is highly unlikely that any future reserves on public land will be located within the Taswood Estate, however, TPPL will review this situation and any management implications as new forestry agreements are finalised.

Refer to the TPPL website, www.tppl.com.au for Estate maps that show the location of the most recent reserve expansion and its proximity to the Taswood Estate.

EVALUATING SPECIAL VALUES IN THE FOREST

The process of identifying potential Special Values of an area is through a combination of integrating existing information databases and field reconnaissance. Harvest planning is initially undertaken at a landscape scale, so elements such as coupe dispersal, water shed and erosion, windthrow etc can be considered.

The landscape plan is then broken down into harvest area plans. All identified Special Values within a harvest area require management prescriptions to conserve or protect them from harvesting and reforestation activities. These are put into the Forest Practices Plan (FPP), a legally enforceable document, which must be adhered to throughout all operations covered by the FPP. Each step of the evaluation process is critical to ensuring that known values are monitored over time and new values identified and managed to minimise any impacts from forestry operations.

IDENTIFICATION

Sources of information for Special Values Evaluation include, but are not limited to:

- Forestry Tasmania Conserve data base.
- Department of Primary Industries, Parks, Water and Environment (DPIPWE) Natural Values Atlas.
- Forest Practices Authority Biodiversity Values Database.
- The Threatened Fauna Advisor.
- Forest Botany Manuals.
- Flora of Tasmania reference set.
- The LIST website.
- Soils Bulletins.
- TPPL's Geographic Information System database.



Photograph 3: A burrow of the Mt Arthur Burrowing Crayfish found within a coupe during the field assessment

These data sources allow the harvest planning process to assess the whole catchment.

Information from sources such as the Natural Values Atlas assesses all known or potential

habitat at a 1:25,000 Map Sheet scale as does the Forestry Tasmanian Conserve database. The Threatened Fauna Advisor, managed by the FPA, also considers the landscape levels requirements of threatened species to produce prescriptions that are applicable at a harvest plan scale.



The following site specific information is required for each potential operational area; this area includes adjacent and surrounding lands:

Biodiversity: Known sites and species habitat range maps for threatened flora and fauna and the likely species and habitat to be found on the relevant map sheet. Other landscape level information is also required, such as forest type mapping and evaluation of the native forest and the location of any formal and informal reserves. Other biodiversity issues such as the identification of any known, particularly upstream, *Phytophthora cinnamomii* sites and patches of remnant vegetation are also identified.

Cultural heritage: Known sites of historic European activity (hut sites, water races, mine sites etc) and known sites of Indigenous use, as well as predictive statements from the Forest Practices Code (based on historical finds) of areas with a high likelihood of containing Aboriginal artefacts. Note: known artefact sites and sites of local Indigenous significance are only available from the Forestry Tasmania Conserve database to staff suitably trained in Indigenous culture by the FPA, it is not publicly available.

Geomorphology: Known sites of importance such as karst (caves and sinkholes), fluvial features, Aeolian movement, glacial, periglacial and volcanic features and landforms, hill slope features and coastal landscapes and predictive geology mapping to identify possible new landforms and features.

Soil and Water: Soil type and slope mapping, compaction and erodibility ratings to identify areas prone to degradation and stream evaluation and catchment management planning to identify and minimise impacts on watersheds and the aquatic environment. This section also considers the presence of pathogens such as *Phytophthora* and applicable washdown procedures (see the [Tasmanian machinery wash down guidelines for weed and disease control](#)) to limit the spread of weeds and disease. Some stream revegetation activities are also found under this umbrella.

Visual management: Visual landscape management and assessment of harvest coupes to minimise dramatic and sudden changes in the aesthetic landscape. This consists of 'seen area' evaluation, road classification for usage rates (e.g. hilly tourist roads are more susceptible to visual impacts than flat local use only roads), operational impact ratings and objectives.

Landscape risk: Related to visual management, and focusing on how the current operation will impact on the landscapes surrounding it. Risk can be related to water and catchment management for downstream users, proximity of reserves, public access, windthrow and fire risks.

High Conservation Values: This term is used synonymously with Special Values. All planning and identification of HCV's is covered under the above planning requirements.

FIELD ASSESSMENT

The confirmation of potential Special Values requires field verification of any values captured during the initial desktop evaluation, planning and mapping process. Field assessments may also identify additional values not originally captured in the dataset information. Field checks are conducted by trained foresters that are familiar with the local forest environment and the species it contains.



Every forest planner has a different way of conducting field checks. The method used will also be influenced by site conditions i.e. very thick understorey vegetation with poorly mapped contours and features in native forest may require systematic linear transects every 50m across a coupe, however, clear understorey, in an intensively mapped pine plantation, may just require a walk through verifying stream location and looking for anything out of the ordinary.

Regardless of the existing mapping quality and available information, all coupes must be field validated. TPPL expects that at a minimum, the main features of the coupe will be checked. These include:

- All stream locations and classes (stream locations and classes may have been mislabelled in previous operations).
- The location and status of any known Special Values within and surrounding the coupe and by checking may find other previously unidentified values.
- The condition of existing road infrastructure and any current or potential impacts this might have outside the coupe (i.e. road sediment washing into streams, blocked culverts).
- If new roading infrastructure is required, locating it in appropriate areas with notes made on any stream crossings or sensitive values.
- Whether the coupe boundary location is clear and appropriately mapped. There have been issues where encroachment from adjoining native forest stands has made the Forest Right harvest boundary ambiguous.
- Checking if adjoining tenure has changed and ensuring any impacts on this is managed appropriately. (i.e. spraying next to new pasture, heightened windthrow risk of clear falling next to thinned plantation).
- The proximity of dwellings on adjoining properties. Residents close to the Taswood Estate boundary may be significantly impacted by noise, dust, wind or have concerns regarding chemical usage during operations.



Photograph 4: A water race discovered during the field validation process of FPP development.

If additional values are identified during this verification process, its location and other information is captured and managed through existing legislative frameworks. Where the framework is unclear or inadequate, scientific specialist's advice is sought by the forest planner. The specialist advice is provided through the FPA and is independent of the forest industry. New or previously unidentified values are captured if possible within TPPL's Forest Information System database, the FPA Natural Values Atlas and Forestry Tasmania's Conserve database.



EVALUATING HIGH CONSERVATION VALUE FORESTS

To evaluate the potential of the Taswood Estate containing HCVFs, TPPL has used the existing knowledge and Special Values Evaluation processes outlined above. Specifically, TPPL has relied on the existing internal assessments of:

- The known location and potential habitat of threatened species.
- The identification of soil and water values across the whole Estate.
- The location and potential location of cultural significance.

Any new special values or new locations are referred to the FPA. The FPA specialists confirm any new information through field visits and the significance of the find. It is the FPA Specialists that determine if new prescriptions are required or if existing management tools are appropriate.

By applying the Tasmanian Forest Practices Code (2015), and working regularly with FPA Specialists and land management agencies, special values have been comprehensively identified within the Taswood Estate. As part of TPPL's Special Values evaluation, forest and non-forest communities are assessed in context with other values of an area. These communities may be of HCV and in many circumstances, expert scientific involvement is required.

The TPPL assessments have identified areas within the Taswood Estate that meet the FSC HCVF definition. There are also additional areas adjacent to the Taswood Estate that can be defined as HCVF and may be impacted upon by forestry activities. Scientific specialist advice has been sought from the FPA and NRM North to assist in developing Management Plans for these areas. These plans are implemented to manage and minimise impacts from forestry activities.

Note TPPL conducted its analysis for HCV's and HCVF using a range of information. TPPL consulted the National HCVF Toolkit and FSC Australia Database, however the information presented in these databases was generalised and less site specific than information gathered from the Biodiversity Database, Natural Values Atlas and other Forest Practices sources.

HCV 1 GLOBALLY, REGIONALLY OR NATIONALLY SIGNIFICANT CONCENTRATIONS OF BIODIVERSITY VALUES

HCV 1.1 Protected areas

There are no Formal Reserves, Protected Areas or Conservation Covenants within or immediately neighbouring the Taswood Estate. The Estate is only located within a gazetted Forestry Right within the Permanent Timber Production Zone (previously known as State Forest).

The Taswood Estate does however border extensive areas of Informal Reserves. These include existing areas such as the Evercreech Reserve, the Mathinna Falls Reserve and the new area identified under the Tasmanian Forests Agreement 2013. TPPL manages the impacts on these reserves by following our Safety and Environment Policy and TPPL Introduced Weed Species Management Policy.



HCV 1.2 Threatened and endangered species

Many species of vertebrates and invertebrates utilise the Taswood Estate for foraging or accessing foraging territory. While the pine plantation is not considered ‘habitat’ for any threatened species, some native forest and forest elements that occurs within and surrounding it is. The remnant forests within the boundaries of the Estate are classified as TPPL managed non forestry right areas. These areas provide localised corridors, linking larger tracts of native forest above and below the pine plantation; the vast majority of threatened species occur within these areas.

Below is are lists of threatened species for which foraging or habitat management considerations exist within the Taswood Estate and have been identified as part of the Special Values evaluations process. The status referred to in the table is derived from the *Threatened Species Protection Act 1995* list on the [DPIPWE website](#). The data was sourced from the [Protected Matters Search Tool](#) and cross referenced with species listed on the DPIPWE List of Threatened Species website.

Table 2: Vertebrate species found within or immediately adjacent to the Taswood Estate, requiring management during forestry operations (as of 02/05/18)

COMMON NAME	SCIENTIFIC NAME	STATUS	
		TASMANIA	C'WEALTH
Grey Goshawk	<i>Accipiter novaehollandiae</i>	Endangered	
Masked owl	<i>Tyto novaehollandiae</i>	Endangered (unofficial)	Vulnerable (unofficial)
Spotted tailed quoll	<i>Dasyurus maculatus</i>	Rare	Vulnerable
Swift parrot	<i>Lathamus discolor</i>	Endangered	Critically Endangered
Tasmanian Devil	<i>Sarcophilus harrisii</i>	Endangered	Endangered
Tasmanian Azure Kingfisher	<i>Ceyxazureus subsp. diemenensis</i>	Endangered	Endangered
Tasmanian Wedge-tailed Eagle	<i>Aquila audax subsp. fleayi</i>	Endangered	Endangered
White-bellied Sea Eagle	<i>Haliaeetus leucogaster</i>	Vulnerable	



Table 3: Invertebrate species found within or immediately adjacent to the Taswood Estate, requiring management during forestry operations (as of 02/05/18)

COMMON NAME	SCIENTIFIC NAME	STATUS	
		TASMANIA	C'WEALTH
Bornemissza's Stag Beetle	<i>Hoplogonus bornemisszai</i>	Endangered	Critically endangered
Burnie Burrowing Crayfish	<i>Engaeus yabbimunna</i>	Vulnerable	Vulnerable
Central North Burrowing Crayfish	<i>Engaeus granulatus</i>	Endangered	Endangered
Giant Freshwater Crayfish	<i>Astacopsis gouldi</i>	Vulnerable	Vulnerable
Giant Velvet Worm	<i>Tasmanipatus barrette</i>	Rare	
Glossy Grass Skink	<i>Pseudemoia rawlinsoni</i>	Rare	
Hydrobiid Snails	<i>Beddomeia</i> spp	Rare	
Mt Arthur Burrowing Crayfish	<i>Engaeus orramakunna</i>	Vulnerable	Vulnerable
Scottsdale Burrowing Crayfish	<i>Engaeus spinicaudatus</i>	Endangered	Endangered
Smon's Stag Beetle	<i>Hoplogonus simsoni</i>	Vulnerable	Vulnerable
Skemps snail	<i>Charopidae "Skemps"</i>	Rare	

Table 4: Vegetation communities found adjacent to the Taswood Estate, requiring management consideration during forestry operations (as of 02/05/18)

ECOSYSTEM NAME	STATUS	
	TASMANIA	C'WEALTH
Eucalyptus amygdalina forest and woodland on sandstone	Threatened	Threatened
Eucalyptus amygdalina inland forest and woodland on cainozoic deposits	Threatened	Threatened
Eucalyptus brookeriana wet forest	Threatened	Threatened
Eucalyptus ovata forest and woodland	Threatened	Threatened
Eucalyptus viminalis - Eucalyptus globulus coastal forest and woodland	Threatened	Threatened
Eucalyptus viminalis wet forest	Threatened	Threatened
Highland grassy sedgeland	Threatened	Threatened
Melaleuca ericifolia swamp forest	Threatened	Threatened
Notelaea - Pomaderris - Beyeria forest	Threatened	Threatened
Rainforest fernland	Threatened	Threatened
Riparian scrub	Threatened	Threatened
Wetlands	Threatened	Threatened

Table 5: Flora species found within or immediately adjacent to the Taswood Estate, that may require management consideration during forestry operations (as of 02/05/18)

COMMON NAME	SCIENTIFIC NAME	STATUS	
		TASMANIA	C'WEALTH
Cane Holygrass	<i>Hierochloe rariflora</i>	Rare	
Clustered Rush	<i>Juncus vaginatus</i>	Rare	
Coast Dustymiller	<i>Spyridium parvifolium var. parvifolium</i>	Rare	
Dolerite Spleenwort	<i>Asplenium trichomanes subsp. trichomanes</i>	Vulnerable	
Ferny Buttercup	<i>Ranunculus pumilio var. pumilio</i>	Rare	
Forest Germander	<i>Teucrium corymbosum</i>	Rare	
Fragrant Hempbush	<i>Gynatrix pulchella</i>	Rare	
Glossy Purplepea	<i>Hovea corrickiae</i>	Rare	
Gristle Fern	<i>Blechnum cartilagineum</i>	Vulnerable	
Harsh Groundfern	<i>Hypolepis muelleri</i>	Rare	
Leafy Fireweed	<i>Senecio squarrosus</i>	Rare	
Lemon Dogwood	<i>Pomaderris intermedia</i>	Rare	
Lesser Guineaflower	<i>Hibbertia calycina</i>	Vulnerable	
Moleskin Dogwood	<i>Pomaderris pilifera subsp. talpicutica</i>	Endangered	Vulnerable
Narrowleaf Dogwood	<i>Pomaderris phylicifolia subsp. phylicifolia</i>	Rare	
Pygmy Clubmoss	<i>Phylloglossum drummondii</i>	Rare	
Revolute Narrowleaf Dogwood	<i>Pomaderris phylicifolia subsp. ericoides</i>	Rare	
Shade Plantain	<i>Plantago debilis</i>	Rare	
Showy Willowherb	<i>Epilobium pallidiflorum</i>	Rare	
Silky Bushpea	<i>Pultenaea prostrata</i>	Vulnerable	
Slender Ticktrefoil	<i>Desmodium varians</i>	Endangered	
Southern Ticktrefoil	<i>Desmodium gunnii</i>	Vulnerable	
Spike Centaury	<i>Schenkia australis</i>	Rare	
Spiny Bossia	<i>Bossiaea tasmanica</i>	Rare	
Wallys Wattle	<i>Acacia pataczekii</i>	Rare	
Yellow Riceflower	<i>Pimelea flava subsp. flava</i>	Rare	



Species in Table 2 and 3 are considered for management during forestry activities with the assistance of the [Threatened Fauna Advisor](#) (TFA). The TFA is administered through the FPA to assist with complex management scenarios and is based on specialist research and consultation. There are two background documents, [History of the Threatened Fauna Advisor, Overview of Review Process and Species List](#) and [Review of Information on Species and Management Approach](#) which detail how the TFA was developed, background research, species lists and platform information.

Flora species and threatened vegetation communities are generally regarded by the Forest Practice System to either not occur within the plantation estate or be disturbance dependant. It is extremely rare for any threatened flora species to be identified during threatened species planning process (only example in the last five years is *Ranunculus pumilio* var *pumilio* at Virginstow in the Central North). However, there is significant potential habitat in the native forest areas surrounding the Taswood Estate. If a forest planner suspects they have found a threatened flora species, vegetation community or an RFA Priority Community during field reconnaissance (such as *Eucalyptus ovata* communities) these are reported to the Forest Practice Authority as part of the planning process.

HCV 1.3 Endemic species

Tasmania has a high level of endemism compared to mainland Australia. TPPL manages for endemic species through the Special Values Evaluation and Management process as outlined under HCV 1.2.

HCV 1.4 Critical temporal use sites

Being an island, migratory species are dominated by birds. There are approximately 43 different species of breeding and migratory shorebirds, with 31 of them migrating to Tasmania annually⁵. None of these species are known to habitat within the Taswood Estate. There are two other species of migratory parrots; the Swift Parrot (*Lathamus discolor*) and the Orange Bellied Parrot (*Neophema chrysogaster*). The Orange Bellied parrot's breeding grounds are located on the South West coast of Tasmania, well outside any impacts from activities in the Taswood Estate.

The Swift Parrot breeds in the hollows of mature Tasmanian blue gums (*Eucalyptus globulus*) which do not occur in the Taswood Estate. However, it forages in a range of eucalypt communities including *Eucalyptus ovata* forests, identified as threatened under the *Nature Conservation Act 2002* and the Tasmanian Regional Forest Agreement.

⁵ Information sourced from :

Bryant, Dr S. (2002) Conservation assessment of beach nesting and migratory shorebirds in Tasmania, Nature Conservation Branch Dept Primary Industries Water and Environment. Natural Heritage Trust Project No. NWP11990. <http://dpiwwe.tas.gov.au/Documents/finalreportwithcovers.pdf>



Photograph 5: Naturally regenerated *Eucalyptus ovata* trees found in the poorly drained section of the Long Hill Forest

There are areas within the Taswood Estate that were converted from *Eucalyptus ovata* forests in the 1980's. Individual trees and some small dispersed stands have since naturally regenerated, particularly in the central north of the Estate.

To date no Swift parrots have been observed foraging within the Estate. However, as part of the Special Values Evaluation and Management process, TPPL is replanting areas with *Eucalyptus ovata* seedlings, grown from locally collected seed. The aim is to improve the quality of potential habitat over time.

HCV 2 GLOBALLY, REGIONALLY OR NATIONALLY SIGNIFICANT LARGE LANDSCAPE LEVEL FORESTS

The Tasmanian landscape is notable for its high level of forested and naturally vegetated areas. Areas that have been determined as significant, either for threatened species or threatened vegetation communities are protected through a number of large National Parks, Formal Reserves and Informal Reserves. Some areas within the Taswood Estate have environmental, cultural or social values, but do not meet the HCV 2 criteria due to their size and lack of connectivity into the larger landscape.



HCV 3 RARE, THREATENED OR ENDANGERED ECOSYSTEMS

The RFA process identified 50 different forest communities within Tasmania⁶. Currently 22 of these forest communities and a further 17 non forest communities have been identified as threatened⁷. Much of the Taswood Estate is situated on land that was converted from native forest between the 1960's and the early 2000's. Currently, no known threatened forest communities occur within the Taswood Estate. However as discussed in HCV 1.4, there are areas of damp or scrubby *Eucalyptus ovata* that have regenerated. These areas do not qualify as HCV 3 in their current state.

Streamside reserve and other rehabilitation processes and monitoring are outlined below.

HCV 4 FOREST AREAS THAT PROVIDE BASIC SERVICES OF NATURE IN CRITICAL SITUATIONS

HCV 4.1 Forests critical to water catchments

There are 48 identified water catchments across Tasmania and three main management regions. The Taswood Estate is located within 17 of these catchment areas⁸.

There are a further nine town water intakes either adjacent to the Estate or within a few kilometres down stream, and numerous domestic intakes; many within the Estate boundaries. There is also one fish hatchery whose secondary water source flows alongside a young pine stand.

#	Catchment
3	George
4	Scamander- Douglas
20	King- Henty
29	Inglis
30	Cam
33	Leven
34	Forth- Wilmot
35	Mersey
36	Rubicon

#	Catchment
37	Meander
41	South Esk
42	North Esk
44	Pipers
45	Little Forester
46	Great Forester- Brid
47	Boobyalla- Tomahawk
48	Ringarooma

⁶ Sourced from Attachment 1-7 of the Tasmanian Regional Forest Agreement
http://www.daff.gov.au/_data/assets/pdf_file/0011/49277/tas_attach1.pdf

⁷ Sourced from [http://dpiwve.tas.gov.au/conservation/development-planning-conservation-assessment/tools/monitoring-and-mapping-tasmanias-vegetation-\(tasveg\)/tasveg-the-digital-vegetation-map-of-tasmania/threatened-vegetation-communities-list](http://dpiwve.tas.gov.au/conservation/development-planning-conservation-assessment/tools/monitoring-and-mapping-tasmanias-vegetation-(tasveg)/tasveg-the-digital-vegetation-map-of-tasmania/threatened-vegetation-communities-list)

⁸ Sourced from <http://dpiwve.tas.gov.au/Documents/Tasmania-Catchment-Map.pdf>

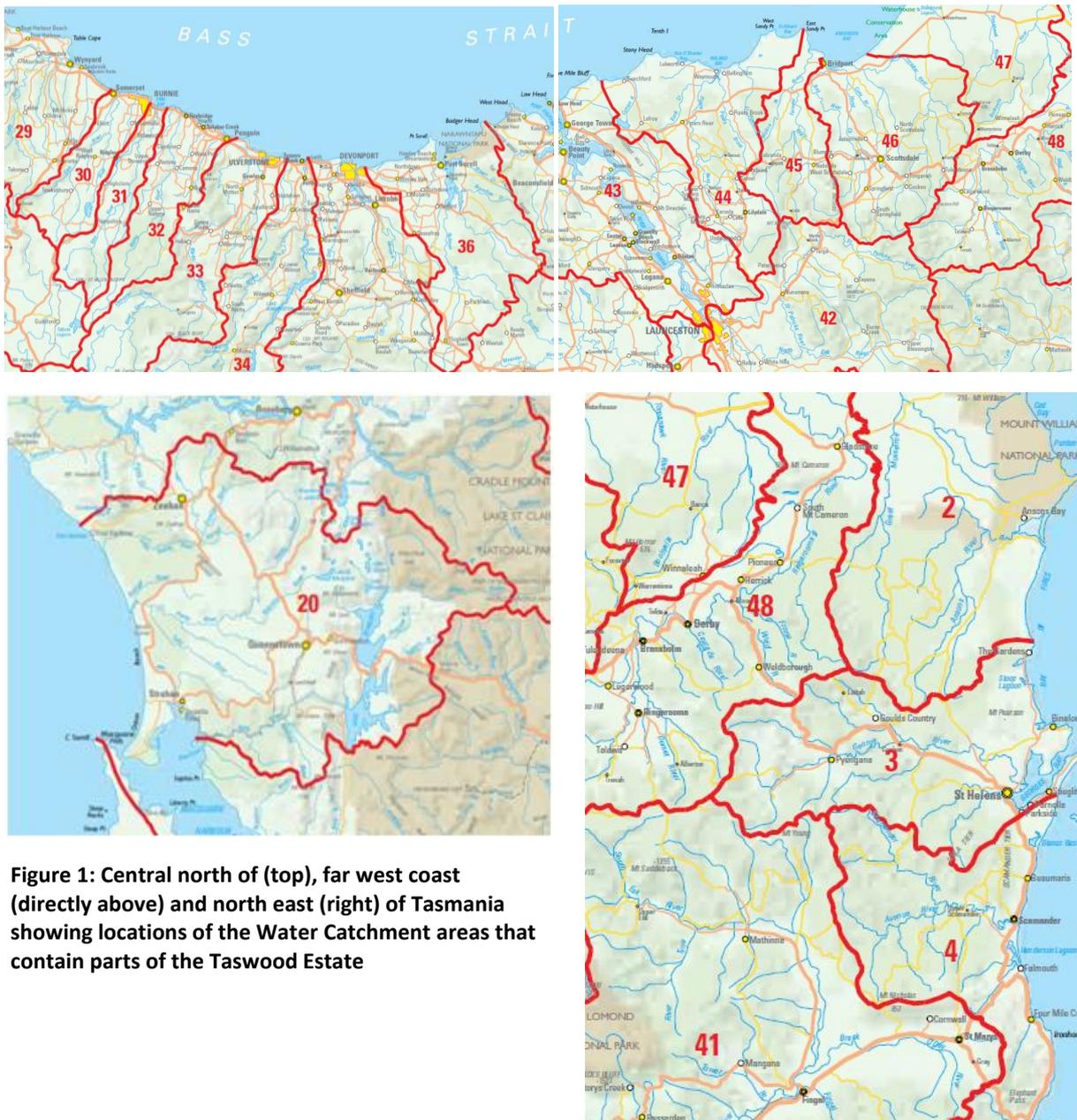


Figure 1: Central north of (top), far west coast (directly above) and north east (right) of Tasmania showing locations of the Water Catchment areas that contain parts of the Taswood Estate

TPPL has a very positive relationship with its stakeholders regarding water management. This is achieved through effective stakeholder notification of proposed forestry operations and excellent on ground consultation to address neighbour and community concerns.

Based on historic information, the majority of concerns raised revolve around chemical usage, specifically herbicide runoff and drift. TPPL strictly complies with all the legislative requirements with regards to chemical usage, specifically the Agricultural and Veterinary Chemicals (Control of Use) Act 1995 and related Regulations, the Forest Practices Code (2015) and the Code of Practice for Aerial Spraying (2000) and the Code of Practice for Ground Spraying (2001).



As the Taswood Estate is solely located on PTPZ land state restrictions on chemical usage applies. This includes the cessation of use since 2005, of chemicals in the Triazine family, specifically Atrazine, Simazine and Turbulthylazine and 1080.

TPPL also implements strict water sampling regimes on all water flowing out of a coupe where herbicides have been applied. Water samples of surface water are taken by an independent contractor on the day of application and post significant rainfall. This is carried out regardless of application method or presence or absence of water intakes. The results of the samples are made available to affected stakeholders upon request.

HCV 4.2 Forests critical to erosion control

SOUTH ESK CATCHMENT

Several Taswood forests occur within the South Esk Catchment (Catchment number 41). The South Esk is a very large catchment covering approximately 3,350 km², stretching from the Fingal Tier region in the east and Mount Saddleback in the north and eventually flows out into the Tamar Estuary. The South Esk supports some highly productive industries including irrigated agriculture (grazing and cropping), mining and forestry as well as tourism and recreation related businesses⁹.

There are five forests (Tyne, Saddleback, Evercreech, Tower Hill and Nicholas) that can be considered critical for erosion control within Upper and Middle South Esk River Management Zone, see Figure 2. These forests are located in the headwaters of the Esk, where many small ephemeral streams and drainage depressions originate in the Estate and feed into the South Esk River.

This area was initially converted from native forest to pine plantation in the 1960's and 1970's by the state government. The mining industry was declining, leaving many hundreds of people out of work; these plantations were established as a work program to employ the displaced workers. District staff plans were set in place for the broad scale clearing, burning and planting of more than 13,000 hectares within these forest areas over the following seven years. Little consideration was given to issues such as coupe dispersal, soil protection, water quality, landscape and ecological values. Broad areas, including streams, were cleared of vegetation, subjected to high intensity burns and subsequently planted with *Pinus radiata*. The legacy of this work program has been significant and as environmental standards have improved, many difficult management decisions have been made.

The East Coast and Fingal Valley are prone to weather bomb events, where 100 mm of rain can fall in very short periods of time, in highly localised areas. On the thin skeletal soils of the hills, this heavy rainfall can cause large erosion events in both forested and unforested catchments. The streams can erode to bedrock in a matter of hours.

Harvesting of the pine stands commenced in 1993 by Sustainable Timber Tasmania. When the Estate was sold in November 1999, many of the mature stands were ready for harvest. More than 50% of the terrain on which these forests are located was considered too steep for conventional harvesting machinery and therefore cable harvesting systems were used.

⁹ South Esk Water Management Plan <http://dpiwwe.tas.gov.au/Documents/South-Esk-River-Water-Management-Plan.pdf>

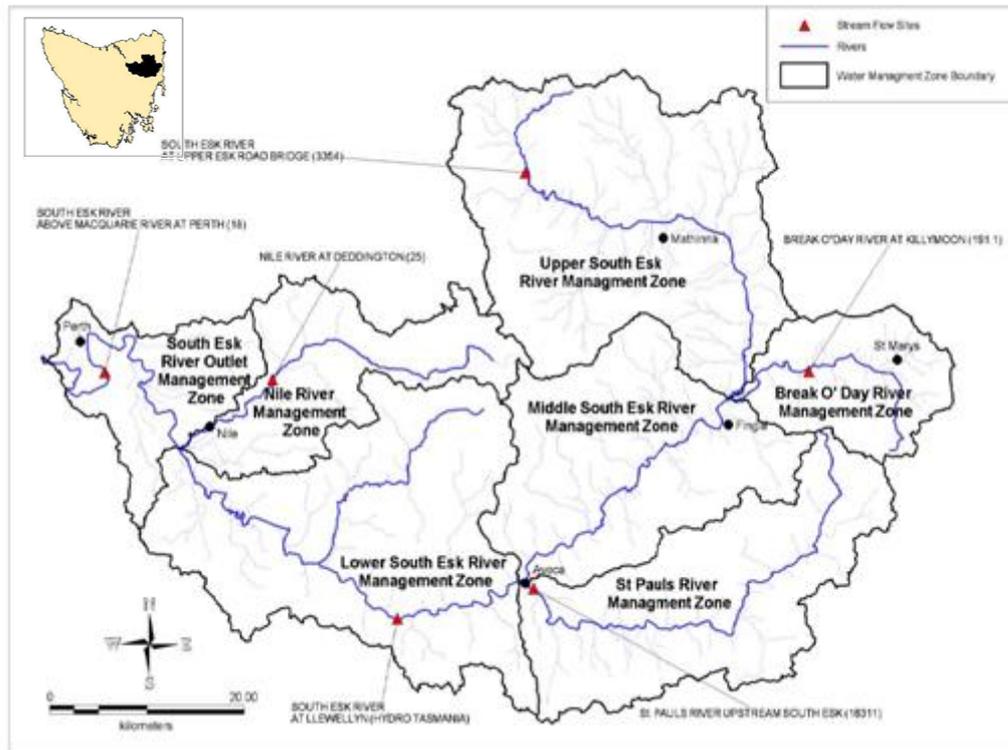


Figure 2: Map of the South Esk River Catchment showing management zones and stream flow gauging stations. The map is taken from the page 3 of South Esk River Catchment Management Plan 2013

Cable harvesting operations commenced in the area during 2001. The forests were established from west to east so the oldest age classes in the west were harvested first. Unfortunately, the newly exposed harvest faces of the Saddleback plantation succumbed to windthrow. Attempts to open new coupes with faces protected from the prevailing (NW) winds resulted in further windthrow from storm events from the South or East. A 900 hectare wildfire that occurred in late 2004 resulted in further broad scale harvesting to salvage the wood. The harvested areas grew very large and in some instances whole sub catchments were clear felled in very short periods. A subsequent storm event in April 2005 (reports of 600 mm in 48 hours nearby at Gray) caused considerable erosion of streambed material and bedrock exposure in many of the affected streams.

Numerous field visits with FPA staff followed and subsequent reforestation and harvesting trials commenced. Meaningful results from these operational trials have led to the development and implementation of the Fingal Management Plan.



Photograph 6: The harvested cable coupe and stream eroded to significantly after a major flooding event in 2005



Photograph 7: The same catchment in 2008. This stream and a wide buffer on either side were seeded with native species to help mitigate runoff and flooding.

In the last eight years, TPPL has undertaken major programs to reforest and rehabilitate the headwaters that occur within the Estate. The streamside of streams from class 4 and larger are replanted with native species and are to be excluded from future clearfall harvesting. TPPL is collaborating with NRM North to remove weed species, including pine wildlings, from priority catchments identified from NRM's modelling. Refer to the **Management and Monitoring of Special Values** section for details on TPPL's current management programs and outcomes.

WRINKLER'S CREEK

Similarly to the Fingal forests, Scamander forest on the east coast of Tasmania was established in the 1960's and 1970's as part of the same government employment scheme. The Scamander forest has similar issues to the Fingal forests with regards to large erosion events.



Photograph 8: In the fore ground is Wrinklers Lagoon, and in the background is Scamander Forest.

Streams in the south east of Scamander forest feed into the Wrinklers Lagoon Conservation Area.

HCV 4.3 Forests providing barriers to destructive fire

The Taswood Estate does not have any areas that could be considered as providing a critical barrier to fire. Radiata pine of all age classes burns readily during destructive fire events.



HCV 5 FOREST AREAS FUNDAMENTAL TO MEETING BASIC NEEDS OF LOCAL COMMUNITIES

There are no communities within the Taswood Estate and the communities surrounding it have many options for meeting their basic needs. The Taswood Estate is a provider of local employment and wood products for use in the community but is not fundamental to meeting basic local needs.

HCV 6 FOREST AREAS CRITICAL TO LOCAL COMMUNITIES TRADITIONAL CULTURAL IDENTITY

Indigenous peoples access

TPPL recognises that the Tasmania Aboriginal people are the original custodians of the land and acknowledges that the land and any traditional sites are significant to the local Aboriginal people. TPPL allows full access (other than for health and safety reasons) to all areas of the Estate if Indigenous communities request access for traditional use, such as ceremonies, gathering, hunting, access to important sites or as part of teaching law and customs to future generations.

To date, no access to any forests within the Taswood Estate has been requested by the Indigenous community.



MANAGING AND MONITORING SPECIAL VALUES

As previously stated, operational planning involves both desktop assessment of known values and field validation for new values. The internal TPPL GIS templates **FPP_Template_ops.mxd** contains all relevant TPPL managed spatial layers such as native forest type, stream location and classification, site specific hazards etc.

All Special Values found in an operational area must be considered in the harvest and reforestation planning process. Section D. CONSERVATION OF NATURAL AND CULTURAL VALUES of every Forest Practices Plan (FPP) outlines what the values are, what to do to conserve or protect them and what to do if others are found during the operation. The operational prescriptions resulting from the Special Values management are located in Section A. GENERAL at the start of the document along with a clear description of the boundary, as well as in the relevant operational section e.g. Section B. BUILDING ACCESS TO THE FOREST, Section C. HARVESTING OR CLEARING OF TIMBER, Section E1. ESTABLISHING AND MAINTAINING FORESTS, Section E2. ASSESSMENT OF REFORESTATION or Section F. MANAGEMENT OF FUEL, OIL RUBBISH AND EMISSIONS.

FPP's are legal documents. A breach of any section of the FPP will result in an investigation by an FPO and possible investigation and or prosecution by the FPA. TPPL has internal standard operating procedures for identifying and dealing with this issue.

BIODIVERSITY

There are many biodiversity values within the Taswood Estate. This section details the main management methods that are used to protect these values. All TPPL field supervisors are trained at recognising biodiversity values and in implementing their management requirements outlined in the FPP's. Likewise, contractors are given copies of all FPP's or operational plans and the specific requirements are discussed and identified in the field as required. It is a contractual obligation for all people working within TPPL managed estates to conform to all relevant legal and TPPL environmental standards. This is enforced through systematic monitoring of all operations and annual audit programs. The outcomes of these audits will be summarised in the annual TPPL Monitoring Summary. This will be made publicly available through the TPPL website.

Threatened species

In Tasmania, the management of biodiversity values within a production forest is dictated by the FPA, through the [Threatened Fauna Advisor](#) (TFA) and interaction with specialists. The TPPL Forest Practices Officer conducting the Special Values Evaluation formulates management prescriptions based on management plans detailed in the TFA. FPO's also consult the relevant FPA specialist if there is any difficulty applying the management plans or if there is anything unusual about the site or the species present. Management of all threatened species (as outlined in **HCV 1.2 Threatened and endangered species**) includes:

- The location of identified threatened species or potential habitat.



- Implementation of machinery exclusion zones around the area during harvesting to exclude disturbance. These areas are taped in the bush so there is no confusion from the crews.
- The establishment of Streamside Reserves (SSR) as part of the reforestation process. SSR's are replanted with native, in zone species (if none are present at time of harvest) and are monitored for wilding incursion during successive operations. SSR widths vary depending on stream size:
 - 10m either side of stream bank for Class 4 streams (<50 ha catchment)
 - 20m either side of stream bank for Class 3 streams (50- 100 ha catchment)
 - 30m either side of stream bank for Class 2 streams (>100 ha catchment).

Where fauna have a high level of visual disturbance sensitivity, such as Wedgetailed Eagles, much broader landscape prescriptions apply. For example, no forestry activity (including inventory) can occur within 500 meters, or 1 kilometre line of site from an active nest. Nest searches are conducted annually on upcoming operational areas to check the activity of known nests and identify new ones.

TPPL has internal GIS layers that are regularly updated, by the Forest Information Specialists, with new finds in the field. These layers contain known locations of threatened species, forest type information, stream locations etc.



Photograph 9: A large Wedgetailed Eagle nest found in a native stream reserve in Beulah forest, the adjacent pine plantation can be seen in the left side of the nest tree.

Remnant vegetation

The layout of the remnant vegetation within the Estate means it is particularly susceptible to wilding incursions. These areas are often surrounded by pine on all sides; refer to Figure 3 where remnant vegetation is shown in green. This is recognised by TPPL as a risk to the ecological values of these areas and so monitoring and maintenance is conducted regularly. This process is detailed in internal standard operating procedures. Where the Taswood Estate bounds native forest on one side, and there is a land tenure change, for example where the Estate adjoins a reserve area or FT production native forest, see Figure 3, wildling management will occur under the [TPPL Introduced Weed Species Management](#) policy.

Figure 3 demonstrates the intricate nature of remnant vegetation within the Taswood Estate. Tall eucalypt forest (shown in green) was left along the major streams when the area was converted to pine plantation in the 1980's. These areas can be severely impacted on by wildling incursions and windthrow as the surrounding pines are harvested. To ensure that these impacts are managed these areas are monitored regularly and management plans put in place as required.

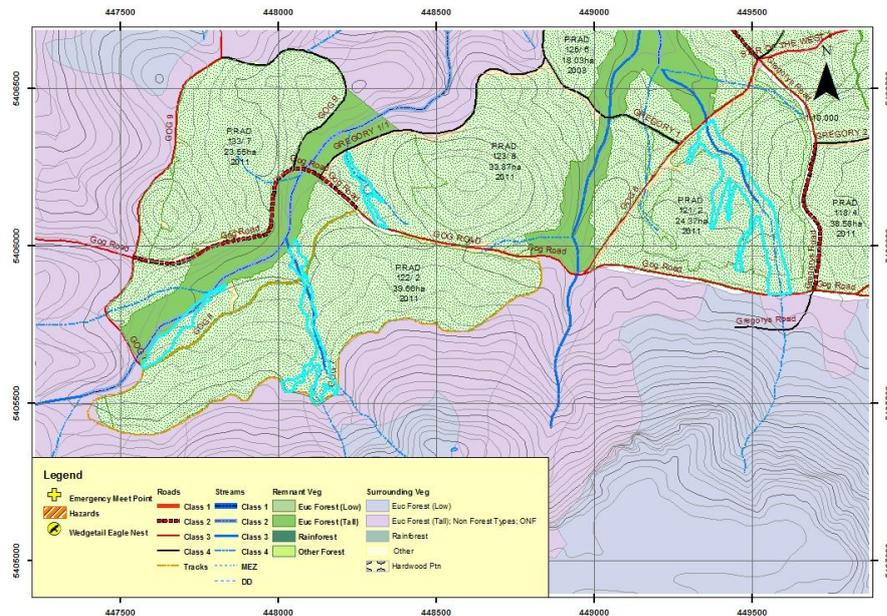


Figure 3: Forest map of Beulah, showing the complex nature of remnant vegetation, streamside reserves and native production forest within and surrounding the Taswood Estate.

Under the Forest Practices Code (2015), minimum 20 metre buffers need to be established along these streams to protect them in perpetuity. Where the original remnant buffer is not adequate, TPPL has hand planted the additional area with eucalypt seedlings, as shown by the light blue outline next to the remnant vegetation in the south west of the map. To ensure that water quality is maintained and habitat connectivity exists from native edge to native edge, additional streamside reserves have been planted, with eucalypts, along all ephemeral streams as the plantation was established for its second rotation, these are the other light blue outlines leading into the remnant vegetation.

The native forests surrounding the Beulah plantation, (shown in shades of purple) are production forests managed by Sustainable Timber Tasmania. As this is not remnant forest, TPPL manages its impacts on its neighbours through the [TPPL Introduced Weed Species Management](#) policy.

Phytophthora cinnamomii management

TPPL consults the information sources outlined in **Evaluating Special Values in the forest** above for the locality of known *Phytophthora cinnamomii* (PC). Full machine wash down is required on all TPPL managed forestry operations, as per [Tasmanian machinery wash down guidelines for weed and disease control](#) in order to stop the inadvertent introduction of the pathogen to unaffected sites. Compliance with this is checked at the completion of operations at each coupe and at start up.

Lists of plant species susceptible to PC infection are located in the Forest Botany Manuals on the [FPA website](#). If unusual death of susceptible species is noted in an area at any stage, the situation is referred to Sustainable Timber Tasmania's Forest Pathologist as part of TPPL's Forest Health protocols. Symptoms of PC infection are also monitored closely as part of the Forest Health

Surveillance program. Refer to the TPPL Taswood Forest Management Plan for Forest Health Surveillance details.

Informal Reserves

There is approximately 5,900 hectares of Informal Reserves within the Taswood Estate. These areas are identified on our internal GIS system. These areas will be managed for Conservation purposes; as there are no commercial forestry operations occurring within these areas, the main impacts identified are wildling pine incursion. Weed related issues are managed through the [TPPL Introduced Weed Species Management](#) policy.

Fire management

Fire is an effective tool used to manage risk as well as biodiversity values in and surrounding the Estate.

Fuel reduction burns and selected controlled windrow burning create a mosaic across the plantation that protects lives, property and the valuable plantation resource in the event of wildfire. Higher intensity burns are used within the Estate to control pine wildling infestation and create a seedbed for eucalypt regeneration where eucalypts are the chosen reforestation species.

TPPL engages Sustainable Timber Tasmania to undertake all fire management activities within the Taswood Estate.

Game control

Young plantations, up to age 5, and new revegetation plantings, up to 1m in height, are highly susceptible to damage and mortality from browsing mammals. In Tasmania the main browsing species are native Bennett's and Rufus Wallabies, Brushtail Possums and occasionally fallow deer. Crop protection and lethal management measures are part of TPPL's broader **Integrated Pest Management Plan** and are specifically detailed in the internal **Game Management Guide**. Crop protection permits must be obtained prior to any program commencing and only the above mentioned species may be targeted under TPPL's permits.

CULTURAL HERITAGE

Culture is a defining feature of humanity, and our heritage is how we express ourselves in continuity, in the world. Cultural heritage does not just mean physical artefacts; it is the places that are locally and spiritually significant; cultural heritage can provide a view to our past; and it can give context and meaning to the present. It is fundamental to the identity of our present and future communities.

TPPL manages areas with known or likely heritage values as per the [Taswood Cultural Heritage Management Plan](#). Datasets containing known and likely areas for management are available for interrogation by trained TPPL staff (Cultural Heritage Officer). TPPL follow existing guidelines for management of these areas through the Forest Practices Authority [Resource guide- Managing Cultural Heritage in production forests](#).



Stakeholder consultation and engagement

TPPL consults with stakeholders on a variety of topics. Most contact is with affected stakeholders, particularly neighbours that may be impacted by forestry operations. TPPL consults with other interested stakeholders primarily through its website, where general information pertaining to the Estate is publicly available. TPPL engage with stakeholders at a community level where forestry operations impact on the townships surrounding the Estate. These situations are identified and assessed through the TPPL Social Impact Assessment process which is conducted when significant or new¹⁰ operations commence in an area.

TPPL has internal guidelines which outline how staff interact with stakeholders and benchmarks what type of information is to be made available. TPPL also follows internal procedures for **Compliments, complaints and dispute resolution**, which can be made available on request, to affected stakeholders.

SOIL AND WATER MANAGEMENT

Soil protection

There are approximately 127 different soil types in the Taswood Estate and these have been mapped to a 1:10,000 scale. The spatial GIS layers are complimented by the Taswood Soils Bulletins, Forest Soils of Tasmania and Tasmanian rainfall maps from the Bureau of Meteorology. This library of soils information is consulted as part of all pre-harvest and reforestation planning.

The mix of machinery i.e. harvesting using skidders, site clearing using small excavators etc, used within the Taswood Estate has been chosen to minimise the impacts of soil erosion and compaction. Many of the soils within the Estate are easily degraded if managed inappropriately, and it is imperative that site productivity be maintained across rotations. Soil type and erodibility are described within the Soil Bulletins. This information has been further developed into the Site Disturbance Decision Tree, which uses information available in the Soils Bulletins to determine the potential impacts of harvesting on different soils prior to harvest. This decision tree and the recommended mitigation outcomes have been incorporated into the FPP development process, so management practices can be accurately tailored to site and condition.

Stream protection

All class 1- 4 streams identified as part of a Special Values Assessment have, as a minimum, a 10 metre machinery exclusion zone placed on it. If sensitive values are identified within or downstream of the coupe, additional buffers and reforestation prescriptions, as mentioned in previous sections, are prescribed.

Roading and landing locations are strictly managed following the Forest Practices Code, to ensure that water quality is not impacted by run off from these areas. Sedimentation is minimised during harvesting through controlled water runoff from landings and roads. If roads or landings are

¹⁰ New to an area, i.e. harvest planning commences in a district that has not been harvested for 30 yrs



permitted within 40m of a Class 4 or higher stream (prior authorisation must be sort from a Forest Practices Officer), additional drainage measures, such as sediment traps are used.

TPPL understands water quality encompasses more than just sedimentation and turbidity. To ensure that chemical (e.g. herbicides, fertilisers etc) use is in line with legal and community standards, TPPL carries out extensive and independent water monitoring whenever chemicals are applied.

Dependant on the type of weed species present, a number of herbicides and surfactants may be used to achieve weed control. Water samples are tested for the active ingredient of the most mobile component of a 'brew'. The samples are tested by DPIPWE laboratory, Analytical Services Tasmania located in Hobart. Results are made available to any affected neighbours on request.

Catchment Management Plans

The Fingal and Scamander forests in the North East of the Taswood Estate have particular soil and water management issues that have necessitated a broad scale planning approach. These forests are identified as HCV 4 and described in detail above. The issues that have occurred within these forests during the most recent harvesting operations originated from the conversion of native forest to plantation in the 1960's. To avoid a re-occurrence at the next harvest phase, TPPL, in conjunction with the FPA, developed the [North East Tasmania Plantation Management Plan](#).

This management plan outlines the main causes of the severe soil and stream erosion as well as the steps taken to change the plantation layout, in order to minimise the impact in the next rotation.

Mitigation steps include:

- Minimum 10m streamside reserves on all C4 stream.
- Minimum 20m streamside reserves on all C3 streams.
- Minimum 30m streamside reserve on all C2 streams, with ongoing wildling management, as funded by a NRM grant detailed in the Forest Management Plan.
- All SSR's are planted with in zone eucalypt seedlings with the aim of establishing native buffers that shade as well as bind the stream banks.
- Slash minimisation (using modified cable harvesting techniques) and removal (using small excavators in the streamside reserves) from streams and incised catchments to reduce the incidences of debris dams forming.
- Staggered reforestation program to try and spread out third rotation harvest patterns to reduce the size of area fallow at any one time.
- Reforestation with appropriate species for the site, on very low productivity sites eucalypt seeding (seeded eucalypt plantations) or pine wildling thinning gives better economic and environmental outcomes than traditional establishment regimes.



Seeded eucalypt plantations

The Taswood Estate, as mentioned previously, has approximately 127 different soil types. These range from highly productive soils derived from basalts and granites to very low productivity derived from sandstones and mudstones. Very low productivity sites are predominately in the Fingal Valley and Scamander regions as well as around Branches Creek, near Bakers Beach in the central north.

Standard reforestation regimes of site preparation, planting and fertilising are not economically viable on these sites. In 2007, TPPL began trialling alternative cost effective reforestation methods. Seeded eucalypt plantations, based on traditional clearfall burn and sow regimes used by Sustainable Timber Tasmania, utilise controlled high intensity burns to minimise pine wildling germination (pine seed is highly sensitive to smoke and heat), and prepare a suitable seedbed for eucalypt germination. The site is then seeded with 'in zone' seed collected from the site prior to harvest.



Photograph 10: Top photo is looking up a valley at a low productivity site in Branches Creek forest, designated to be reforested with native species plantation. The bottom photo is looking down (from the landing seen in the top left of the first photo) the same valley 3 years later after reforestation was completed. Note the abundance of healthy eucalypt seedlings.

Seeded sites are surveyed for seedling survival at 18 months of age, to ensure that the site has an adequate stocking. As can be seen from Photograph 10, the results to date have been excellent.



WETLANDS

Wetlands are managed by TPPL as per guidelines outlined in the Forest Practices Code 2015. In addition, TPPL manage large scale areas of the Estate as per the [North East Plantation Management Guidelines](#). This document outlines areas in the North East of Tasmania that are highly susceptible to soil degradation due to erosion. It also describes the, background information on plantation development in these areas, the intended management outcomes for current and future harvesting and reforestation, and an action plan for operational implementation.



ASSOCIATED DOCUMENTS

ADDITIONAL INFORMATION

Further information regarding the management of fauna and flora can be found at [Forest Practices Authority](#) website:

[Biodiversity Values Database](#)

[DPIPWE– natural values atlas](#)

[Fauna Technical notes](#)

[Flora Technical notes](#)

[Forest Botany Manuals](#)

[FT conserve database](#)

[Resource guide for managing cultural heritage in wood production forests](#)

[Tasmanian average rainfall map](#)

[Threatened Fauna Advisor](#)

MANAGEMENT PLANS

[Taswood Cultural Heritage Management Plan](#)

Fingal Management Plan

Game management guide

Integrated Pest Management Plan

[North East Plantation Management Guidelines](#)

Scamander Plantation Management Plan

TPPL POLICIES

TPPL Emissions and Waste Minimisation Direction

TPPL Fuel and Oil Policy

TPPL HR strategic principals

[TPPL Introduced Weed Species Management](#)

[TPPL Safety and Environment Policy](#)