



Appendix A  
FAP Module 1 Overview

Forest Audit Program Toolbox

# Module

# 1

Overview



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## FOREST AUDIT PROGRAM TOOLBOX



### **Module 1 Overview**



### Module 2 Audit Process



### Module 3 Tactical Planning



### Module 4 Operational Planning



### Module 5 Harvesting and Closure



### Module 6 Harvesting Performance



### Module 7 Regeneration and Finalisation





# 1 MODULE 1 – OVERVIEW

## 1.1 BACKGROUND

The Department of Sustainability and Environment (DSE) is the regulator of timber harvesting operations on public land in Victoria. VicForests is responsible for the management of commercial harvest and sale of timber from State forest within the east of the State, while other parts of the State are overseen and managed by DSE, see *Figure 1.1*. Timber harvesting operations and associated activities conducted in State forest must be undertaken in accordance with the *Sustainable Forests (Timber) Act 2004* (the Act). The Act includes requirements that these operations comply with the *Code of Practice for Timber Production 2007* (the Code).

Following a review of the previous forest auditing programs that was administered by the Environment Protection Authority (EPA), the Minister for Environment and Climate Change announced that a new Forest Audit Program would be established by DSE and would ensure that timber harvesting practices in State forests are open and transparent. The Minister also directed DSE to ensure that the new Forest Audit Program (FAP) retained key features from the previous program, including the statutory environmental audit framework, stakeholder consultation and public reporting. These compulsory requirements have been included in the design of the new FAP.

The FAP will apply to commercial timber harvesting conducted in State forests. The audits will provide an objective and independent assessment of risk of harm to the environment, status of compliance with the relevant regulatory framework, and assist DSE and VicForests to pursue their objectives for continual improvement. Audit reports detailing compliance with the regulatory framework will assist in informing members of the community about harvesting performance.

The aim of the new FAP can be summarised in three points:

- To assess the performance of timber harvesting operations against the compliance framework,
- To review the effectiveness of the regulator.
- To review the effectiveness of the regulatory framework.

Environmental Resource Management Australia (ERM) was commissioned by DSE to assist in designing the new audit program.



**Figure 1.1 DSE/VicForests management roles in Victoria’s State forests (DSE 2008)**

**1.2 OVERVIEW OF VICTORIA’S ENVIRONMENTAL AUDIT SYSTEM**

The *Environment Protection Act 1970* provides for the statutory appointment of environmental auditors and their responsibilities to ensure that high quality, rigorous environmental audits are conducted by appropriately qualified professionals. The Environmental Audit System currently has three well-established applications that cover contaminated land, industrial facilities and natural resources.

The *Environment Protection Act 1970* defines two forms of environmental audit. Section 53V provides for environmental audits that are carried out on risk of harm to the environment caused by industrial processes or activity, waste, substance or noise (EPA, 2007) and section 53X provides for audits of a segment of the environment.

Audits conducted as part of the FAP are conducted under section 53V of the *Environment Protection Act 1970*.

An environmental audit is an assessment of the nature and extent of harm (or risk of harm) to the environment posed by an industrial process or activity, waste, substance or noise. An environmental audit must be able to deliver authoritative advice, upon which individuals and organisations are able to rely in making decisions which affect the future of the community.

An environmental audit therefore must be:

- Independent;
- Objective;
- Credible; and
- Transparent.

**1.3 INTENDED USERS**

It is intended that the FAP Toolkit and supporting Modules will be used by Auditors appointed pursuant to the *Environment Protection Act 1970*, and their supporting staff, engaged by DSE to implement the annual FAP.

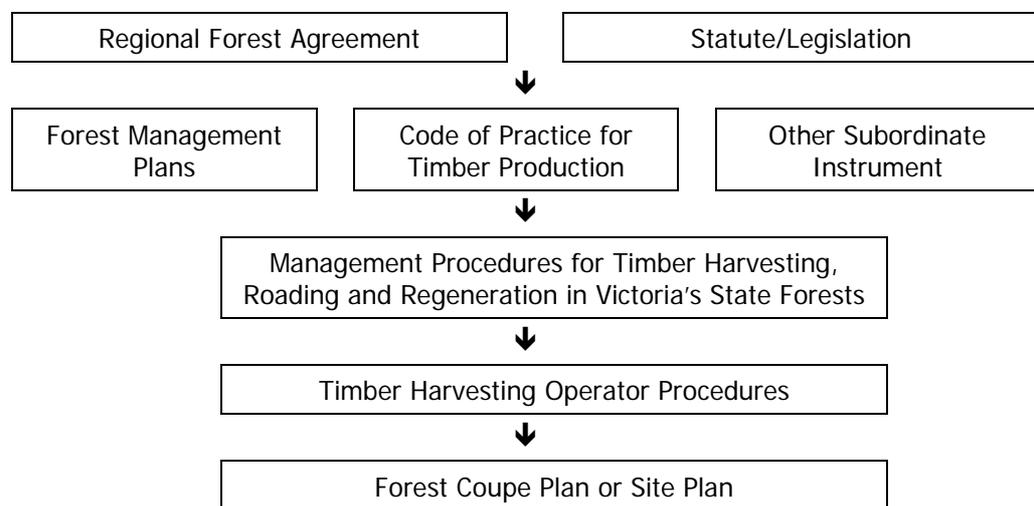


## 2 OBJECTIVES AND SCOPE OF THE FOREST AUDIT PROGRAM

### 2.1 AUDIT PROGRAM OBJECTIVES

It is intended that the FAP will support continual improvement in sustainable timber production processes over time. This will be driven by the primary objective of the FAP, in assessing and monitoring compliance of timber harvesting operations with the relevant environmental legislation and regulatory framework (as updated over time).

The framework relating to sustainable timber production in Victoria's State forest is summarised below.



**Figure 2.1 Regulatory Hierarchy (generalised)**

Additional objectives include the following elements:

- Assessing the consistency of the planning framework for sustainable timber production with the regulatory and legislative environment;
- Assessing the compliance of operational timber harvesting planning with the tactical planning framework provided by the Allocation Order, Timber Release Plans and/or Wood Utilisation Plans; and
- Assessing the performance of timber harvesting conducted in State forest.

The outcomes of the FAP are intended to benefit DSE as the environmental regulator, the Victorian forestry industry, catchment managers and the community. The public reporting of audit findings will inform members of the community and improve transparency.

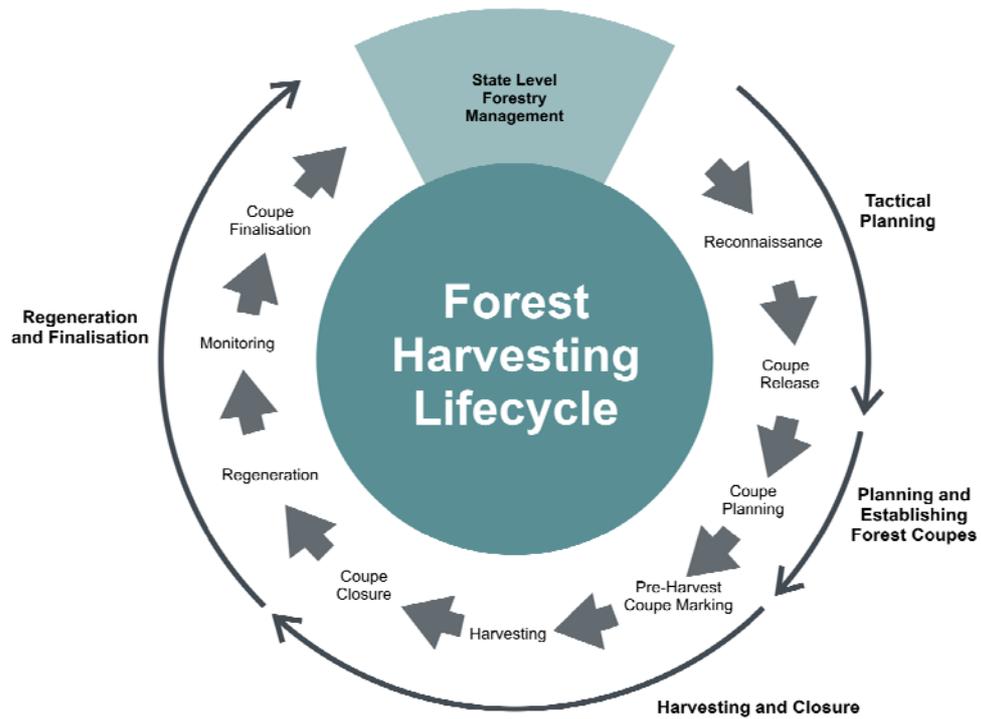
## 2.2 AUDIT PROGRAM SCOPE

The audit program applies to the management of forests for timber production on State forests across all of Victoria. This includes commercial timber harvesting operations undertaken by VicForests in eastern Victoria and by DSE in other parts of the State.

The scope of the FAP is built upon the forest harvesting lifecycle and includes:

- Forest planning and reconnaissance;
- Coupe planning;
- Harvesting and closure; and
- Regeneration, monitoring and finalisation.

Figure 2.2 below represents the forest harvesting lifecycle.



**Figure 2.2 Forest Harvesting Lifecycle**

### 2.2.1 Out of scope elements

The following elements have been defined as beyond the scope of the FAP:

- Compliance with rules, regulations or guidelines that relate to Occupational Health and Safety (OH+S) matters;



- Timber harvesting practices undertaken in plantations or on non-State forest;
- Roding activities conducted in State forests that are not associated with timber production;
- Silvicultural practices conducted in State forests that are not associated with commercial timber production (i.e. fire recovery silviculture and ecological thinning);
- Land use decisions and associated “forest policy”;
- The forest management planning processes (such as the establishment of forest management plans), this exclusion does not relate to the assessment of compliance against relevant prescriptions contained in such planning documents (e.g. those relating to forest operational planning, roding, harvesting and regeneration practices);
- Assessing methods used in the development of the Allocation Order;
- Practices associated with production and collection of domestic forest produce (including firewood) on all land tenures;
- Recreational activities undertaken in State forests;
- Livestock grazing activities undertaken in State forests;
- Apiary activities undertaken in State forests; and
- Fire suppression and management practices undertaken in State forests (e.g. fuel reduction burning and habitat enhancement burning), with the noted exception of post harvest burning undertaken in State forests.

### **2.2.2 Selecting targets for the Forest Audit Program**

Section 2.3.1 of this module outlines how the FAP toolbox has been divided into different audit modules based on groups of related management and harvesting activities that are aligned with different stages of the forest lifecycle (see Figure 2.2). It is important to consider this modular approach in the selection of audit targets across the FAP, given that audit methods change for different audit modules.

The selection of audit targets across the FAP can potentially span the majority of the lifecycle of Victoria’s State forests. This is a large and complex process and will need to take into consideration commercial factors (such as the cost of engaging independent environmental auditors) and the resources that are available to DSE in any given year.

The modular design of the FAP will allow for greater flexibility in the selection of audit targets, based on annual priorities. DSE has identified priority areas that are likely to be included as recurrent audit targets. Other factors have also been highlighted that may be considered in determining annual audit priorities, and may be considered in target selection.

Priority areas include:

- Allocation Order and Timber Release Plans;
- Wood Utilisation Plans;
- Planning of timber harvesting operations;
- The performance of timber harvesting operations against the Code and other relevant regulatory requirements;
- Regeneration and coupe finalisation.

Other factors that may also need to be considered in selecting audit targets include:

- Geographical regions;
- Forest types;
- Site specific issues, such as:
  - Flora values (eg rainforest);
  - Fauna values (eg threatened species);
  - Fire salvage operations;
  - Catchments; and
  - Cultural values.

There may also be times, when it is appropriate under the statutory environmental audit framework for environmental auditors to investigate activities and/or events or conditions outside the scope of the audit that present an imminent hazard to the environment or impacts on beneficial uses. Auditors are expected to pursue such investigations where professional judgement leads to the conclusion that to do so complies with their obligations as an appointed auditor under the *Environment Protection Act 1970* and would likely provide a materially enhanced understanding of the management of the forest.

### 2.2.3 Environmental Values

In assessing the risk of harm or detriment to the environment, the following beneficial uses are considered broadly relevant to the FAP:

- Life, health and wellbeing of humans;
- Life, health and wellbeing of other forms of life, including the protection of ecosystems and biodiversity; and
- Local amenity and aesthetic enjoyment.



## 2.2.4 Segments and Elements of the Environment Covered by the FAP

The segment of the environment covered by the FAP are defined as that portion of Victoria in which timber is harvested from State forest. The following elements of the environment (as defined in the *Environment Protection Act 1970*) are relevant to the audit program scope:

- Land;
- Surface water;
- Groundwater;
- Vegetation;
- Aesthetics;
- Wildlife;
- Climate; and
- Fish.

## 2.3 FOREST AUDIT PROGRAM TOOLBOX

### 2.3.1 Toolbox Modules

The FAP Toolbox comprises seven modules that are based around the forest harvesting lifecycle. This association of the modules is illustrated in Figure 2.3.

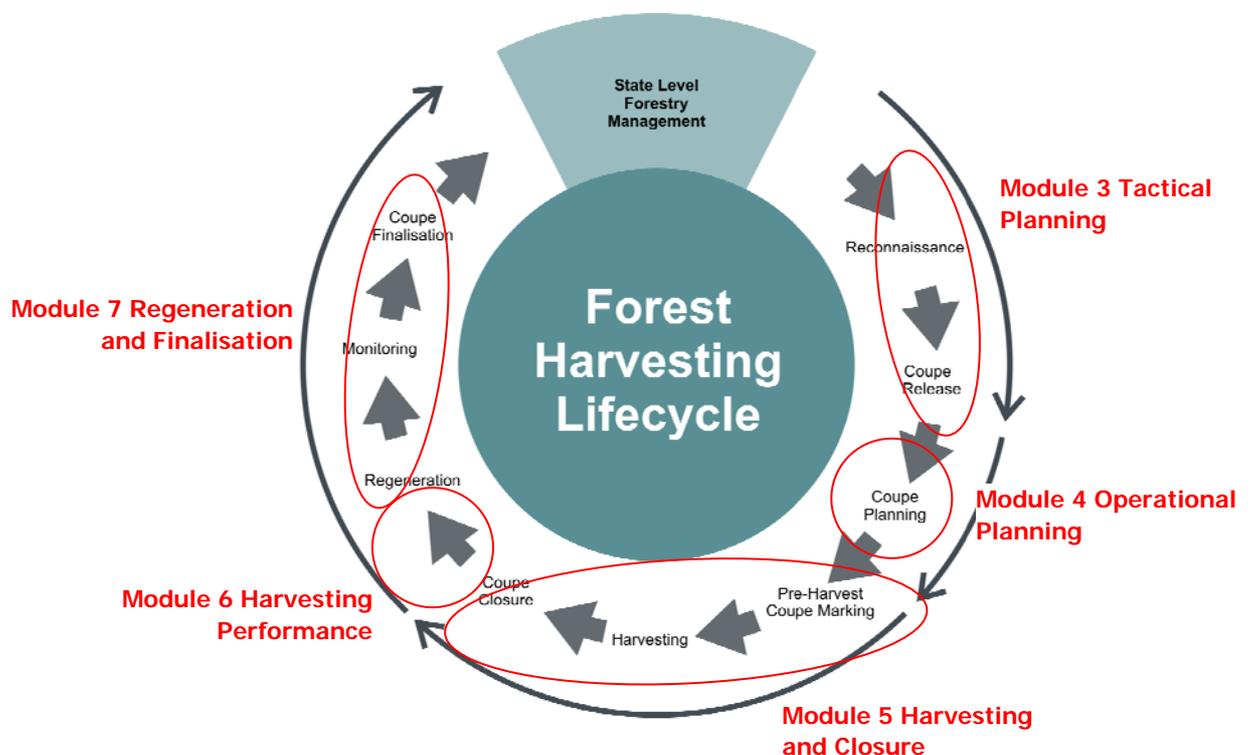


Figure 2.3 Audit Program Modules

An overview of each module is provided as follows:



### **Module 1 Overview** (*this module*)

Module 1 provides an outline of the Forest Audit Program, its objectives, scope and statutory obligations.



### **Module 2 Audit Process**

Module 2 provides a description of the audit process including the procurement and selection of auditors, selection of audit targets and other considerations for auditors.



### **Module 3 Tactical Planning**

Module 3 outlines the scope and preferred method for assessing compliance with the tactical planning compliance elements and associated criteria, including the guidelines and approval process for Timber Release Plans (TRPs) and Wood Utilisation Plans (WUPs).



### **Module 4 Operational Planning**

Module 4 outlines the scope and preferred method for assessing compliance related to management processes implemented to identify, assess and manage environment and sustainability risks during coupe establishment.



### **Module 5 Harvesting and Closure**

Module 5 outlines the scope and preferred method for assessing compliance related to harvesting and closure. It includes assessment of roading and environmental values as part of harvesting operations including closure.



### **Module 6 Harvesting Performance**

Module 6 outlines the scope and preferred method for assessing compliance related to monitoring of annual harvest performance and compliance with the Allocation Order (AO), TRPs and WUPs.



### **Module 7 Regeneration and Finalisation**

Module 7 outlines the scope and preferred method for assessing compliance related to regeneration and finalisation. This includes regeneration, stocking, tending and general forest health.



### **2.3.2 Module Compliance Elements**

Audits should include assessment against applicable criteria that have been identified in the audit workbooks in Modules 3 – 7 of this toolbox. Compliance with the applicable criteria and procedures will determine whether the principles of forest sustainability are being met.

The workbooks included in the modules correspond to the assessment of defined compliance elements as follows:

#### **Module 3 – Tactical Planning**

- TRP/WUP development and approval process

#### **Module 4 - Operational Planning**

- No specific compliance element exists, however this module includes a process audit to review linkages between TRP/WUP approvals and operational planning systems (including, but not limited to, consideration of heritage, exclusion zones, silviculture, hazard identification, soil erosivity).

#### **Module 5 – Harvesting and Closure**

- Forest Coupe Plans, including a sub element on Exclusion Zones
- Operational Provisions, (ie. weather, seasonal provisions)
- Water Quality, River Health and Soil Protection, including sub-elements:
  - Waterways
  - Buffers
  - Filters
  - Slopes
  - Camp Maintenance, Fuel Storage & Waste Disposal
  - Water Catchments
- Biodiversity Conservation including sub-elements:
  - Habitat Trees
  - Rainforest
  - Forest Health

- Roothing including sub-elements:
  - Road Planning
  - Road Design
  - Road Construction
  - Road Maintenance
  - Suspension of Cartage
  - Road Closure
- Coupe Infrastructure Provisions, including sub-elements:
  - Log Landings and Dumps
  - Snig and Forwarding Tracks
  - Boundary Trails

### **Module 6 – Harvesting Performance**

- Compliance with Wood Utilisation Plans (WUPs)
- Compliance with the Allocation (including thinning) Order
- Compliance with Timber Release Plans (TRPs)
- Cumulative harvest limits in Melbourne's water catchments
- Cumulative harvest limits in Special Management Zones.

### **Module 7 – Regeneration and Finalisation**

- Coupe Regeneration Provisions
- Stocking Assessment Provisions (ie. species diversity and forest density)
- Tending and Forest Health Provisions including pest control, seed crop monitoring and coupe maintenance.



### **3 STATUTORY OVERVIEW**

The following key legislation is considered relevant to the Forest Audit Program. It is important to note that the regulatory publications employed to assess compliance of timber harvesting operations must be relevant to the date of harvest. A number of coupes may have been harvested or regenerated under old prescriptions.

A comprehensive list of legislation, guidelines and other general references considered applicable to auditing of the compliance elements within each module (modules 3–7), are listed in Section 4 of the relevant module booklet. Additional legislation, policy and guidance notes relevant to forest management for timber production are also listed in Appendix A and Appendix B of the Code of Practice for Timber Production 2007.

#### **3.1 SUSTAINABLE FORESTS (TIMBER) ACT 2004**

The *Sustainable Forests (Timber) Act 2004* (the Act) is the overarching legislative document for the management of commercial timber harvesting within Victoria. The Act describes the obligations for persons undertaking timber harvesting in State forest, including complying with the Code. The Act establishes a framework for the sustainable management of Victoria's State forests and provides for the development of a Sustainability Charter to establish criteria and indicators to monitor and report on performance. The Sustainability Charter was subsequently published by DSE (2006) and specifies objectives around maintaining items such as biodiversity, ecosystems, and managing disturbance.

The Act enables the allocation of timber resources to VicForests for commercial forestry operations. It also defines VicForests' reporting and performance obligations. Section 96 of the Act provides for the development of regulations governing the licensing of commercial timber harvesting operations. This includes establishment of a Timber Harvesting Operator Licence system and prescribes an enforcement and penalty regime for breaches of specified environmental requirements.

##### **3.1.1 Sustainability Charter**

The Act provides for the development of a Sustainability Charter. The Act states that the Sustainability Charter must set out objectives, consistent with the National Principles of Ecologically Sustainable Development, for both the sustainability of forests and the sustainability of the timber harvesting industry.

The Charter sets the direction for sustainable forest management in Victoria. It commits DSE and VicForests to support the objectives set out in the Charter. VicForests will respond to the Government's sustainability agenda by developing initiatives and targets to progress the objectives of the Charter. It will include these in its statement of corporate intent and report on the outcomes of these initiatives as part of its normal business reporting. Subsequently, both DSE and VicForests are working to achieve sustainable forest management.

## 3.2 ENVIRONMENT PROTECTION ACT 1970

The *Environment Protection Act 1970* (the EP Act) seeks to prevent pollution and environmental damage by setting environmental quality objectives and establishing programs to meet them. The EP Act has been amended over time to reflect the growing interest in best practice in environment protection regulation and to meet the needs of the community.

Key aims of the EP Act include sustainable use and holistic management of the environment, ensuring consultative processes are adopted so that community input is a key driver of environment protection goals and programs and encouraging a co-operative approach to environment protection.

It is under Section 53S of the EP Act, that the EPA appoints environmental auditors to undertake environmental audits, including audits commissioned under this FAP.

### 3.2.1 EPA Environmental Auditor Guidelines

Whilst DSE will commission environmental audits under the FAP, the EPA administers Victoria's environmental audit system. The following guidelines provide important standards that apply to the conduct of independent environmental audits undertaken in accordance with Part IXD of the EP Act.

- Publication No. 865.7: Appointment and Conduct, October 2008 - these guidelines also set out the processes followed by EPA when making, suspending and revoking appointments as environmental auditors.
- Publication No. 953.2: Conducting Environmental Audits, August 2007 - these guidelines have been issued primarily to assist environmental auditors to conduct environmental audits. The guidelines may also be useful for audit clients, auditees and the community.
- Publication No. 1147: Provision of Environmental Audit Reports, Certificates and Statements, September 2007 - these guidelines provide guidance on the provision of paper and electronic versions of completed environmental audit reports, statements and certificates to the EPA.
- Publication No. 952.2: Preparation of Environmental Audit Reports on Risk to the Environment, August 2007 - these guidelines provide guidance on the provision of paper and electronic versions of completed environmental audit reports on risk to the environment to the EPA.

## 3.3 CATCHMENT AND LAND PROTECTION ACT 1994

Measures to reduce the impact of timber harvesting on water quality and river health must take account of other requirements set out in Special Area Plans made under the *Catchment and Land Protection Act 1994*. Further, this Act requires all landholders to control pest animals and noxious weeds on their property.



### **3.4 FLORA AND FAUNA GUARANTEE ACT 1988**

*The Flora and Fauna Guarantee Act 1988* (the FFG Act) provides for the listing of Victoria's threatened plant and animal species, ecological communities and potentially threatening processes.

Action Statements are prepared for threatened plant and animal species under Section 19 of the FFG Act. These documents may contain prescriptions relating to the planning and conduct of harvesting operations that are relevant to the FAP.

### **3.5 SUSTAINABLE FORESTS (TIMBER HARVESTING) REGULATIONS 2006**

The *Sustainable Forest (Timber Harvesting) Regulations 2006* (the Regulations) provide further detail on the Timber Harvesting Operator Licence system and the enforcement rules for individual timber harvesting operators. Under the Regulations, penalties may apply to individuals if their conduct is not compliant with the Code.

### **3.6 ALLOCATION ORDER**

Resource allocation to VicForests is made through an Allocation Order (AO), which is prepared by DSE. The AO identifies the area available in particular forest stands for each of three five-year periods, together with the full extent of those forest stands. Section 9 of the Act, requires that VicForests monitor and report on operations authorised under this Act.

The conditions of the Allocation Order to which VicForests must comply are included in the following documents:

- Sustainability Charter for Victoria's State forests;
- Code of Practice for Timber Production 2007 (supersedes the 1996 code);
- Code of Practice for Fire Management on Public Land 2006, (supersedes the 1995 code);
- Various management guidelines as specified in Forest Management Plans relevant to the Allocation Order;
- Management procedures for timber harvesting and associated activities in State forests in Victoria; and
- Fire Salvage Harvesting Prescriptions.

### 3.7 CODE OF PRACTICE FOR TIMBER PRODUCTION 2007 (AS AMENDED)

The Code of Practice for Timber Production 2007 (the Code) is a key regulatory instrument that applies to commercial timber production in both public and private native forests and plantations in Victoria. It is a statutory document prepared under Part 5 of the *Conservation, Forests and Lands Act 1987*. Compliance with the Code is required under the Act, and this is achieved through its incorporation into the Victoria Planning Provisions.

The Code lays down state wide goals and guidelines that apply to timber harvesting, timber extraction, roads, regeneration, and reforestation in native forests as well as to the planning, establishment and management of softwood and hardwood plantations.

The purpose of the Code is to provide direction and guidance to forest managers and operators to deliver sound environmental performance when undertaking commercial timber growing and harvesting operations, that:

- Permits an economically viable, internationally competitive, sustainable timber industry;
- Is compatible with the conservation of the wide range of environmental, social and cultural values associated with timber production forests;
- Provides for the ecologically sustainable management of native forests proposed for continuous timber production; and
- Enhances public confidence in the management of Victoria's forests and plantations for timber production.

Subsequently, the Code establishes goals and guidelines in environmental care for all commercial timber production activities in the state.

The Code provides some key state-wide requirements for timber harvesting operations conducted on public land (for example, width of streamside buffers and grades of roads), which act as minimum allowable local standards. The additional requirements are documented within a range of subordinate prescriptions, management plans and procedures of which some are summarized below. These requirements are tailored at a local level for the specific characteristics of forests and harvesting conditions that vary within each region across the State.

#### 3.7.1 Fire Salvage Harvesting Prescriptions 2009 (as amended)

The Fire Salvage Harvesting Prescriptions 2009 (Salvage Prescriptions) apply to timber harvesting operations conducted within bushfire affected areas. Timber harvesting operations conducted in burnt environments (salvage operations) require different management to conventional harvesting operations to ensure timber recovery is expedited and that salvage operations, as a second major disturbance to a forest in a short period, do not necessarily compound any environmental impacts caused by the bushfire. Salvage operations have the potential to adversely impact on the ecosystem following bushfire, through removal of habitat refuges and structures, damage to regenerating plants, distribution of weeds, and sedimentation.



The Fire Salvage Harvesting Prescriptions apply to burnt areas up to 3 years after a fire event. Conditions applied to approved coupes, in conjunction with the Fire Salvage Harvesting Prescriptions 2009 constitute the 'Special Plans' required by the Code.

The 2009 prescriptions were issued on the 6 October 2009 and commenced on 6 October 2009. The prescriptions replace the Fire Salvage Harvesting Prescriptions, Revision 2.0, previously issued 3 March 2008. Additional revision history can be found in Appendix 2 of the current prescriptions.

### **3.7.2 Management Procedures for Timber Harvesting, Roding and Regeneration in Victoria's State Forests 2009 (as amended)**

The Management Procedures provide additional guidance to DSE and VicForests staff in meeting the requirements of the Code, and specify environmental and operational requirements additional to those of the Code.

The objectives of the Management Procedures are to:

- Standardise, where appropriate, the management of timber harvesting operations and associated activities in all Victorian State forests;
- Provide instruction on operational and administrative procedures;
- Form part of the regulatory framework for timber harvesting operations and associated activities;
- Provide a framework for consistent administrative arrangements between DSE and VicForests at an operation level; and
- Provide a framework for VicForests and DSE to prepare subsidiary operational procedures for staff, contractors and timber harvesting operators.

The 2009 procedures were issued on the 12 October 2009 and commenced on 19 October 2009. The procedures replace the Management Procedures for timber harvesting operations and associated activities in State forests in Victoria, previously issued October 2007.

### **3.7.3 Coupe Finalisation Procedures**

The Coupe Finalisation Procedures (CFPs) describe the process by which DSE will resume full management responsibility of coupes following the completion of timber harvesting operations, rehabilitation and regeneration activities. The CFPs are only relevant to coupes harvested by VicForests.

The CFPs set out:

- Minimum regeneration and rehabilitation standards for even aged and uneven aged coupes harvested after 31 July 2004 and thinned coupes of ash or mixed species;

- Timelines and responsibilities for VicForests with respect to the regeneration of standard coupes, salvage coupes and road line coupes; and
- Required action, responsibilities and completion dates for the review of coupes nominated for finalisation including desktop and field based verification of stocking levels and data accuracy.

The 2008 procedures were issued on the 2 October 2008 and commenced on 6 October 2008. The procedures replace the Coupe Finalisation Procedures previously issued August 2007.

#### **3.7.4 Native Forest Silviculture Guideline Series**

Reference should also be made to the Native Forest Silviculture Guideline (NFSG) series (1993-2006), as amended, which provide standards and guidance around silvicultural and regeneration activities.



## 4 GLOSSARY

Auditee	An auditee is a person or organisation being audited. DSE administers audits of organisations or individuals whose activities relate to Victorian timber harvesting in State forest. Relevant timber harvesting operations include those managed by VicForests in eastern-Victoria, as well as those managed by DSE in other parts of the State
Auditor	A highly qualified and skilled individual with extensive experience in environmental science and or engineering, as well as environmental auditing appointed pursuant to the EP Act to conduct an independent and objective assessment of the nature and extent of harm (or risk of harm) to the environment posed by a process or activity, waste, substance or noise.
Biodiversity	The natural diversity of all life: the sum of all our native species of flora and fauna, the genetic variation within them, their habitats, and the ecosystems of which they are an integral part.
Compliance Element	The subject, activity or operational component being assessed for compliance against the regulatory framework. Generally referred to as 'focus areas' in the former audit program operated under EPA.
Compliance Theme	Topics and/or issues deemed to overlap a number of compliance elements and/or auditing modules that may require additional focus on a recurring basis. Themes can be seasonal or regional, associated with biodiversity, coupe or forest type and/or other special prescriptions.
Clear-felling	Silvicultural method of harvesting a coupe whereby all merchantable trees, apart from those to be retained for wildlife habitat, are removed.
Coupe	An area of forest of variable size, shape and orientation from which logs for sawmilling or other industrial processing are harvested.
Erosion risk	The likelihood of erosion occurring due to soil erodibility, rainfall erosivity, slope and soil disturbance.
Forest Coupe Plan	A plan that must be prepared for each harvesting operation in public native forest and will contain a map identifying the area and a schedule incorporating the specifications and conditions under which the operation is to be administered and controlled.
Forest Management Area (FMA)	Basic units for forest planning and management in Victoria. Currently Victoria is divided into 15 Forest Management Areas as defined in the Forests Act 1958.

Forest Management Plan (FMP)	Forest Management Plans are produced by DSE to address the full range of values and uses in FMAs, which have been designated as the units for planning forest management activities.
General Management Zone (GMZ)	A zone within a State forest defined as an area of land that will be managed for the sustainable production of timber and other forest products.
Habitat Tree	A tree identified and protected from harvesting to provide habitat or future habitat for wildlife. A habitat tree may be living or dead, and often contains hollows that are suitable shelter and/or nesting sites for animals such as possums and parrots.
Regeneration	The renewal or re-establishment of native forest flora by natural or artificial means following disturbance such as timber harvesting or fire.
Rehabilitation	The restoration and revegetation of a site of disturbance usually associated with landings and other within-coupe infrastructure.
Regulator	A government agency, typically a statutory authority. In the context of the FAP, DSE as the regulator is responsible for ensuring that commercial timber harvesting activities Victoria's State forests are compliant with Victoria's regulatory framework. This includes compliance with relevant legislation, regulations and guidelines, including those specified in the Code of Practice for Timber Production 2007.
River health	An ecologically healthy river is one where the major natural features, biodiversity and/or functions of the river are still present and will continue into the future. Some change from the natural state may have occurred to provide for human use.
Special Management Zone (SMZ)	A zone within a State forest defined as a zone which will be managed to conserve specific features, while catering for timber production under certain conditions. Areas included cover a range of natural or cultural values, the protection or enhancement of which require modification to timber harvesting or other land-use practices rather than their exclusion. The zone contributes substantially to the conservation of important species, particularly fauna.
Special Protection Zone (SPZ)	A zone within a State forest defined as a zone which will be managed for conservation, and timber harvesting will be excluded.
Special Water Supply Catchment	A catchment that has been officially declared under Schedule 5 of the <i>Catchment and Land Protection Act 1994</i> .



State Forest	<p>As defined in Section 3 of the <i>Forests Act 1958</i>, State forest comprises publicly owned land which is managed for the conservation of flora and fauna; for the protection of water catchments and water quality; for the provision of timber and other forest products on a sustainable basis; for the protection of landscape, archaeological, historical and other cultural values; and to provide recreational and educational opportunities.</p>
Thinning	<p>The removal of part of a forest stand or crop, with the aims of increasing the growth rate and/or health of retained trees and, in commercial thinning, obtaining timber from trees that would otherwise eventually die before final harvest.</p>
Timber Release Plan (TRP)	<p>The Timber Release Plan (TRP) is prepared by VicForests in accordance with Part 5 of the <i>Sustainable Forests (Timber) Act 2004</i>.</p> <p>The TRP provides a schedule of coupes selected for timber harvesting and associated access road requirements; identifies the location and approximate timing of timber harvesting in the proposed coupes; and identifies the location of any associated access roads. It includes coupe details and maps.</p> <p>VicForests prepares TRPs that cover a rolling five-year period.</p>
Water supply catchment	<p>A catchment from which water is used for domestic water supply purposes.</p>
Waterway	<p>A permanent stream, temporary stream, drainage line, pool or wetland as defined in the Code of Practice for Timber Production 2007 (as amended).</p>
Wood Utilisation Plan (WUP)	<p>A Wood Utilisation Plan (WUP) is prepared by DSE to detail the type and quantity of wood to be produced in the state and to allocate wood to processors in western Victoria. The plan is prepared annually and covers a rolling three-year period, with detailed specifications for the first year and indicative specifications for the following two years.</p> <p>A WUP may also apply to some coupes managed by VicForests in the east of the state.</p>

Further definitions relevant to harvesting and regeneration activities are available in the Code of Practice for Timber Production 2007 (as amended).

## 5 ACCRONYMS

AO	Allocation to VicForests Order 2004 (as amended) – generally referred to as the “Allocation Order”
ARR	Absolute Risk Rating
CAP	Corrective Action Plan
CFP	Coupe Finalisation Procedures
CIS	Coupe Information System
DSE	Department of Sustainability and Environment
EIA	Environmental Impact Assessment
EIAP	Environmental Independent Advisory Panel
EMS	Environmental Management System
EPA	Environment Protection Authority
FAP	Forest Audit Program
FCP	Forest Coupe Plan
FFG Act	<i>Flora and Fauna Guarantee Act 1988</i>
FMA	Forest Management Area
FMP	Forest Management Plan
FMZ	Forest Management Zone
FRU	Forest Reporting Unit
FTE	Full-Time Equivalent
GMZ	General Management Zone
GPS	Global Positioning System
HSE	Health, Safety and Environment
JSA	Job Safety Analysis
LHV	Logging History Verification
MRU	Monitoring and Reporting Unit
NFSG	National Forest Silviculture Guideline



NGO	Non Government Organisation
OA	Operations Area (term used by VicForests)
SAP	Special Area Plan
SFMS	Sustainable Forests Management System
SFRI	State-wide Forest Resource Inventory
SMZ	Special Management Zone
SOP	Standard Operating Procedure
SPZ	Special Protection Zone
STRP	Sustainable Timber Resource Planners
SWSC	Special Water Supply Catchment Area
TRP	Timber Release Plan
WUP	Wood Utilisation Plan
The Act	<i>The Sustainable Forests (Timber) Act 2004</i>
The EP Act	<i>The Environment Protection Act 1970</i>





Annex A

## Electronic Toolbox CD



Prepared by Environmental Resources Management  
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Appendix B  
FAP Module 2 Audit Process

Forest Audit Program Toolbox

# Module 2

Audit Process



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## FOREST AUDIT PROGRAM TOOLBOX



Module 1  
Overview



**Module 2**  
**Audit Process**



Module 3  
Tactical Planning



Module 4  
Operational Planning



Module 5  
Harvesting and Closure



Module 6  
Harvesting Performance



Module 7  
Regeneration and Finalisation





## **1 MODULE 2 - AUDIT PROCESS**

### **1.1 OVERVIEW**

To summarise the information provided in *Module 1*, the Forest Audit Program (FAP) has been designed to allow objective and independent assessment of timber harvesting operation's compliance with relevant forestry legislation and the associated regulatory framework.

Public reporting of audit results will inform members of the community and assist the Department of Sustainability and Environment (DSE) and VicForests to pursue their objectives of continual improvement.

The FAP incorporates:

- An audit process meeting the statutory requirements of Section 53V of the *Environment Protection Act 1970*;
- A assessment scope that includes the forest planning, harvesting, regeneration and finalisation elements of the forest harvesting lifecycle;
- Audit compliance elements that are intended to be assessed over time;
- A robust process for conducting independent audits;
- Provision for Special Purpose Audits to be conducted as either statutory or non-statutory audits, that can be initiated by DSE on a needs basis to examine problematic issues or alleged serious breaches of the regulatory framework; and
- Scope for the participation of interested community members as observers in the conduct of audits.

### **1.2 METHODOLOGY FOR CONDUCTING THE AUDIT**

#### **1.2.1 Schedule of Activities**

An indicative schedule for the annual audit cycle is provided herein, and will be pursued by DSE in the implementation of the FAP. Under the proposed schedule, DSE will aim to have audit reports completed and ready for publication as soon as possible following the completion of contracted audits.

Specific timeframes set out in the following schedule may vary from year to year, however the overall timing and sequencing of these steps is expected to remain consistent.

For timber harvesting conducted during any given financial year:

Relevant logging history data provided	October
Relevant coupe finalisation data provided	October
Logging history verified by DSE	January (following year)
DSE issue request for proposal	January (following year)
Receive and evaluate proposals	February (following year)
Selection of Auditor(s)	February (following year)
Auditor orientation	March (following year)
Preparation of Audit Plan	March (following year)
Desktop Audits	March – August (following year)
Field Audits	April – July (following year)
Draft Audit Report	September (following year)
Final Audit Report	October (following year)
Publication	As soon as possible after finalisation

It is envisaged that DSE and/or VicForests will then develop a response to Audit Report findings and recommendations. This may include the preparation of corrective action plans, as deemed appropriate, so that they can be implemented as soon as practicable in the following harvest year.

### 1.2.2 Preparing for an Audit

#### *Orientation*

The DSE will, as necessary, hold annual Auditor orientation sessions. A general overview of what is required in the FAP will be outlined in the orientation sessions. Audit team members conducting audits should also attend the Auditor orientation session.

#### *Information Gathering*

DSE will provide contracted Auditors with all available data that is required to perform the requested audit.



When required, contracted Auditors will also be provided with electronic access to the DSE/VicForests Coupe Information System (CIS) to enable analysis of coupe-specific information.

The Auditor will contact the auditee(s) after being awarded a contract by DSE, and will clarify specific documentation needs for audit sites, and anticipated project timelines.

If requested by an Auditor, an information package will be prepared by the auditee containing information on forest management activities which have been planned and/or carried out, the history of operations on the site, survey records, relevant maps, identified hazards, procedures, inspection reports and records of silvicultural treatments. This will provide the audit team with a practical reference source for each selected audit target.

During audits, Auditors are to gather additional information through interviews, examination of documents and observation of activities and conditions in the field. Indications of non-conformity to the audit criteria should be recorded.

Information gathered through interviews should be verified by the Auditor, by acquiring supporting information from independent sources where possible, such as observations, records and results of existing measurements.

Information collected by the Auditor should relate to and cover the specified audit period specified in the contract.

The following non-exhaustive list outlines audit information that may be requested (as applicable), during an audit process:

- Contacts list (auditees, NGOs, Aboriginal communities etc);
- Organisational charts;
- Forest coupe plans;
- Copies of coupe diaries;
- Monitoring records;
- Public notices;
- Key maps and aerial photographs;
- Harvest records;
- Fire occurrences;
- Reports (pesticide/herbicide application reports, environmental surveys etc); and
- Relevant intra- and inter- agency correspondence.

### *Health and Safety*

Auditors undertaking audits on behalf of DSE will be working as contractors. Auditors contracted to undertake audits will, as a minimum, be expected to comply with DSE occupational health and safety standards.

Auditors will need to become familiar with DSE OHS policy and procedures and how they apply to the work being performed by the Auditor including:

- DSE OH&S *SafeTCare* Policy;
- DSE OH&S Risk Management Procedures; and
- DSE Job Safety Analysis (JSA) Procedures.

Before undertaking audit activities, the Auditor will be required to provide DSE with a copy of their Health, Safety and Environment Plan (HSE Plan). This information should also form part of the Audit Plan (see below for more information). In preparing the HSE Plan, the Auditor should address the following matters:

- Indicative audit schedule and scope of works;
- Competency of personnel and supervision of audit team members;
- Information, instruction and training procedures;
- Assessment and engagement of suitable contractors/sub-contractors and the management of their HSE performance;
- Personnel protective equipment (PPE) requirements, first aid equipment, and any other safety equipment requirements;
- Risk/hazard procedures, including assessment, control and specific safe working method statements (or equivalent) including:
  - Identification of hazards and available controls;
  - Consideration of coupe and office based activities;
  - Travel to/from field locations, including vehicle operation and safety guidelines; and
  - Guidelines around the abandonment of field visits (i.e. Weather conditions such as high winds, snow);
- Incident reporting responsibilities and procedures, including procedures to report relevant incidents or claims to DSE; and
- Emergency response management.

Auditors will be expected to use documented systems of work, plant and equipment that are safe and that do not pose unacceptable risks to health. Auditors must employ



safety systems in which there has been adequate information, instruction, training, and supervision in the key health, safety and environmental aspects of the proposed work.

The Auditor will be responsible for making the ultimate judgement on when to abandon site visits (i.e. for safety concerns) for members of the audit team.

In coupes where active harvesting is occurring, the Auditor will need to be aware of and meet the specific requirements for entry and induction by the harvesting contractor.

### *Audit Plan*

An audit plan must be developed by the Auditor in consultation with DSE and relevant auditees. The plan should be flexible enough to permit changes in emphasis based on information gathered during the audit, and to permit effective use of resources.

The plan must include:

- Outline of target compliance elements.
- Audit schedule:
  - The dates and places where audits are to be conducted;
  - The expected time and duration for major field audit activities;
  - The schedule, location and format of key meetings;
  - Expected date of issue and distribution of the draft and final audit reports.
- A HSE Plan, outlining the health, safety and environmental procedures and requirements.
- Identification of audit team members and their roles. Each audit team member will be assigned specific areas to audit and be instructed on the audit procedure to follow. Such assignments are made by the Auditor in consultation with the audit team members concerned. During the audit, the Auditor may make changes to the work assignment to ensure the optimal achievement of the audit objectives.
- Contact information for the audit team, and key contacts in the DSE, auditee organisations plus other relevant parties.
- Methodology for public consultation (refer to Section 2.4.7 herein).
- Identification of the functions and/or individuals within the auditee's organisations having significant direct responsibilities regarding the subject matter of the audit.
- Identification of electives of the auditee's systems or activities that will be reviewed for that year.

- Confirmation that the audit report will be prepared, distributed and reviewed in accordance with the FAP and EPA Victoria requirements.
- Planned sampling intensities and evidence-gathering methodologies (in accordance with this toolbox) and the proposed field site inspection plan.

A draft of the audit plan will be discussed and reviewed with DSE prior at the pre-audit meeting.

### 1.2.3 Pre-Audit Meeting

After receiving the audit plan, DSE will meet with the appointed Auditor. The purpose of this meeting is to:

- Provide an overview of the FAP and associated Toolbox of audit process and protocols;
- Review the audit plan, and make necessary adjustments;
- Review the HSE plan and hazards associated with any required field work;
- Review the status of any relevant Corrective Action Plans prepared in response to previous audits;
- Discuss relevant compliance issues raised by auditees;
- Discuss issues identified by members of the public relating to audit element priorities and audit targets; and
- Discuss the process and plan for public participation in the field component of Module 5 (also refer to Section 2.4.7).

### 1.2.4 Conducting Audits

#### *Desk-based Assessment*

Audits conducted under Modules 3 – 7 may require a desk-based assessment of tactical, operational and coupe planning; harvesting performance; regeneration; and coupe finalisation. Such audits should comprise a review of documentary evidence and records, and interviews with representatives from auditees .

The procedures for the desk-based audit will be determined by the Auditor, but would typically include:

- Review of relevant legislation;
- Examination of compliance elements, and familiarisation with review of management prescriptions and procedures relating to the audit period;



- Review of documentation relating to compliance with relevant procedures and processes;
- Review of relevant intra- and inter- agency correspondence;
- Assessment of data relating to compliance elements;
- Review of previous auditee incidents relating to the compliance audits being assessed;
- Interviews, where appropriate, with DSE and VicForests managerial and technical staff.

### *Field Assessment*

Field assessment will be required for audits conducted under Modules 5 and 7, and may also be required as part of any Special Purpose Audits.

The procedures for the field assessment will be determined by the Auditor, but the following guidance is provided as a preferred process.

Before commencing the field visits, the Auditor would hold an opening meeting in each region being audited. The aim of this meeting would be to:

- Introduce the members of the audit team to the auditee's key personnel;
- Review the scope, objectives, audit plan and confirm the audit timetable;
- Provide a short summary of the methods and procedures to be used to conduct the audit;
- Ensure that the communication links between the audit team and the auditee are established;
- Confirm that the resources and facilities needed by the audit team are available;
- Confirm the times and dates for the interim end-of-day meetings and the closing meeting;
- Promote active participation by the auditee; and
- Allow the auditee to invite the relevant forest operator/contractor to observe field assessments undertaken at sites that they have harvested;
- Induct the audit team with regard to site specific health, safety and emergency procedures.

The DSE contract manager will reserve the right to attend any field audits undertaken under the FAP to monitor the performance of the audit team with respect to quality control and health and safety elements outlined in the audit plan.

The procedures for field activities should include:

- Examination in the field of operations that have been planned and carried out over the period that is the focus of the audit. The target sites sampled should be the same as those identified at the time of the pre-audit meeting. It may be necessary to sample additional sites as a result of operational issues, or in following up findings at the pre-selected sites, but any such field operations should first be discussed with the auditee.
- Follow-up examination (as required) related to observations or queries.
- Review of information made available to the audit team at the field audit stage.

Observations of conditions noted during the site visits should be documented by the Auditor at the time of field assessment, and will form the support for the conclusions of the audit. Auditors will be required to store and maintain copies of such records.

Auditors should discuss any notable items that they observe during the field assessment with the auditee's representative. This should be undertaken at the closing meeting, but may be conducted by telephone if it is not possible to undertake this discussion at the time of audit.

If time and resources allow, Auditors may also hold on-site meetings with the auditee's representative(s) to discuss audit findings and non-conformance issues, and to review plans for the remainder of the relevant audit activities. However, such meetings are not compulsory if time and resources are limited.

Auditors should also observe the forest when travelling between audit locations noting whether or not the observed conditions are reflected in maps or other documents. Inconsistencies, or observations suggesting negative impacts should be noted and may be followed up in subsequent investigations.

Auditors are expected to provide necessary vehicles to transport the audit team during the field work. Vehicles used in audit field work must be capable of travel on forest roads, as outlined in the HSE Plan. Auditee personnel participating in the audit process may travel with the audit team if feasible, but will be responsible for providing their own transportation during site visits.

Where logistical issues limit the numbers of people that can be transported on site to take part in the field assessments, the Auditor should ensure that highest priority is given to the audit team members and the auditee personnel that are most relevant to the sites being examined. Other individuals will be accommodated where possible, to the extent that space allows.

After completion of the field assessments within each region, the audit team will hold a closing meeting with the auditee and DSE. The main purpose of these meetings is to present preliminary audit findings in such a manner as to ensure that the factual basis of the findings is clearly understood.

Disagreements on factual information presented at these meetings should be resolved (if possible). It is preferable that any resolution occur before the Auditor issues the



draft Audit Report. Final decisions on the descriptions and significance of findings ultimately rest with the Auditor. Auditees will have the ability to prepare a response to such findings to present alternative points of view.

### 1.2.5 Audit Reports

#### *Audit Findings and Draft Report*

The focal point of the audit is the process through which the audit team investigates, analyses, assesses and reassembles the facts, and finally reaches a decision on the findings to be reported. Depending on the scope of work commissioned by DSE, separate audits made under Modules 3 - 7 (and therefore audit reports) may be prepared in any given year.

The Auditor will prepare a complete draft Audit Report consistent with the requirements of EPA Publication No. 952.2 (2007) *Environmental Auditor Guidelines for Preparation of Environmental Audit Reports on Risk to the Environment*. Reporting requirements are discussed further in Section 5 herein.

The audit report should identify both positive and negative findings, and all non-compliances that are detected during the audit process. Findings of non-compliance should be reviewed with the auditee prior to the production of the draft report to ensure that the Auditor has obtained all the relevant evidence, and with a view to obtaining acknowledgment of such findings.

The audit team should ensure that findings are documented in a clear, concise manner with significant findings supported by substantive evidence. The supporting evidence must also be documented in the audit report. In situations where field sampling is involved in the audit, the Auditor should also include documentation of the associated sampling results in relation to significant audit findings.

The report conclusion will need to capture the nature and extent of any harm or detriment caused to, or the risk of any possible harm or detriment which may be caused to, any beneficial use made of any segment of the environment.

#### *Review Draft Audit Report*

After receiving a draft audit report, the DSE Forests Branch will be responsible for circulating the draft Audit Report to relevant auditees for a period of comment, and a review of matters of fact.

The Auditor will also attend a meeting with DSE Forest Branch and the auditees to discuss the draft Audit Report. This meeting should be included in the audit plan. The purpose of the meeting is to present the audit findings and to discuss factual matters with the auditees. Written comments from the auditees on the draft report should be provided to the Auditor prior to the meeting.

*Final Audit Report*

The Auditor will submit the final audit report including all charts, graphs, photographs and appendices, in hard and electronic copy to DSE Forest Branch and EPA Victoria within 7 days of completion. The electronic version should be provided in universal file format (a pdf file).

Environmental audit reports are deemed to be public documents, and therefore will be made available by DSE to the general community.

*Corrective Action Plans*

The auditee will be given the opportunity to prepare a formal response to an audit report. Findings related to regulatory, regional and corporate responsibility will be addressed in the DSE response.

If required, auditees will prepare Corrective Action Plans (CAPs) to address the findings relating to compliance issues and environmental impact provided in the final audit report. This will be prepared with input and review from the DSE Director Forests or a nominated representative.

The development and management of CAPs will be administered by DSE and is outside the scope and responsibility of the Auditor. The CAPs must be submitted to the DSE Director, Forests for final approval within two months of receipt of the final audit report. In the interest of transparency and accountability, approved CAPs will be published on DSE's public website, alongside corresponding audit reports.



## **2 ROLES, RESPONSIBILITIES AND CREDIBILITY OF FOREST AUDITS**

### **2.1 AUDIT INDEPENDENCE AND MANAGING CONFLICTS OF INTEREST**

It is important for the credibility of the audit process, that the Auditor is seen to be independent of the organisation being audited. To ensure objectivity of the process and its findings, Auditor independence will be maintained through the Statutory Audit provisions specified under the Victorian EPA environmental audit system. The FAP will use Auditors appointed pursuant to the *Environment Protection Act 1970* in the Natural Resources category.

Members of the audit team must also be objective and free from bias and conflict of interest throughout the process. To avoid or manage any real or perceived conflict of interest, all audit team members will be required to make declarations regarding potential conflicts of interest before engaging in the audit program.

During the audit, The Auditor will be responsible for managing any perceived conflict of interest in this regard.

DSE staff participation in audit teams would be at the discretion of the Auditor and the Auditor may consult with DSE and/or EPA Victoria on the use of DSE data collection capabilities during the audit of VicForest operations. Where DSE provides data and/or data collection services that will be used by the audit team to reach or support audit findings, the Auditor should ensure he/she is satisfied with the independence and reliability of the data.

### **2.2 DUE PROFESSIONAL CARE**

In the execution of audits commissioned under the FAP, the Auditor must use the care, diligence, skill and professional judgement expected of an Auditor appointed pursuant to the *Environment Protection Act 1970*. Auditors will comply with all applicable legislation and State government policies in the conduct of the audit.

The relationship between the Auditor, auditee and DSE (the regulator and commissioning authority) will be one of respect, with preservation of an appropriate level of confidentiality and discretion.

### **2.3 COMPETENCE OF AUDITORS**

In order for the environmental audit to be accepted as credible, it is necessary that those who undertake the assessment are seen to be competent in their field.

Audit team qualifications shall include:

*Auditor*

- Must be an Environmental Auditor appointed pursuant to the *Environment Protection Act 1970* in the Natural Resources category;
- Must carry out his/her role in compliance with the provisions of applicable forest management legislation and policy, including the *Code of Practice for Timber Production 2007*; and
- Must have highly-developed project management and leadership qualities, to ensure ability to execute the HSE plan, and the efficient operation and coordination of the audit program.
- The Auditor may also need to seek advice from members of his/her expert support team, nominated to, and approved by, EPA as part of his/her Auditor appointment.

*Audit Team*

- All audits must be conducted by a core team, including the appointed Auditor;
- Membership of the core team would typically meet the following requirements:
  - Minimum of five years of forestry, timber harvesting, ecological or other relevant field experience, acquired in the past ten years; and/or
  - A tertiary biological, ecological or forest science qualification, relevant to the forest issues being audited; and/or
  - Operational experience in forest management and planning, comprising the inter-related activities of resources access, harvest, renewal, maintenance, planning, monitoring and reporting that are outlined in the *Code of Practice for Timber Production 2007* (as amended); and/or
  - Other high-level or suitably qualified experience that is of benefit to the specific issues being audited, such as social and economic impacts, public consultation processes in the context of forest management, cultural heritage, etc.
- Audit teams may also have supplementary team members (as required) and these members may possess lesser skills and experience than members of the core team. If such skills and experience do not meet the core team requirements, team members should only conduct less complex audit tasks, which are within their abilities, and this should be performed under direct supervision from core team members.



## 2.4 ROLES AND RESPONSIBILITIES

### 2.4.1 Auditor

Environmental Auditors are appointed pursuant to, and for the purposes of, the *Environment Protection Act 1970*. In exercising their functions and duties pursuant to the *Environment Protection Act 1970*, Auditors owe a primary duty of care to the environment and to the people of Victoria above all others (including to DSE as the commissioning authority).

Appointed environmental Auditors must lead the audit in accordance with the requirements of EPA Victoria Environmental Auditor Guidelines for Conducting Environmental Audits Publication No. 953.2 August 2007.

The Auditor's responsibilities and activities should cover:

- Forming the audit team, giving consideration to potential conflicts of interest, and seeking agreement on its composition with DSE;
- Directing the activities of the audit team;
- Preparing the audit plan;
- Executing the HSE Plan for the audit team, and monitoring adherence of the audit team members to this plan.
- Coordinating required communications with appropriate parties;
- Obtaining relevant background information;
- Scheduling audit activities and meetings as necessary;
- Determining the appropriate level of involvement of the auditee(s);
- Selecting audit target sites for examination in field audits;
- Coordinating the preparation of working documents and detailed procedures and briefing the audit team;
- Seeking to resolve any problems that arise during the audit;
- Recognising when audit objectives appear to become unattainable and reporting the reasons to DSE and the auditee;
- Representing the audit team in discussions with the auditee prior to, during and after the audit;
- Notifying the auditee of observations of non-conformities without delay;
- Reporting on the audit clearly and conclusively within the required time frames;

- Making findings available to the auditee to allow for improvements in its operations in areas of non-conformance with audit criteria;
- Reaching a conclusion on risk of harm to the environment;
- Preparing and issuing the draft Audit Report and scheduling a meeting with the specified parties to review the report; and
- Issuing and authorising the final Audit Report.

#### 2.4.2 Audit Team Members

The audit team members are generally responsible for conducting the audit in accordance with this FAP Toolbox. Selection of the audit team will be undertaken by the Auditor.

The team members' responsibilities and activities include:

- Following the directions of, and supporting the Auditor;
- Acting in accordance with the health and safety requirements outlined in the HSE plan;
- Planning and carrying out the assigned task objectively, effectively and efficiently within the scope of the audit;
- Collecting, recording and analysing relevant and sufficient evidence to allow findings to be made and conclusions to be drawn regarding the audited criteria;
- Safeguarding documents pertaining to the audit and returning such documents to the Auditor as required; and
- Assisting in writing of the draft and final audit reports.

#### 2.4.3 Department of Sustainability and Environment

The DSE has the overall responsibility for administering the FAP including ensuring that forest audits are carried out in accordance with the direction of the Minister.

Where required, DSE will utilise the design, structures and standards that are defined under Victoria's statutory environmental audit system (administered by the EPA), but retains overall control of the FAP.

Responsibilities and activities of DSE representatives leading the FAP include:

- Designing and periodically revising, the FAP;
- Promoting general awareness and managing overall communications about the FAP;



- Providing relevant information pertaining to selecting audit targets in accordance with the approved methodology;
- Issuing the Request for Proposal and selecting Auditor(s);
- On selection of audit targets, notifying auditees that are to be audited;
- Reviewing the audit plan including the HSE Plan;
- Contacting stakeholders including members of the public who may provide input to the audit process;
- Coordinating health and safety issues for community members who attend the Community Open Days;
- Organising information/orientation sessions for auditees and Auditors;
- Responding to inquiries from stakeholders regarding the FAP;
- Participating in audit meetings and activities, and attending field assessments where required to offer guidance to the audit team and auditee, discuss issues, and facilitate the consistent application of the audit process;
- Receiving and coordinating the review of the draft Audit Report;
- Distributing, as appropriate, the final Audit Report; and
- Facilitating the completion of audit CAPs and status reports (where applicable).

#### **2.4.4 Environment Protection Authority**

EPA Victoria administers and maintains the ongoing integrity of the environmental audit system by:

- Setting standards for environmental Auditors;
- Maintaining a list of suitable Auditors;
- Receiving, holding and reviewing final environmental audit reports prepared under the system.

A range of guidance relating to the conduct and reporting of statutory environmental audits has been prepared by the EPA and is available on their website [www.epa.vic.gov.au](http://www.epa.vic.gov.au).

#### **2.4.5 Melbourne Water**

Timber harvesting that occurs within four of Melbourne Water's catchments: Thomson, Tarago, the Yarra Tributaries and Bunyip is of special interest to Melbourne

Water. As the process of timber harvesting has the potential to impact water quality and supply, harvesting limits are set to prevent these situations occurring. Further, Melbourne Water conducts its own annual audits of coupes in catchment areas as part of its governance procedures.

Melbourne Water therefore has a vested interest in the scope, conduct and outcomes of the FAP and will liaise with DSE on its design as it relates to the relevant catchments. There is scope under the FAP for Melbourne Water to contribute additional support to the FAP in any given year to ensure that sufficient field assessments are undertaken in catchment-related coupes.

#### **2.4.6 Auditee**

The auditee is generally responsible for:

- Informing employees about the objectives and scope of the audit as necessary;
- Attending, as necessary, auditee information sessions regarding the FAP process;
- Participating in the FAP process as described in this toolbox;
- Providing the facilities needed for the audit team in order to ensure an effective and efficient audit process;
- Appointing responsible and competent staff to accompany members of the audit team, to act as guides during the field components of the audits and to ensure that Auditors are aware of health, safety and other appropriate requirements;
- Providing access to the applicable forest, personnel and relevant evidential material as requested and as required to carry out the audit;
- Reviewing matters of fact issues in the draft Audit Report; and
- Developing and implementing CAPs in response to audit findings, and providing DSE with CAP status reports.

#### **2.4.7 Community Engagement**

Parties that are not mentioned in the above sections (2.4.1 – 2.4.6) are considered external to the audit process, and are therefore will not participate within the defined roles of regulator, Auditor, auditee or audit team member.

The general community will be given the opportunity to learn about and participate in the audit process, with the mutual agreement of the Auditor, DSE and the auditee.

It is envisaged that this will comprise:

- Being advised by DSE of the nature and scope of any audits being conducted under Modules 3 - 7.



- Participating in Community Open Days as part of the field component of Module 5, which will allow community representatives to observe the audit of a coupe and engage with the audit team during the field inspection.
- Receiving and reviewing the outcomes of the audits undertaken through access to Audit Reports published by DSE, and any subsequent follow up presentations delivered to interest groups (as determined by DSE).

Each Community Open Day will comprise the following:

- Pre Site Briefing: to be held at a central location to be determined by DSE, to inform the participants on: health and safety requirements while on the coupe; the role of the Auditor; the skills of the audit team; and allocation of community representatives to an audit team member for the duration of the site visit.
- Site Visit: including travel to the relevant coupe where participants will be able to *observe* the audit process and direct questions to their designated audit team representative; and
- Debrief: to enable the Auditor to provide participants with feedback on coupe compliance and field observations; and to allow participants to direct any further questions toward the Auditor and/or audit team.

Participants may be required to sign a record of attendance at the commencement and end of the Open Day. DSE will coordinate health and safety issues for community members who attend the open day.

DSE will determine the location and attendance limits for each Community Open Day through consideration of health and safety, accessibility of the coupe and the level of community interest in the area to be audited. The number of Community Open Days held within any audit period will be at the discretion of DSE and will depend largely on which FMAs are included in the audit, the availability of resources and the harvesting lifecycle stage being audited. Community representatives will not be able to visit 'active' harvesting coupes for health and safety reasons.

DSE will select community representatives on a first-come, first-served basis, after making information available about the timing and location of such Community Open Days on the Department's website and any direct mailing made to stakeholders who have registered an interest in such events.

### 3 SELECTION OF AUDITOR(S)

The Environment Protection Authority (EPA) appoints environmental Auditors pursuant to Section 53S of the *Environment Protection Act 1970*. Environmental Auditors are appointed to carry out statutory duties pursuant to this Act (and other Acts), which may include audits on segments of the environment or conducting environmental audits of the risk to the beneficial uses of the environment associated with industrial processes or activities.

DSE is responsible for administering the FAP and will engage environmental Auditors to conduct specific audits as required.

Generally, environmental Auditors will be expected to bid for the Auditor role through a commercial, fee-for-service arrangement with DSE.

This will be done on the basis of:

- Written proposal submitted in response to a request for proposal issued by DSE;
- Presentation(s) or interviews; and
- Any clarifications submitted by the firm concerning the above.

Performance of bidders against the selection criteria will be assessed by DSE in consideration of value for money (including consideration of technical ability and quoted price).

#### 3.1 GOVERNMENT PROCUREMENT PROCESS

In accordance with the Victorian Government's Procurement Procedures, DSE will issue a Request for Proposal (RFP) for the provision of audit services. Assessment criteria that may be considered by DSE in selecting service providers may include:

- Demonstrated ability to deliver projects and milestones on time and budget;
- Demonstrated understanding, identification and resolution of issues in previous environmental audit processes, and recognition of the importance of consultation;
- The Auditor's technical skills and relevance of auditing competency to forestry operations, and experience in stakeholder consultation;
- Demonstrated independence and integrity, and ability to ensure that audits are conducted in a manner consistent with the *Environment Protection Act 1970*;



- The technical skills and experience of the proposed audit team members, in relation to the following:
  - Forestry, Forest Science, Natural Resource Management or a related discipline;
  - Ecology and Victorian vascular and non-vascular flora;
  - Soils and Erosion;
- Conflicts of interest (actual or perceived); and
- Value for money.

### **3.2 AUDITOR ENGAGEMENT**

Once an environmental Auditor is engaged by DSE to conduct the audit program pursuant to section 53V of the *Environment Protection Act 1970*, the Auditor is required to notify the EPA's Manager Environmental Audit within seven days of receiving the appointment.

Notification of a request to prepare an environmental audit report can be made using the notification form available from the forms section of the EPA website ([www.epa.vic.gov.au/Forms](http://www.epa.vic.gov.au/Forms)).

## 4 SELECTION OF AUDIT TARGETS

### 4.1 PRIORITY ELEMENTS FOR THE FOREST AUDIT PROGRAM

The FAP includes gathering and examining data relating to the planning and conduct of timber harvesting operations.

As noted in Module 1, the selection process is to include consideration of 'priority' elements and 'other factors' which DSE may elect to focus on during a specified audit period.

At a whole-of-FAP level (that is looking at the whole forest life cycle explained in Module 1), DSE believes that there is a need to ensure that audits are undertaken annually on the following audit priority elements:

- Compliance with the Allocation Order;
- Timber harvesting operations' performance against the Code and other relevant regulatory requirements; and
- Regeneration and Coupe Finalisation.

Some of these elements require quite different levels of examination, including requirements for both desktop and field based investigations.

It may not be feasible to audit all available timber harvesting operations conducted in Victoria during an audit period, especially for audits that have a high field based investigation requirement. In light of this, the FAP will be undertaken on a sample basis, to allow the Auditors to draw conclusions on the compliance of such operations against the regulatory framework in addition to risk of harm to the environment.

The specified audit priority elements correspond to Modules 3-7 and Auditors will be selected by DSE to undertake the required tasks. Depending on Auditor availability and other commercial matters, it may be appropriate for DSE to contract multiple Auditors to undertake different audit elements in any given year, but this will be a decision made by DSE based on responses to any Request for Proposal.



## **4.2 TARGET SELECTION**

### **4.2.1 Target Selection for Module 3 and Module 6**

A specific target selection process is not required under Modules 3 and 6. There is an expectation for the Auditor to undertake an assessment at a broad or strategic level which may involve scrutiny at a Forest Management Area (FMA) or VicForests Operational Area (OA) level.

DSE will provide advice to the Auditors on the areas that are to be scrutinised for audits required under these modules.

A target selection methodology may be adopted for these modules for the purposes of selecting auditing case studies or to select particular coupes to review procedural matters.

This will be determined when required in negotiation between DSE and the selected Auditor.

### **4.2.2 Target selection for Module 4**

DSE will provide advice to the Auditors on the areas that are to be scrutinised for audits required under this module.

A target selection methodology may be adopted for the purposes of selecting auditing case studies or to select particular coupes to review procedural matters.

This will be determined, when required, in negotiation between DSE and the selected Auditor.

### **4.2.3 Target selection for Module 5**

Auditors engaged to undertake audits for Module 5 will select audit targets with consideration for pre-defined environmental risk factors and to maintain randomness. The selection process is intended to be efficient, repeatable, and transparent, whilst the incorporation of environmental risk factors meets the intent of statutory environmental auditing to assess the risk of any possible harm or detriment to a segment of the environment.

It is planned to have a mix of active and completed coupes forming the targets for the Module 5 field assessments with the final ratio determined by the Auditor in consultation with DSE.

To assist the Auditors, DSE will supply an unfiltered list of all forest coupes available for assessment during the audit period. This list will be referred to as the Master Coupe List and will correspond to the position in the forest life cycle of the coupes, to

ensure they are suitable for the type of audit that has been requested. The generated list would try to ensure that relevant activities had occurred during the period of time that was relevant to the audit period. For example, it would not be appropriate to conduct a Module 5 audit at coupes where harvesting has not yet commenced.

#### *Sampling Intensity*

In order to apply appropriate rigour to the audit process, DSE will try to achieve a sampling intensity to allow meaningful conclusions to be drawn on the success of operations against the management objectives. In any given year, this will be reliant on available resources.

Auditors will receive advice from DSE about the type of audits required and the number of coupes to be selected for audit. This advice will be based on consideration of the total resources available to the FAP and the anticipated cost per coupe figures provided by the Auditor during the Request For Proposal process. The Auditor and DSE will need to reach agreement on the adequacy of sample size prior to finalisation of any commercial contract.

#### *Absolute Risk Rating*

The Auditor will determine an absolute risk rating (ARR) for all potential audit targets based on the following environmental risk parameters for the Module 5 audits:

- Slope (S);
- Soil erosion hazard (SE);
- Silvicultural system (SS);
- Special land protection requirements (PR); and
- Compliance theme(s) (CT).

Details of these risk parameters are discussed in Annex A.

Each coupe in the Master Coupe List should be assigned an absolute risk rating (ARR) by multiplying the risk values obtained for each variable element as follows:

$$\text{ARR (coupe)} = S \times SE + SS + PR + \Sigma(\text{CT})$$

The ARR derived for each coupe is used to place the coupe into one of three relative risk groups (RRGs) as follows:

Low Risk	Moderate Risk	High Risk
< 9	9-14	>14



The total number of coupes to be assessed will be selected at random from across the State in accordance with an overall risk distribution as follows:

- 60% from the high RRG;
- 25% from the moderate RRG; and
- 15% from the low RRG.

The selection process places some bias towards selecting a larger number of targets from the high RRG. The incorporation of environmental risk parameters is intended as an interpretive exercise for identifying coupes with a higher potential for activities to impact the environment. For this reason, the results are not intended to represent a statistical analysis.

Within a three year cycle of the FAP, all Forest Management Areas within the state (where timber harvesting occurs) should have been included in the audit program, and additional target selection criteria may be stipulated at the discretion of DSE to achieve this goal.

*Replacement of audit targets in consideration of geographic coverage, safety and resource use*

Auditees should be given the opportunity to comment on issues (safety, availability, currency, access etc) regarding the coupes selected prior to starting the field activities. Issues raised will be addressed on a case by case basis.

Auditors will also be able to discuss the location of the audit targets with DSE to address issues of geographical coverage and situations where low number of target coupes may occur in remote and difficult to access areas. DSE will give consideration to excluding audit targets that represent a disproportionately large level of resource use, to ensure the efficient allocation of available audit resources across the FAP. It is not intended that this process will be used to achieve the most commercially-attractive mixture of coupes for Auditors, but rather DSE will only allow for one-off exclusions of the most isolated, and difficult to access coupes. To ensure transparency, decisions to replace coupes in the target selection process should be documented in the audit report.

Audit targets removed for any reasons should be replaced with an additional target, also selected at random.

DSE reserves the right to review the selection process after the first round of audits.

#### **4.2.4 Target selection for Module 7**

Target selection for Module 7 will be carried out in accordance with the directions provided in Section 5.2 of the DSE *Coupe Finalisation Procedures*, October 2008 and includes the following.

*Regenerated coupes*

Within each FMA the audit team must assess in the field, a minimum of:

- Ten percent of the regenerated coupes nominated by VicForests for finalisation where 50 or more coupes have been nominated; or
- Five coupes nominated by VicForests for finalisation, where between 5 and 50 coupes are nominated; or
- All coupes nominated by VicForests for finalisation, if less than 5 coupes are nominated.

*Thinned coupes*

Within each FMA the Audit Team must assess in the field, a minimum of:

- Ten percent of the thinned coupes nominated by VicForests for removal from the TRP where 50 or more coupes have been nominated; or
- Five coupes nominated by VicForests for removal from the TRP, where between 5 and 50 coupes are nominated; or
- All coupes nominated by VicForests for removal from the TRP, if less than 5 coupes are nominated.

Coupes selected for field assessment should:

- Proportionally represent the forest types of, and silvicultural systems used to harvest, the coupes nominated by VicForests for finalisation or removal from the TRP.
- Generally be greater than 10 hectares in area; and
- Otherwise be randomly selected.

#### **4.2.5 Special Target Selection for Water Catchments**

Based on discussions between DSE and Melbourne Water, it is likely that Module 5 (and possibly Module 7) audits will require a selection of coupes to be audited that are located within all or some of the catchments that supply water to Melbourne. Melbourne Water may elect to contribute additional resources to the FAP to ensure selection of additional audit targets within catchment areas.

Although additional coupes in water catchments may be selected on a different basis from other audit targets, once identified, these coupes should be treated and reported on in the same manner as other coupes assessed under Module 5.



## 5 PRESENTATION OF AUDIT FINDINGS

### 5.1 REPORTING REQUIREMENTS

The Auditor will prepare a complete audit report consistent with the requirements of EPA (2007) Publication No. 952.2 *Environmental Auditor Guidelines for Preparation of Environmental Audit Reports on Risk to the Environment*. The results of the report should identify both positive and negative findings and/or conclusions and report on the actual or potential risk of harm to beneficial uses of the segment concerned.

For the purpose of consistency between Auditors and audit years, all audit reports should include at least the following major headings:

- Executive Summary;
- Introduction;
- Audit Scope, including objectives, scope and period of the audit and audit criteria;
- Audit Approach, including target selection, documentation reviewed, site visits undertaken and risk assessment approach;
- Audit Findings presented by compliance element, including reference to evidence used to assess the audit criteria, data collected and evaluated, compliance/non-compliance and risk assessment evaluation;
- Conclusions/Recommendations; and
- Annexes, including charts, graphs, photographs and supporting documentation.

It is expected that the report will also make appropriate distinction between:

- Operations supervised by VicForests and DSE;
- Desktop and field-based assessment;
- Compliance elements and sub-elements nominated within each module being assessed; and
- Audit module, where more than one module is audited by the same Auditor.

The audit of each module will assess the compliance elements for potential non-compliance, and where identified, a risk assessment will be carried out on individual non-compliances or a group of similar non-compliance issues, in accordance with Section 5.2 herein.

The presentation of findings for each compliance element should aim to summarise the total number of non-compliances and the environmental impact risk levels identified during the audit. An example of a summary of compliance and risk impact for each compliance element is provided in Table 5.1.

**Table 5.1 Example Summary of Compliance and EIA Risk by Compliance Element**

Compliance Element	<i>Buffers</i>
Total Non-compliance	12
Total Compliance	29
<b>Non-compliance EIA breakdown</b>	
Severe	1
Major	1
Moderate	3
Minor	2
Negligible	5

## 5.2 RISK ASSESSMENT

Where an environmental audit of a complex activity such as forest harvesting is to be conducted, a risk assessment process can be adopted to assist in focusing the audit.

Risk assessment can be used within an environmental audit to:

- refine the scope to focus on issues of concern, and/or
- assess the risk of harm to beneficial uses.

Generally this would involve a process of hazard identification, analysis of risks and categorisation of the risks. During the audit of compliance themes and compliance elements within the modules, a risk assessment process should be adopted in line with the methodology proposed below.

### 5.2.1 Module 5

When considering a non compliance relating to the workbook compliance elements, its impact on the environment should be assessed using an environmental impact assessment method. The impact assessment is a two-step process based on the non-compliance observed at the time of audit. This process enables the impact to be qualitatively determined through consideration of the following factors:

- extent of impact or disturbance within the audit target;
- duration of impact or expected time for recovery; and
- environmental asset value.

These factors are described in more detail in Annex B.



It should be noted that the FAP is not intended to substitute for controlling individual harvester performance. This is provided for under the existing Timber Harvesting Operator Licence System, established under the Act and the subordinate regulations.

### 5.2.2 Modules 3, 4, 6 and 7

It should be noted that the methodology outlined above does not directly correspond with the remaining modules given the risk assessment will be at a broad or strategic level. The Environmental Impact Assessment tool discussed in Section 5.2.1 is not designed to assess the extent, duration or context of planning breaches addressed in the coupe planning, wood utilisation planning or planning of area exclusions and boundaries for flora and fauna focus areas of the audit.

In this situation, where a potential non-compliance has been identified, assessment of risk may also adopt the following classification strategy:

- Severe: poses a severe threat to human life, or irreversible or extensive impact to the environment.
- Major: poses a potential threat to human life, or significant impact to the environment.
- Moderate: poses a moderate impact to the environment.
- Minor: poses a minor impact to the environment, however further risk reduction opportunities exist.
- Negligible: poses no impact to the environment and/or provides for continuous improvement.





Annex A

## Absolute Risk Rating Methodology

### *Absolute Risk Rating Methodology*

Slope and soil erosion hazard carries an inherent risk to the stability of soils within the coupe. Steep slopes are more susceptible to erosion which could potentially affect water quality and road networks. Soils with a high erosion hazard are more likely to erode affecting potential for regeneration, water quality, stream flow and the road network. Management procedures and controls are enhanced for sites with greater slope or higher erosion potential.

#### *Slope Risk (S)*

Slope risk (S) values should be assigned as outlined in Table A.1.

**Table A.1 Slope Risk Value by Class**

Slope Class*	Slope Risk Value
<11°	1
11° – 18°	2
18° – 27°	3
>27°	4
* An average of all slope values	

#### *Soil Erosion Hazard (SE)*

The assessment of soil erosion hazard should be carried out on each coupe assessed during the Module 5 field assessment.

The hazard assessment is the product of two processes; soil erodibility and soil permeability. Reference should be made to the *Soil Erosion Hazard and Soil Permeability Assessment and Classification*, Forest Management Branch Forests Service, Department of Natural Resources and Environment, March 1999. The assessment within this reference uses a categorical point score system to determine a soil erosion classification of low, medium, high or very high.

The soil erosion hazard falls into the three classes: low, medium and high (including very high). These are assigned a soil erosion risk (SE) value of 1, 2 and 3 respectively.

**Table A.2 Soil Erosion Hazard**

Soil Erosion Hazard	Soil Risk Value
Low	1
Medium	2
High	3



### *Silvicultural System (SS)*

Clear felling and thinning from above and below are the most common silvicultural systems employed in Victoria. Clear felling (including seed tree silvicultural systems) due to its nature is more likely to affect the environment and biodiversity. Coupes that have been clear felled are assigned a silvicultural system (SS) value of 2. Coupes where non-clear felling silvicultural systems have been employed are assigned an SS value of 1.

### *Special Land Protection Requirements (PR)*

State forests are zoned according to sensitivity. The majority of forest harvesting takes place in the General Management Zone (GMZ), the zone with the lowest sensitivity. Coupes in the GMZ are assigned a protection risk (PR) value of 1.

Special Protection Zones (SPZ) and Special Management Zones (SMZ) are more sensitive, although some harvesting is allowed in SMZ zones. To recognise this sensitivity coupes that are affected by SPZ or SMZ are assigned a PR value of 2. Water supply catchments are also more sensitive and coupes that fall within specified catchment zones should also be assigned a PR value of 2.

If there is no reliable information regarding SPZ, SMZ or water catchments for a particular coupe is available, a default PR of 2 should be assigned.

### *Compliance Themes (CT)*

In addition, the audit target selection may also incorporate compliance themes into the selection methodology. Compliance themes selected for audit focus will be determined by DSE annually. For each year of audit, one or more compliance themes may be adopted, typically from the following:

- Forest type;
- Coupe type (ie. roadline, commercial firewood);
- Special prescriptions (eg: salvage harvesting);
- Harvest season;
- Flora values (ie. rainforest, habitat trees);
- Fauna values (ie. threatened species, eg. leadbeater possum);
- District.

The compliance themes selected for inclusion in the applicable audit period are allocated a CT value of 1 with all other compliance themes assigned a default CT value of 0. More than one compliance theme can be selected during an audit period with the total number of compliance themes agreed upon by DSE and the Auditor.





Annex B

## Environmental Impact Assessment Tool

### *Environmental Impact Assessment Tool*

The objective of this annex is to describe the approach that should be adopted by the environmental Auditor during assessment of the environmental impact of non-compliance identified during the audit of Module 5.

When considering a compliance or noncompliance associated with the workbooks, the impact on the environment must be assessed using the Environmental Impact Assessment method as a guide.

The environmental impact is based on the following factors:

- Extent of impact or disturbance;
- Duration of impact; and
- Environmental asset value.

#### *Extent of Impact or Disturbance (E)*

The extent of the impact is measured as a relative percentage of the sampled area or length and defined as one of the following four categories:

- 0 – 10%
- 11 – 25%
- 26 – 50%
- >50%

A fifth category is used when the impact or disturbance results in a significant offsite effect where an area outside of the coupe boundary is adversely affected.

#### *Duration of Impact or expected time to recover (t)*

The duration of the impact is defined as the period in which the area will recover to pre-impacted levels. The impact period is defined by three levels as follows:

- Short Term, 0 – 12 months;
- Medium Term, 12 – 36 months; and
- Long Term, > 3 years.

The *Extent of Impact (E)* and *Duration of Impact (t)* form a risk matrix to determine an *Et* rating.



**Table B.1 Determining the Extent/Duration of the impact**

Extent (E)	Duration of Impact (t)		
	Short Term	Medium Term	Long Term
0 - 10%	A	C	F
11 - 25%	B	E	H
26 - 50%	C	F	I
> 50%	D	G	J
offsite	E	H	K

*Environmental Asset Value (z)*

The environmental asset value of the impacted area is defined by the relative resilience and resistance of the area affected, and the significance of the environmental value of the area, which may be characterised by its protection status within the Forest Management Zoning system or the Code of Forest Practice. The environmental asset value is divided into four categories;

- General environmental value;
- Filter or drainage line;
- Representative SMZ or SPZ, i.e. habitat corridors, landscape buffers and some linear buffers; and
- Specific SMZ or SPZ, i.e. for specific flora and fauna, rainforest buffers and riparian or streamside reserve buffers.

The *Et* rating and Environmental Asset Value (z) are applied in an additional risk matrix to determine an environmental impact assessment level for the non-compliance. The impact is categorised into five nominal levels as follows:

- Negligible (including areas of no impact) – impacts typically within marked harvest areas with a short duration of impact.
- Minor – impacts typically within marked harvest areas or filter strip with a short to medium duration of impact
- Moderate – impacts typically within marked harvest areas with a medium to long term duration of impact or impacts within filter strips, buffers or reserves with a short to medium term impact
- Major – impacts typically within marked harvest areas leading to a long term off-site impact or impacts within filter strips, buffers or reserves with a medium to long term on-site or off-site impact
- Severe – impact within buffers or reserves with a long term on-site or off-site impact.

**Table B.2 Level of Environmental Impact**

Et Value	Environmental Asset Value (z)			
	General	Filter	rSPZ / LR / LB	sSPZ / RB / RF
A	Negligible	Negligible	Minor	Minor
B	Negligible	Minor	Moderate	Moderate
C	Negligible	Minor	Moderate	Moderate
D	Negligible	Moderate	Moderate	Moderate
E	Minor	Moderate	Moderate	Major
F	Minor	Moderate	Major	Major
G	Moderate	Moderate	Major	Major
H	Moderate	Major	Major	Major
I	Moderate	Major	Major	Severe
J	Moderate	Major	Severe	Severe
K	Major	Major	Severe	Severe

Note:

LR – Linear Reserve

LB – Landscape Buffer

RB – Riparian Buffer

RF – Rainforest Buffer

rSPZ – Representative Special Protection Zone

sSPZ – Specific Special Protection Zone

To assess the consistency of the Environmental Impact Assessment tool, the 2006 Audit reviewed the capacity of the model to evaluate a range of past and potential breaches. A range of examples were reviewed for a range of compliance elements or sub-elements and are shown in Table B.3.



**Table B.3 Hypothetical noncompliance by compliance element.**

Compliance Element/ Sub-element	Breach	Extent	Duration	Asset value	Assessed impact
<b>Coupe planning</b>	Not applicable				
<b>Wood utilization planning (WUP)</b>	Not applicable				
<b>Landscape values</b>	No landscape buffer along a major tourist route	Offsite	> 3 years	Landscape buffer	Severe
<b>Water yield protection</b>	Harvesting in a small proportion of coupe occurred outside the prescribed period	0-10%	0-12 months	Riparian buffer	Minor
<b>Log landings and dumps</b>	Ripping depth <0.4m and erosion	Offsite	> 3 years	Filter	Major
<b>Camp maintenance areas</b>	Hydrocarbon spill	26-50%	> 3 years	General	Moderate
<b>Litter removal</b>	Esky left on site	0-10%	> 3 years	General	Minor
<b>Habitat trees</b>	Insufficient numbers protected	> 50%	> 3 years	General	Major
<b>Management of exclusion areas and boundaries – flora and fauna</b>	Example 1: Fire damage outside the prescribed burn area	> 50%	> 3 years	sSPZ	Severe
	Example 2: Fire damage outside the prescribed burn area	26-50%	12-36 months	Filter	Moderate
	Example 3: Fire damage outside the prescribed burn area	Offsite	0-12 months	General	Minor
<b>Reserved area protection - buffers</b>	Section of buffer insufficient width	11-25%	> 3 years	Riparian buffer	Major
<b>Reserved area protection - filters</b>	Machinery entry into filter strip	0-10%	0-12 months	Filter	Negligible
<b>Rainforest</b>	Rainforest not marked on coupe plan but not harvested	0-10%	0-12 months	Rainforest buffer	Minor
<b>Snig and forwarding tracks</b>	Poor drainage & blading off	11-25%	12-36 months	General	Minor
<b>Boundary tracks</b>	Inadequate drainage	26-50%	> 3 years	General	Moderate
<b>Roading</b>	Roads damaged due to use during wet weather	11-25%	> 3 years	General	Moderate







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Appendix C

# FAP Module 6 Harvesting Performance

Forest Audit Program Toolbox

# Module

# 6

Harvesting Performance



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**Revision History**

<b>Date</b>	<b>Reviewer</b>	<b>Summary of changes</b>	<b>Replaces</b>
-	-	-	-



## FOREST AUDIT PROGRAM TOOLBOX



Module 1  
Overview



Module 2  
Audit Process



Module 3  
Tactical Planning



Module 4  
Operational Planning



Module 5  
Harvesting and Closure



**Module 6**  
**Harvesting Performance**



Module 7  
Regeneration and Finalisation





## **1 MODULE 6 – HARVESTING PERFORMANCE**

### **1.1 INTRODUCTION**

The planning and management of forest operations for timber production are critical elements in achieving the environmental outcomes encompassed under Victoria's regulatory framework.

Forest management planning incorporates a commitment to ecologically sustainable timber harvesting practices, and a key component of this commitment includes the establishment of a framework to allocate timber resources.

In 2004 the Victorian Government introduced a framework for timber allocation to VicForests, through the establishment of an Allocation Order (AO). The AO describes the timber resource to be made available to VicForests for a 15 year period, with scope for review every 5 years. It can also be reviewed and varied by the Minister for Environment in certain circumstances, e.g. after a major bushfire.

The AO identifies different types of forest stands where VicForests can conduct timber harvesting activities in each Forest Management Area. Permitted timber harvesting activities include sawlog and residual log harvesting and commercial thinning. This approach is established through the *Sustainable Forests (Timber) Act 2004* (the Act).

A number of other processes have also been established in the regulatory framework to contribute to ecologically sustainable timber harvesting practices, and these and their associated compliance elements are discussed further in this module.

#### **1.1.1 Objective of Module 6**

The objective of this module is to assess whether timber harvesting operations conducted in a specified period were conducted to achieve sustainable forest management, and were conducted in accordance with all relevant legislation, regulations and government policies.

#### **1.1.2 Scope of Module 6**

The module aims to provide users with the necessary information and tools to enable an audit of the operational performance of timber harvesting operations against spatial limits established under various planning processes and cumulative area limits established under the AO.

Specifically excluded from the scope of Module 6 – Harvesting Performance is:

- Audit of the strategic planning and development of the Allocation Order by Department of Sustainability and Environment (DSE) under the *Sustainable Forests (Timber) Act 2004* (as amended); and
- Audit of the strategic planning and development phase of Forest Management Plans by DSE.

## 1.2 STRUCTURE OF MODULE

Module 6 – Harvesting Performance includes:

- *Chapter 1 Introduction:* provides an introduction to the scope, aim and structure of the audit module as part of the Forest Audit Program;
- *Chapter 2 Compliance Elements:* provide a list of elements or focus areas suitable for inclusion in the annual Forest Audit Program as part of Harvesting Performance;
- *Chapter 3 Audit Approach and Tools:* provides a preferred audit approach and methodology and supporting tools including the following Audit Workbooks; and
- *Chapter 4 References:* provides a description of the key regulatory documents supporting each of the Workbooks.



## 2 COMPLIANCE ELEMENTS

The relevant compliance elements associated with Module 6 - Harvesting Performance include:

- Compliance with Wood Utilisation Plans (WUPs);
- Compliance with the Allocation (including thinning) Order;
- Compliance with Timber Release Plans (TRPs);
- Cumulative harvest limits in Melbourne's water catchments; and
- Cumulative harvest limits in Special Management Zones.

Each of these compliance elements are discussed in greater detail below.

### 2.1 COMPLIANCE WITH WOOD UTILISATION PLANS

Victoria is divided into Forest Management Areas (FMAs) for forest management purposes. WUPs are prepared annually for all commercial DSE forestry operations in State forests. WUPs provide a list of areas scheduled to be harvested, associated road requirements; details of the location and approximate timing of timber harvesting in the proposed coupes; and details of the location of any associated access roads. The WUPs indicate the planned areas for sawlog, firewood and minor forest produce production and are prepared for a three year period. A WUP is prepared in accordance with the *Conservation, Forests and Lands Act 1987*.

Module 6 incorporates the capacity to assess compliance with the spatial harvesting limits established under the WUPs.

### 2.2 COMPLIANCE WITH THE ALLOCATION ORDER

The Act provides the Minister for Environment and Climate Change with the power to allocate to VicForests timber resources in State forests for the purposes of harvesting and/or selling. The allocation is outlined in the *Allocation to VicForests Order*, commonly referred to as the Allocation Order (AO).

The AO provides a description of the forest stands to which VicForests has access, and the extent and location of these stands. The Allocation Order also describes the area of forest available for VicForests to harvest and/or sell timber products in each of three consecutive five-year periods.

Module 6 incorporates the capacity to assess VicForests' harvesting and reporting against the timber volume allocations by area and forest stand prescribed in Allocation Order. It also includes an audit of the process used to verify the harvested areas.

### 2.3 COMPLIANCE WITH TIMBER RELEASE PLANS

TRPs detail the location, nature and approximate timing of timber harvesting by VicForests, including the location of associated access roads. A TRP is to comply with the timber allocation provided by the Allocation Order promulgated in accordance with the Act and other relevant legislative requirements. TRPs are prepared by VicForests under Part 5 of the Act.

Module 6 incorporates the capacity to assess VicForests' compliance with the spatial harvesting limits established under the TRPs.

### 2.4 CUMULATIVE HARVEST LIMITS IN MELBOURNE'S WATER CATCHMENTS

State forests in Melbourne's water catchments provide timber resources and play a vital role in ensuring that Melbourne is supplied with clean water. Melbourne's catchments are managed as a combination of 'open' and 'closed' catchments, with a key difference being access. In general, public access to closed catchments is not permitted. Timber harvesting is permitted in 'open' catchments, subject to spatial limits, and a range of environmental and other controls, which are the subject of this audit module. Timber harvesting is not permitted in 'closed' catchments which are predominantly located inside National Parks.

The FAP incorporates an assessment of harvesting and reporting against the timber volume allocations by water catchment area prescribed in the Management Procedures for Timber Harvesting (as amended).

### 2.5 CUMULATIVE HARVEST LIMITS IN SPECIAL MANAGEMENT ZONES

Forest Management Plans (FMPs) have been prepared, or are in preparation, for all Forest Management Areas in Victoria. FMPs outline zoning schemes which include Special Management Zones (SMZs). These zones are managed to conserve specific known features or values, while catering for timber production under certain conditions. The protection or enhancement of the known features or values (covering both natural and cultural elements) may require modification to timber harvesting or other land-use practices.

Timber production planning needs to be cognisant of conditions, particularly cumulative harvesting limits imposed by FMPs for SMZs. Prescribed timber harvesting limits have been established in some Action Statements prepared under Section 19 of the *Flora and Fauna Guarantee Act 1988*.



### **3 AUDIT APPROACH AND TOOLS**

Module 2 – Audit Process describes the FAP audit approach and methodology and should be read in conjunction with this module.

The audit of Tactical Planning compliance elements will require:

- Sourcing of relevant information and evidence;
- Desktop assessment; and
- Completion of Audit Workbooks.

The performance of Environment Impact Assessment on non-compliances will not be possible at the tactical planning phase and should be excluded from audit findings.

#### **3.1 SUPPORTING DOCUMENTATION**

Module 1 – Overview, and Module 2 – Audit Process should be read in conjunction with this module. Module 2 outlines a method for selecting audit targets, and guidelines for preparing an audit report including the assessment of risk.

#### **3.2 SOURCING INFORMATION**

Information should be collected through interviews, an examination of documents and observation of planning activities and tools. Instances of non-conformity of any audit criteria should be recorded.

Information gathered through interviews should be verified by acquiring supporting information from independent sources where possible, such as observations, records and results of existing activities or measurements.

#### **3.3 DESKTOP ASSESSMENT**

The desk-based component of the audit program includes the assessment of planning related operations, review of documentary evidence and records, the Coupe Information System and interviews.

The procedures for the desk-based audit should include:

- Examination and review of legislative requirements, management prescriptions and procedures relating to the conduct of planning activities as they relate to the compliance elements;
- Review of relevant spatial and other databases;

- Review of information contained in the Coupe Information System (as relevant);
- Interviews, where appropriate, with DSE and VicForests managerial and technical staff.

### **3.4 AUDIT WORKBOOKS**

This Module is supported by audit workbook(s) that have been prepared for each compliance element. Workbooks outline (where relevant) the audit criteria, associated legislative prescription(s), audit protocol guides and audit methodologies.

Workbooks provided in Module 6 – Harvesting Performance include:

- Workbook 6A: Allocation Order Compliance;
- Workbook 6B: Wood Utilisation Plans and Timber Release Plans;
- Workbook 6C: Cumulative Harvest Limits in Melbourne’s Water Catchments; and
- Workbook 6D: Cumulative Harvest Limits in Special Management Zones.

Auditors should record their audit findings in the Audit Workbooks along with supporting evidence and information. Audit findings should then be collated and presented in an audit report that is prepared in accordance with the requirements outlined in Module 2.



## 4 REFERENCES

Relevant references to this module include the following.

### Legislation

Allocation Order, Department of Sustainability and Environment, 2004.

Catchment and Land Protection Act 1994,

Code of Forest Practice for Timber Production, Department of Natural Resources and Environment, 2007.

Code of Practice for Fire Management on Public Land, Department of Sustainability and Environment, 2006.

Conservation, Forest and Lands Act 1987,

Environmental Protection Act 1970.

Flora and Fauna Guarantee Act 1988 (FFG Act),

Sustainability Charter for Victoria's State Forests, Department of Sustainability and Environment, 2007.

Sustainable Forests (Timber Harvesting) Regulations 2006.

Sustainable Forests (Timber) Act 2004.

### Guidelines

Environmental Auditor Guidelines for Conducting Environmental Audits. Publication 953.2, Environmental Protection Authority, 2007.

Environmental Auditor Guidelines for Preparation of Environmental Audit Reports on Risk to the Environment. Publication 952.2, Environmental Protection Authority, 2007.

Environmental Auditor Guidelines for the Provision of Environmental Audit Reports, Certificates and Statements. Publication 1147, Environmental Protection Authority, 2007.

Environmental Auditor Guidelines for Appointment and Conduct. Publication 865.7, Environmental Protection Authority, 2008.

Management Procedures for Timber Harvesting, Reading and Regeneration in Victoria's State Forests, Department of Sustainability and Environment, Victoria, 2009.

Monitoring Annual Harvesting Performance in Victoria's State Forest, Department of Sustainability and Environment, 2008.

Resource Allocation Guidelines for VicForests Operations, Department of Sustainability and Environment, 2006.

Resource Allocation Procedures – Monitoring, Department of Sustainability and Environment, November 2006.

**Management plans and prescriptions**

Fire Salvage Harvesting Prescriptions 2009, Department of Sustainability and Environment, Victoria, 2009.

Management Procedures for Timber Harvesting and Associated Activities in State Forests in Victoria, Department of Sustainability and Environment, Victoria, 2009.

Salvage Harvesting Prescriptions for the 2003 Eastern Victorian Fires Salvage Operations, Department of Sustainability and Environment, Victoria, 2003.



Annexures A – D

## Electronic CD

Annex A

**Workbook 6A: Allocation Order Compliance**

Annex B

**Workbook 6B: Wood Utilisation Plans / Timber Release Plans**

Annex C

**Workbook 6C: Cumulative Harvest Limits in Melbourne's Water Catchments**

Annex D

**Workbook 6D: Cumulative Harvest Limits In Special Management Zones**







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Appendix D

# FAP Module 6 Harvesting Performance - Workbooks

**ENVIRONMENTAL AUDIT  
FOREST AUDIT PROGRAM  
TIMBER PRODUCTION IN STATE FORESTS**

**FMA:           All**

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Module 6 Harvesting Performance

Workbook 6A: Compliance with the Allocation Order

# Compliance with the Allocation Order

# Measurement

## Measurement Methodology:

Assessing compliance with the Allocation Order requires monitoring of the annual level of harvesting and thinning undertaken in each FMA relative to the allowable level defined in the Allocation Order. This workbook does not assess the performance of predictive forest models for area and sawlog volume.

Reconciliation of VicForests performance relative to the Allocation Order requires logging history to be overlaid with the Full Extent dataset. This information, and exceptions reports provided by VicForests, should be analysed to provide summaries on harvesting performance. The logging history should include salvage performance information.

**Specification source:** *Resource Allocation Guidelines for VicForests Operations* (DSE, 2006) and *Resource Allocation Procedures – Monitoring November 2006* (DSE, 2006).

### Allocation Order Reconciliation for Harvested Areas

The following template/example may be adopted in principle for reporting harvesting performance against allocated resources:

Allocation Order Forest Stand	Harvest Season						Period 1 – Allocation Order <sup>1</sup>					
	Allocated Area (ha) Harvested <sup>2</sup>	Additional Area (ha) Harvested <sup>3</sup>	Total Area (ha) Harvested by Season				Total Allocated Area (ha)	Area (ha) Remaining (July 2008)	Proportion of Period 1 Allocation Harvested by Season			
	2007/08		2004/05 <sup>4,5</sup>	2005/06 <sup>5</sup>	2006/07	2007/08	Period 1		2004/05 to 2006/07	2007/08	Harvested to date	Remaining
Ash 10	958	67	1,271	1,078	850	1,024	7,810	3,587	41%	13%	54%	46%
Mixed Species 10	2,245	120	2,520	2,701	2,325	2,366	21,660	11,751	35%	11%	46%	54%
Understocked	28	0	15	52	63	28	1,185	1,027	11%	2%	13%	87%
Fire Affected Ash	1,041	16	330	335	697	1,056	19,610	17,192	7%	5%	12%	88%
Fire Affected Mixed Species	460	12	199	359	395	472	35,730	34,305	3%	1%	4%	96%
2003 Fire Salvage	0	0	437	563	84	0	1,200	116	116	1	0	0
<b>Total Allocated Area Harvested</b>	<b>4,732</b>	<b>215</b>	<b>4,772</b>	<b>5,088</b>	<b>4,414</b>	<b>4,947</b>	<b>87,195</b>	<b>87,977</b>	<b>16%</b>	<b>8%</b>	<b>22%</b>	<b>78%</b>
Unallocated > 1ha <sup>7</sup>	0	2	0	0	0	2						
Unallocated < 1ha <sup>8</sup>	0	35	19	24	13	35						
Non-allocated areas <sup>9</sup>	0	3	8	15	15	3						
<b>Total Unallocated Area Harvested</b>	<b>0</b>	<b>40</b>	<b>27</b>	<b>39</b>	<b>28</b>	<b>40</b>						
<b>Total Area Harvested</b>	<b>4,732</b>	<b>255</b>	<b>4,799</b>	<b>5,127</b>	<b>4,442</b>	<b>4,987</b>						

Notes:

1 Period 1 refers to the start of 2004-05 until the end of 2008-09.

2 Allocated Area Harvested refers to the harvesting of stands that were mapped as allocated stands in the Full Extent data set.

3 Additional Area Harvested refers to incorrectly mapped 'unallocated' AO stands (> 1ha) that were harvested and subsequently re-allocated to the most appropriate AO stand through the pre-harvest and/or the annual post-harvest exception report.

4 The 2004-05 season refers to the period between 1 August 2004 and 30 June 2005.

5 Following the 2007 Salvage Amendment to the Allocation Order, the full extent dataset was redescribed to reflect the change in allocation and forest condition. The 2004-05 and 2005-06 harvested areas have been reanalysed against the new dataset.

6 Salvage harvesting of 2003 fire affected areas are allocated against "2003 Fire Salvage", "Mixed Species (fire affected)" and some areas to nominally non-fire affected stands on the 2007 Allocation Order.

7 Unallocated stands > 1 ha refers to correctly identified 'unallocated' AO stands that were harvested and cannot be assigned to an allocated stand. These areas and reasons for this discrepancy are identified in the annual post-harvest report.

8 Unallocated stands < 1 ha in size do not need to be reported by VicForests but are reported here to show the total area harvested.

9 Non-allocated stands refer to areas outside Allocation Order forest stands that were not part of an existing Wood Utilisation Plan and cannot be assigned to an allocated stand. These areas and reasons for this discrepancy are identified in the annual post-harvest report.

10. Low Merchantability Ash and Mixed species forest types have been summarised and included as Ash or Mixed Species.

**Allocation Order Reconciliation for Thinned Areas**

The following template/example may be adopted in principle for reporting thinning performance against allocated resources:

Allocation Order Forest Stand		Harvest Season						Period 1 – Allocation Order					
		Allocated Area (ha) Harvested	Additional Area (ha) Harvested	Total Area (ha) Harvested by Season				Total Allocated Area (ha)	Area (ha) Remaining (July 2008)	Proportion of Period 1 Allocation Harvested by Season			
				2007/08	2004/05	2005/06	2006/07			2007/08	Period 1	2004/05 to 2006/07	2007/08
East Gippsland	Ash	89	0	45	86	50	89	1,000	730	18%	9%	27%	73%
	Mixed Species	741	2	953	1051	846	743	8,480	4,887	34%	9%	42%	58%
Tambo	Ash	182	0	0	0	0	182	500	318	0%	36%	36%	64%
	Mixed Species	54	0	0	18	40	54	500	387	12%	11%	22%	77%
Central	Ash	128	171	75	184	175	299	1,100	367	39%	27%	67%	33%
	Mixed Species	45	0	4	31	22	45	200	98	29%	23%	51%	49%
State	Ash	399	171	120	270	225	570	2,600	1,415	24%	22%	46%	54%
	Mixed Species	840	2	957	1100	908	842	9,180	5,372	32%	9%	41%	59%
<b>Total All Thinnings</b>		<b>1,239</b>	<b>173</b>	<b>1,077</b>	<b>1,370</b>	<b>1,133</b>	<b>1,412</b>	<b>23,560</b>	<b>13,574</b>	<b>15%</b>	<b>6%</b>	<b>21%</b>	<b>58%</b>

Note:

- Bonalla/Mansfield, North East, Dandenong and Central Gippsland do not current have an thinnings allocation.
- There were 24 ha thinned in Central Gippsland which was not allocated as there is currently no AO for thinnings in Central Gippsland. These coupes were harvested on an approved Wood Utilisation Plan and are not represented in this table.

## Summary Page

Positive Observations:	
<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>	
Summary of Non-Compliance and/or Potential Risk of Harm to the Environment::	
<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>	
Areas for Improvement:	Further evidence required:
<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>

## Previous Key Audit Findings

What key findings were observed during the previous environmental audit?

**The auditor will require an understanding of previous key findings in order to provide commentary on current practices and improvements over time.**

Comments:

Note: If this is the first audit conducted under the new Forest Audit Program then this section can be ignored/deleted.

### Forest Audit – Allocation Order Information

<b>Allocation to VicForests Order:</b>	<i>No. S176</i>	<b>Date:</b>	<i>29 July 2004</i>
<b>Amendments:</b>	2007 Amendment	<b>Amendment Date:</b>	21 March 2007
<b>Comments:</b>			
<b>People Present:</b>	Auditor and Audit Team:  Auditees	<b>Audit Date:</b>	

## General comments and observations

---

General notes:

Compliance with the Allocation Order:

## Compliance with the Allocation Order

Requirement Name	Section	Prescription	Audit Criteria	Compliance	Auditor Comments
<i>Allocation to VicForests Order – 2004 (including amendments)</i>	4.0 Allocation to VicForests	Timber for the purposes of harvesting and selling must not exceed the extent and location allocated under the Order.	What is the total area harvested under the allocation order (not including thinning operations) during the reporting period (filtered by broad forest stand and FMA),?		
			What percentage of the total area for period <sup>1</sup> 1, 2 and 3 of the Allocation Order was harvested?		
			What percentage of the total area was harvested during years 1, 2, 3 and 4 of the allocation period? Is there a possibility of an allocation being exceeded in year 5?		
			What percentage of the total area was harvested from fire affected forest stands?		
			Were only approved fire-affected coupes harvested during the reporting period?		
			What exceptions were reported for the reporting year?		

<sup>1</sup> Note: Period 1: 2004/5 - 2009/10; Period 2: 2010/11 – 2015/16; Period 3: 2017/18 – 2022/23

## Compliance with the Allocation Order

Requirement Name	Section	Prescription	Audit Criteria	Compliance	Auditor Comments
			Has the accumulated harvest area and area remaining in the allocation for each forest stand been exceeded?		
			What is the total area harvested by thinning operations under the allocation order during the reporting period (filtered by broad forest stand and FMA)?		
<i>Allocation to VicForests Order – 2004 (including amendments)</i>	4.0 Allocation to VicForests	Timber for the purposes of thinning and selling must not exceed the extent and location allocated under the Order.	What percentage of the total area for period <sup>2</sup> 1, 2 and 3 of the Allocation Order was thinned?		
			What percentage of the total available area was thinned during years 1, 2, 3 and 4 of the allocation period? Is there a possibility of an allocation being exceeded in year 5?		
			What percentage of the total area was thinned from fire affected forest stands?		
			Were only approved fire-affected coupes thinned during the reporting period?		

<sup>2</sup> Note: Period 1: 2004/5 - 2009/10; Period 2: 2010/11 – 2015/16; Period 3: 2017/18 – 2022/23

## Compliance with the Allocation Order

Requirement Name	Section	Prescription	Audit Criteria	Compliance	Auditor Comments
			What exceptions were reported for the reporting year?		
			Has the accumulated thinning area and area remaining in the allocation for each forest stand been exceeded?		
<b>Monitoring and Reporting</b>					
<i>Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009</i>	2.2.2 Annual Reporting	By 30 September each year, VicForests will provide the Director, Forests with electronic and hardcopy information for the preceding financial year as specified within the:  i). Resource Allocation Procedures – Monitoring Annual Harvest Report; and  ii). Resource Allocation Procedures – Timber Harvesting Exceptions Report	Were VicForests annual harvesting reports provided by 30 September?  Did VicForests participate in the verification and endorsement of those reports?		

**ENVIRONMENTAL AUDIT  
FOREST AUDIT PROGRAM  
TIMBER PRODUCTION IN STATE FORESTS**

**FMA: ALL**

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Module 6 Harvesting Performance

Workbook 6B: Wood Utilisation Plans & Timber Release Plans

## Wood Utilisation Plan / Timber Release Plan

## Measurement

### Measurement Methodology:

Assessing spatial compliance with the conditions specified in WUPs or TRPs will require the assessment of planning and operational related operations, review of documentary evidence and records, and interviews.

Logging history (comprising spatial harvesting data provided by VicForests in the Post-harvest Report) is verified by DSE through a separate process

GIS software can be used to review the verified spatial harvesting data against the approved coupes appearing on WUPs or TRPs (obtained from CIS).

By comparing actual harvested areas with the approved TRP areas, any harvesting/roading operations that have not occurred within the approved WUP or TRP coupes should be identified. Harvesting that occurs outside an approved WUP or TRP is considered to be a non-compliance

**Specification source:** *Relevant WUPs and TRPs*

## Summary Page

Positive Observations:

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Summary of Non-Compliance and/or Potential Risk of Harm to the Environment:

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- 
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- 
- 

Areas for Improvement:

- 
- 
- 
- 
- 
- 

Further evidence required:

- 
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## Previous Key Audit Findings

What key findings were observed during the previous environmental audit?

**The auditor will require an understanding of previous key findings in order to provide commentary on current practices and improvements over time.**

Comments:

Note: If this is the first audit conducted under the new Forest Audit Program then this section can be ignored/deleted.

### Forest Audit – FMA and WUP/TRP Information

<b>FMA:</b>	<b>«FMA»</b>	<b>WUP/TRP:</b>	
		<b>Date:</b>	
<b>Comments:</b>			
<b>People Present:</b>	Auditor and Audit Team:		<b>Audit Date:</b>
	Auditees:		

## General comments and observations

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General notes:

Wood Utilisation Plans / Timber Release Plans:

## Wood Utilisation Plans / Timber Release Plans

Requirement Name	Section	Prescription	Audit Criteria	Compliance	Auditor Comments
<i>Relevant WUP/TRP</i>	<i>As applicable</i>	Timber for the purposes of harvesting and selling must not exceed the extent and location specified in the relevant WUP/TRP.	What coupes (name/location) were harvested during the reporting year?		
			Was all harvesting conducted within the time period permitted under the WUP/TRP?		
			What is the total coupe area harvested in Victoria's State forests (by FMA) during the reporting year by broad forest stand?		
			Were only approved coupes harvested during the reporting period?		
			Were any coupe harvest areas exceeded during the reporting year?		
			What exceptions were reported for the reporting year?		
<i>Relevant WUP/TRP</i>	<i>As applicable</i>	The collection of seed will be subject to a licence	Has a licence for the collection of seed been issued under <i>the Forests Act 1958</i>		

**ENVIRONMENTAL AUDIT  
FOREST AUDIT PROGRAM  
TIMBER PRODUCTION IN STATE FORESTS**

**FMA: ALL**

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Module 6 Harvesting Performance  
Workbook 6C: Harvesting in Catchments

## Harvesting in Catchments

## Measurement

### Measurement Methodology:

Assessing compliance with the Management Procedures requires monitoring of the annual level of harvesting and thinning undertaken in each relevant catchment area relative to the allowable level defined in the Management Procedures (rolling annual average).

Section 2.3.3 of the Management Procedures (DSE, 2009) contains prescriptions that set harvesting limits in the Thomson, Tarago, Bunyip Catchments and Yarra Tributaries. These prescriptions were introduced in October 2005.

Reconciliation of VicForests performance relative to the allocated resources requires logging history to be overlaid with the Full Extent dataset. This information, and exceptions reports provided by VicForests, should be analysed to provide summaries on harvesting performance in catchment areas. The logging history should include salvage performance information.

**Specification source:** *Section 2.3.3 of the Management Procedures (DSE, 2009).*

### Reconciliation for Catchment Areas

The following template/example may be adopted in principle for reporting harvesting performance against allocated resources for catchment areas:

Catchment	2007-08 Hectares Harvested (ha)			Total
	Ash	Mixed Species	Other	
Thomson	48	1	0	49
Tarago	27	17	0	44
Bunyip	6	0	0	6
Yarra Tributaries	68	4	0	72
<b>TOTAL</b>	<b>149</b>	<b>22</b>	<b>0</b>	<b>171</b>

## Summary Page

Positive Observations:	
<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>	
Summary of Non-Compliance and/or Potential Risk of Harm to the Environment:	
<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>	
Areas for Improvement:	Further evidence required:
<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>

## Previous Key Audit Findings

What key findings were observed during the previous environmental audit?

**The auditor will require an understanding of previous key findings in order to provide commentary on current practices and improvements over time.**

Comments:

Note: If this is the first audit conducted under the new Forest Audit Program then this section can be ignored/deleted.

### Forest Audit – Forest Management Area Information

<b>Forest Management Area:</b>	«FMA»	<b>Date:</b>	
<b>Amendments:</b>		<b>Amendment Date:</b>	
<b>Comments:</b>			
<b>People Present:</b>	Auditor and Audit Team:		<b>Audit Date:</b>
	Auditees:		

## General comments and observations

---

General notes:

Harvesting in Catchments

## Harvesting in Catchments

Requirement Name	Section	Directive	Audit Criteria	Compliance	Auditor Comments
<i>Code of Practice for Timber Production 2007</i>	2.1.2 Wood Utilisation Plans or Timber Release Plans	A WUP or TRP must minimise the impact of harvesting on water quality and quantity over a period of time within any particular catchment.	Does the current WUP or TRP include provisions for protection of water quality and quantity?		
			Does the WUP or TRP make note of water supply catchment prescriptions and Special Area Plans?		
			Have any special requirements for water quality protection set out in a regional River Health Strategy, or a Water Quality Plan prepared by a relevant Catchment Management Authority or Melbourne Water been included in the WUP or TRP?		
			Are the provisions for protection of water quality and quantity adequate and effective?		
<i>Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests (DSE, 2009)</i>	Schedule 6 Water Supply Catchments	In relevant water supply catchments the area harvested must not exceed the limit allowed (i.e. Orbost {Rocky river} limit of 40ha maximum annual area harvested).	What is the total area harvested during the reporting period in the specified catchment area (filtered by broad forest stand and catchment)?  Do the harvested areas in relevant water supply catchments exceed nominated limits?		

## Harvesting in Catchments

Requirement Name	Section	Directive	Audit Criteria	Compliance	Auditor Comments
<i>Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests (DSE, 2009)</i>	2.3.3(b) Harvesting in Water Supply Catchments	In the Thomson, Tarago and Yarra Tributaries water supply catchments the area harvested must not exceed the following limits measured as a rolling average (ha per annum) commencing July 2004:  i). Thomson - Ash forests 150ha, Mixed species forests 15ha;  ii). Tarago - Ash forests 55ha, Mixed species forests 23ha; and  iii). Yarra Tributaries - Ash forests 52ha, Mixed species forests 15ha.	What is the total area harvested during the period relevant to the prescription in the specified catchment area (filtered by broad forest stand and catchment)?  Does the annual rolling average of forest area harvested in Victoria's catchment areas <sup>1</sup> during the reporting year by broad forest stand meet the harvest limits?		
<i>Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests (DSE, 2009)</i>	2.3.3(c) Harvesting in Water Supply Catchments	In the Bunyip and Learmonth's Creek water supply catchments the area harvested must not exceed the following limits (hectares per annum), averaged over the previous 10 year period commencing July 1996 (for example in July 2007 the 10 year period commences July 1997):  i). Bunyip - Ash forests 15ha, Mixed species 15ha; and  ii). Learmonth's Creek - Ash forests 7ha, Mixed species 3ha.	What is the total area harvested during the period relevant to the prescription in the specified catchment area (filtered by broad forest stand and catchment)?  Does the annual rolling average of forest area harvested in Victoria's catchment areas <sup>1</sup> during the reporting year by broad forest stand meet the harvest limits?		

## Harvesting in Catchments

Requirement Name	Section	Directive	Audit Criteria	Compliance	Auditor Comments
<i>Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests (DSE, 2009)</i>	2.3.3(d) Harvesting in Water Supply Catchments	In the Thomson, Tarago and Yarra Tributaries water supply catchments serviced sanitary facilities must accompany harvesting operations.	Were serviced sanitary facilities commissioned for harvesting operations in the Thomson, Tarago and Yarra Tributaries water supply catchments?		

Notes: 1. Catchment areas include Thomson, Tarago, Bunyip, Yarra Tributaries and those outlined in Schedule 6 of the Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests (DSE, 2009).

**ENVIRONMENTAL AUDIT  
FOREST AUDIT PROGRAM  
TIMBER PRODUCTION IN STATE FORESTS**

**FMA: ALL**

**COUPE: Not Applicable**

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Module 6 Harvesting Performance

Workbook 6D: Cumulative Harvest Limits in Special Management Zones

# Cumulative Harvest Limits in Special Management Zones

## Measurement

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### Measurement Methodology:

Assessing compliance with the Forest Management Plans (cumulative harvest limits in SMZs) requires monitoring of the annual level of harvesting and thinning undertaken in each relevant FMA and SMZ relative to the allowable level defined in the relevant FMP.

Assessing compliance with the Action Statements requires monitoring of annual harvesting and thinning undertaken within relevant SMZs over the period of time defined in the relevant Action Statement.

Reconciliation of DSE/VicForests performance relative to the allowable resources requires logging history to be overlaid with the Forest Management Zone dataset. This information should be analysed to provide summaries on harvesting performance in SMZs with area limit prescriptions set out in FMPs and/or Action Statements. The logging history should include salvage harvesting levels in assessing this performance.

**Specification source:** Action Statements located here:

Flora and Fauna Guarantee Act, [Action Statements](#).

## Summary Page

Positive Observations:	
<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>	
Summary of Non-Compliance and/or Potential Risk of Harm to the Environment:	
<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>	
Areas for Improvement:	Further evidence required:
<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>

## Previous Key Audit Findings

What key findings were observed during the previous environmental audit?

The auditor will require an understanding of previous key findings in order to provide commentary on current practices and improvements over time.

Comments:

Note: If this is the first audit conducted under the new Forest Audit Program then this section can be ignored/deleted.

### Forest Audit – Forest Management Area Information

<b>Forest Management Area:</b>	«FMA»	<b>Date:</b>	
<b>Amendments:</b>		<b>Amendment Date:</b>	
<b>Comments:</b>			
<b>People Present:</b>	Auditor and Audit Team:	<b>Audit Date:</b>	
	Auditees:		

## General comments and observations

---

General notes:

Cumulative Harvest Limits in Special Management Zones:

Harvest Limits relating to Action Statements:

## Cumulative Harvest Limits in Special Management Zones

Requirement Name	Section	Directive	Audit Criteria	Compliance	Auditor Comments
<i>Relevant Forest Management Plan</i>	<i>Relevant section of Forest Management Plan pertaining to SMZ and area/volume prescriptions</i>	Areas and volumes available for timber production within the FMP should not be exceeded.	Does the current FMP identify and include provisions for protection of SMZs?		
			What is the total FMA area and volume harvested in Victoria's State forests during the reporting year by broad forest stand (including thinning)?		
			What total area and volume of the FMA was harvested in SMZs - since the FMP promulgation and current reporting period?		
			What cumulative percentage of the total area and volume for the FMA was harvested in SMZs?		
			What exceptions were reported for the reporting year?		
			Has the accumulated harvest area/volume and area/volume remaining in the SMZs been exceeded?		
<i>Relevant Action Statement</i>	<i>Relevant section</i>	Areas harvested should not exceed limit established for target species under Action Statement.	Has the accumulated harvest area/volume and area/volume remaining in the SMZs been exceeded for target species?		



Appendix E

# List of Databases and Reference Documents



**Key Documents and databases**

- DSE Forest Audit Program Toolbox - Module 1 Overview
- DSE Forest Audit Program Toolbox - Module 2 Audit Process
- DSE Forest Audit Program Toolbox - Module 6 Harvesting Performance
- DSE FAP Workbook 6a: Compliance with the Allocation Order
- DSE FAP Workbook 6b: Wood Utilisation Plans & Timber Release Plans
- DSE FAP Workbook 6c: Harvesting in Catchments
- DSE FAP Workbook 6d: Cumulative Harvest Limits in Special Management Zones
- *log\_season200910.shp*: DSE shapefile
- *log\_season201011.shp*: DSE shapefile
- *trp\_current.shp*: DSE shapefile
- *trp\_20100107.shp*: DSE shapefile
- *pwup\_0910\_dd94.shp*: DSE shapefile
- *wup.shp*: DSE shapefile
- *wup\_additional1\_dd94.shp*: DSE shapefile
- *wup\_additional2\_dd94.shp*: DSE shapefile
- *LoggingHistory1999\_2011.shp*: DSE shapefile
- *pwsc100.shp*: DSE shapefile
- *fmz100\_current.shp*: DSE shapefile
- Central Gippsland FMA WUP 2010/11 to 2012/13
- Central Gippsland FMA WUP 2009/10 to 2011/12
- East Gippsland FMA WUP 2010/11 to 2012/13
- East Gippsland FMA WUP 2009/10 to 2011/12
- Tambo FMA WUP 2010/11 to 2012/13
- Tambo FMA WUP 2009/10 to 2011/12
- Dandenong FMA WUP 2009/10 to 2011/12
- North East FMA WUP 2009/10 to 2011/12
- North East FMA WUP 2010/11 to 2012/13
- Bendigo FMA WUP 2009/10 to 2011/12
- Bendigo FMA WUP 2010/11 to 2012/13
- Mid-Murray FMA WUP 2009/10 to 2011/12
- Mid-Murray FMA WUP 2010/11 to 2012/13



- Horsham FMA WUP 2009/10 to 2011/12
- Horsham FMA WUP 2010/11 to 2012/13
- Midlands FMA WUP 2009/10 to 2011/12
- Midlands FMA WUP 2010/11 to 2012/13
- Otway FMA WUP 2009/10 to 2011/12
- Otway FMA WUP 2010/11 to 2012/13
- Portland WUP 2009/10 to 2011/12
- Portland WUP 2010/11 to 2012/13
- Timber Release Plan for Benalla-Mansfield, Central, Central Gippsland and Dandenong Forest Management Areas 2011-2016
- 2009-2014 TRP for the East-Gippsland, Tambo and North-East
- Approved 2006-2011 Timber Release Plans and subsequent Amendments and/or Modifications (up to January 2011)
- Flora and Fauna Guarantee Act 1988 and Action Statements

#### **References**

- Code of Practice for timber production (2007)
- Management procedures for timber harvesting, roading and regeneration in Victoria's State forests 2009
- Bendigo Forest Management Plan (2007)
- (Central) Gippsland Forest Management Plan (2004)
- Central Highlands Forest Management Plan and Appendices (1998)
- East Gippsland Forest Management Plan (1995) and FMP Amendment (1997)
- Midlands Forest Management Plan (1996)
- Mid-Murray Forest Management Plan (2002)
- North East Forest Management Plan and Appendices (2001)
- Allocation Order 2004, incorporating the 2007 amendment, the 2010 amendment and the 2010 further amendment to the Allocation to VicForests Order 2004. Consolidated Working Document
- VicForests Quality Assurance Plan. May 2011. Version 1.1
- Audit Report: Environmental Audit – Forest Audit Program Module 6 – Harvesting Performance, 1 April 2001.
- Monitoring Annual Harvesting Performance In Victoria's State Forests 2008-09



Appendix F  
GIS Analysis Method

## Appendix : GIS analysis methodology

### Wood Utilisation Plan (WUP)

1. All WUP shapes were merged (*pwup\_0910\_dd94*, *wup.shp*, *wup\_additional1\_dd94* and *wup\_additional2\_dd94*) into *WUP\_merged*.
2. *WUP\_merged* was buffered by 50 metres to allow for differences between mapped coupe boundary and the coupe boundary identified on the field → *WUP\_merged\_buff50*
3. A new text field called "Layer" was added to *WUP\_merged\_buff50*. This field was populated with the value "WUP" for all records in the dataset.
4. *log\_season\_200910* was dissolved by logging history ID to remove duplicates → *log\_season\_200910\_diss*
5. *log\_season\_200910* and *log\_season\_201011* were merged into one shapefile → *log200910\_201011\_merged*
6. An excel list provided by DSE containing domestic firewood coupes harvested in the study period was joined to *log200910\_201011\_merged* using the coupe address as the join field. Joined attributes were identified as having been harvested for domestic firewood collection and were excluded from the dataset through a 'definition query'.
7. *log200910\_201011\_merged* was buffered by -10 to allow for GPS error → *log200910\_201011\_merged\_buff10*
8. A new text field called "Layer\_1" was added to *log200910\_201011\_merged\_buff10*. This column was populated with the value "logging history" for all records in the dataset.
9. A 'geometric union' (overlay analysis tool within ArcMap) was computed between *WUP\_merged\_buff50* and *log200910\_201011\_merged\_buff10*
10. A 'Select by Features' query was undertaken to identify areas harvested outside the spatial limits of *WUP\_merged\_buff50*: 'Select features' where "Layer" is null and "Layer\_1" is not null
11. Records selected in step 10 are exported as the non-compliance dataset.
12. The area outside the *WUP\_merged\_buff50* (non-compliant area) is calculated using 'calculate geometry' tool in ArcMap.
13. Logging history attribute tables and analysis outputs were exported to Microsoft Access 2007-2010. A number of queries were performed to create summary harvesting tables and compliance tables.

### Allocation Order (AO)

1. Selected VF harvested coupes from *log200910\_201011\_merged*. Exported selection as *VF\_log200910\_201011\_merged*
2. Classified records into: period 1, period 2-year1 and period 2-year 2 based on the 'start\_date' column.

3. Classified records into: 'not tallied', 'gross' and 'net' based on the conditions of the AO.
4. Selected records classified as 'gross' and exported as *VF\_log200910\_201011\_merged\_GROSS*
5. Selected records classified as 'net' and exported selection as *VF\_log200910\_201011\_merged\_NET*
6. *VF\_log200910\_201011\_merged\_GROSS* was buffered by -10 in order to allow for GPS mapping error (and therefore avoid selecting TRP coupes in 'step 7' that were not harvested) → *VF\_log200910\_201011\_merged\_GROSS\_10*
7. Conducted 'spatial join' between *VF\_log200910\_201011\_merged\_GROSS\_10* and *TRP\_merged* in order to obtain the TRP addresses and gross area for each logging history record. The spatial join was performed with the condition "one to many" given the fact that one logging history coupe can intersect more than one TRP coupe.
8. The result of the 'spatial join' is exported as a table and imported in Microsoft Access.
9. Queries were run to ensure that each TRP address is tallied only once in each period. When the same TRP coupe was harvested in both year 1 and year 2 of period 2, the gross area of the coupe was allocated to year 1 and the year two record was removed from the table.
10. TRP coupes addresses which were tallied as 'gross area' were removed from *VF\_log200910\_201011\_merged\_NET* (for those instances where there are 'gross' and 'net' tallied silviculture systems in one coupe).
11. The net area of all records in *VF\_log200910\_201011\_merged\_NET* and the dataset was exported as a table into Microsoft Access.
12. Total harvested area was calculated adding the results of 'net' and 'gross' area calculations.

## **Timber Release Plan (TRP)**

1. *trp\_current* was buffered by 50 metres to allow for differences between mapped coupe boundary and the coupe boundary identified on the field → *TRP\_current\_merged\_buff50*
2. *trp\_20100107* was buffered by 50 metres to allow for differences between mapped coupe boundary and the coupe boundary identified on the field → *trp\_20100107\_merged\_buff50*
3. A new text field called 'layer' was added to *trp\_current*. All records were given the value 'TRP'
4. VF coupes were selected from *log200910\_201011\_merged\_buff10* and exported as *VF\_log200910\_201011\_merged\_buff10*. This dataset includes a field called 'Layer\_1' with all records having the value 'logging history'.
5. A 'geometric union' (an overlay analysis tool within ArcMap) was computed between *TRP\_current\_merged\_buff50* and *VF\_log200910\_201011\_merged\_buff10*
6. A 'Select by Features' query was undertaken to identify areas harvested outside the spatial limits of *trp\_current\_merged\_buff50*: 'Select features where "Layer" is null and "Layer\_1" is not null. This query selects logging history records which do not overlap with *trp\_current\_merged\_buff50*.

7. A 'Selection by Location' is performed to re-select records from step 6 selection which do not overlap *trp\_20100107\_merged\_buff50*
8. Records selected in step 7 were exported as the non-compliance dataset: *VF\_coupes\_outside\_TRP*
9. The non-compliance areas in *VF\_coupes\_outside\_TRP* are calculated using 'calculate geometry' tool in ArcMap.
10. The attribute tables of *VF\_log200910\_201011\_merged* and *VF\_coupes\_outside\_TRP* were exported to Microsoft Access 2007-2010. A number of queries were performed to create summary harvesting tables and compliance tables.

## **Cumulative harvest limits in Melbourne's water supply catchments**

1. The six catchments to be audited were selected from *pWSC100* and exported as *auditd\_catch*
2. *LoggingHistory1999\_2011* was intersected with *audited\_catchements* → *loggHist99\_11\_INTERS\_audit\_catch*
3. Area harvested within the audited catchment was calculated for each record of *loggHist99\_11\_INTERS\_audit\_catch* using the 'calculate geometry tool' in ArcMap
4. *loggHist99\_11\_INTERS\_audit\_catch* was exported as a table and imported into Microsoft Access.
5. Logging history records harvested in 1999/2000 season were not included in the quantitative analysis to follow.
6. Select queries were performed in Microsoft Access in order to produce summary tables indicating the total area harvested in each catchment by forest type and season.
7. Rolling averages were calculated in Excel.

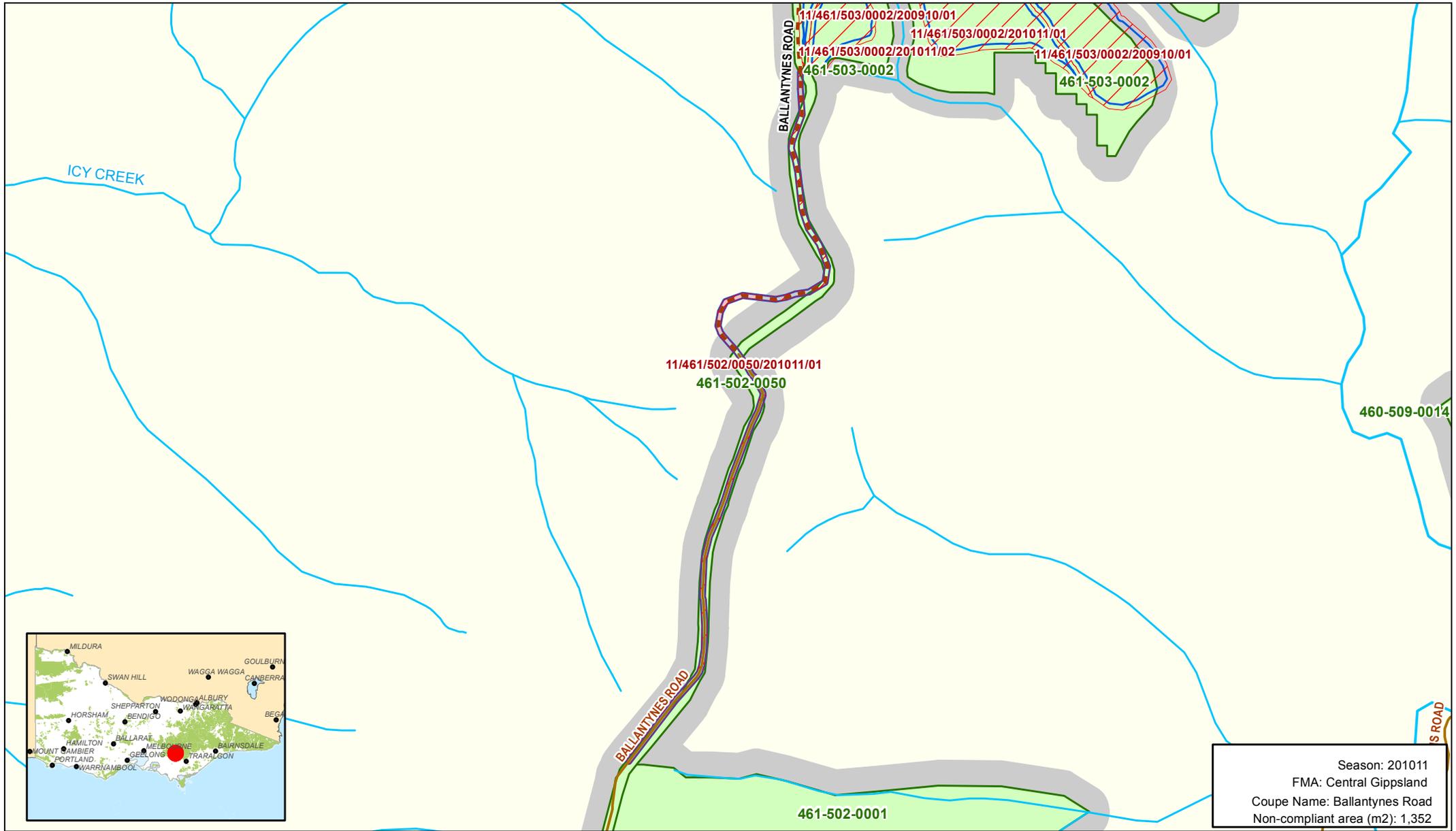
## **Cumulative harvest limits in Special Management Zones (SMZ)**

1. Records where FMZ= 'SMZ' were selected from *fmz100\_current* and exported as *smz\_100*
2. *LoggingHistory1999\_2011* was intersected with *smz\_100* → *loggHist99\_11\_INTERS\_smz\_100*
3. Area harvested within SMZs was calculated from the records in *loggHist99\_11\_INTERS\_smz\_100* using the 'calculate geometry tool' in ArcMap.
4. The area (ha) of *SMZ Log-season99/09 inside* shapefile was calculated within ArcGIS using the 'calculate geometry tool' in ArcMap.
5. Records of *loggHist99\_11\_INTERS\_smz\_100* were exported to Microsoft Access and select queries were run to determine area harvested by FMA, number of SMZs harvested and values included in harvested SMZs.
6. Logging history records harvested in 1999/2000 season were not included in the quantitative analysis.



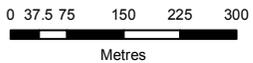
## Appendix G

# Maps



Season: 201011  
 FMA: Central Gippsland  
 Coupe Name: Ballantynes Road  
 Non-compliant area (m2): 1,352

1:10,000 Paper Size A4



Horizontal Datum: GDA 1994  
 Grid: GCS GDA 1994



- Logging History - allowance of GPS error (- 10 m)
- Logging History
- Area reported as non-compliant
- TRP boundary
- TRP+ procedural allowance (50 m)

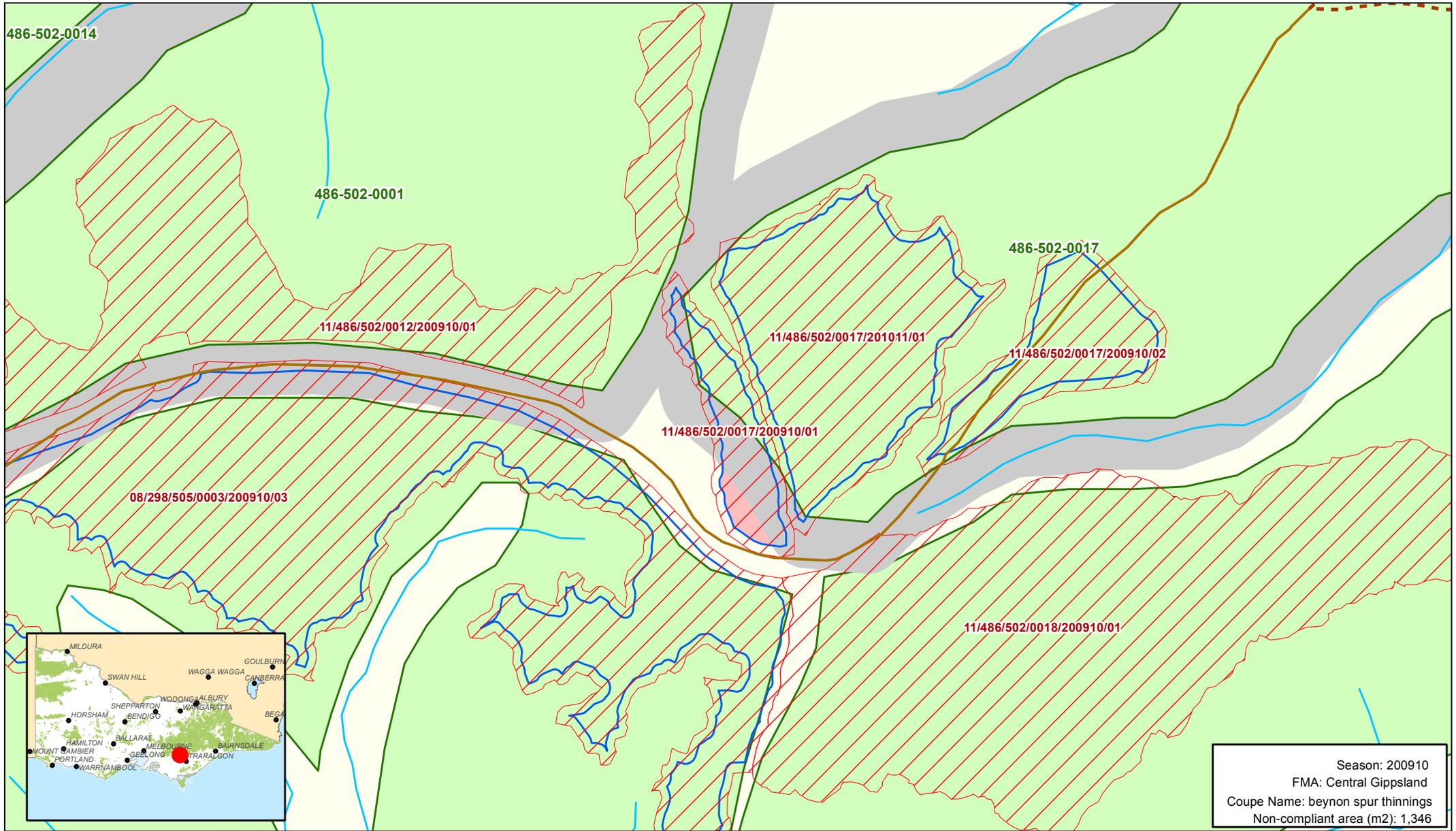
- Sealed Road
- Unsealed Road
- Unsealed Track



Department of Sustainability  
 DSE Audit: Harvesting Performance

Job Number | 31-2810101  
 Revision | A  
 Date | 24 Feb 2012

**TRP Compliance**  
**VF coupes partially outside TRP**



1:5,000 Paper Size A4

0 15 30 60 90 120



Metres

Horizontal Datum: GDA 1994  
 Grid: GCS GDA 1994



Logging History - allowance of GPS error (- 10 m)

Logging History

Area reported as non-compliant

TRP boundary

TRP+ procedural allowance (50 m)

Sealed Road

Unsealed Road

Unsealed Track

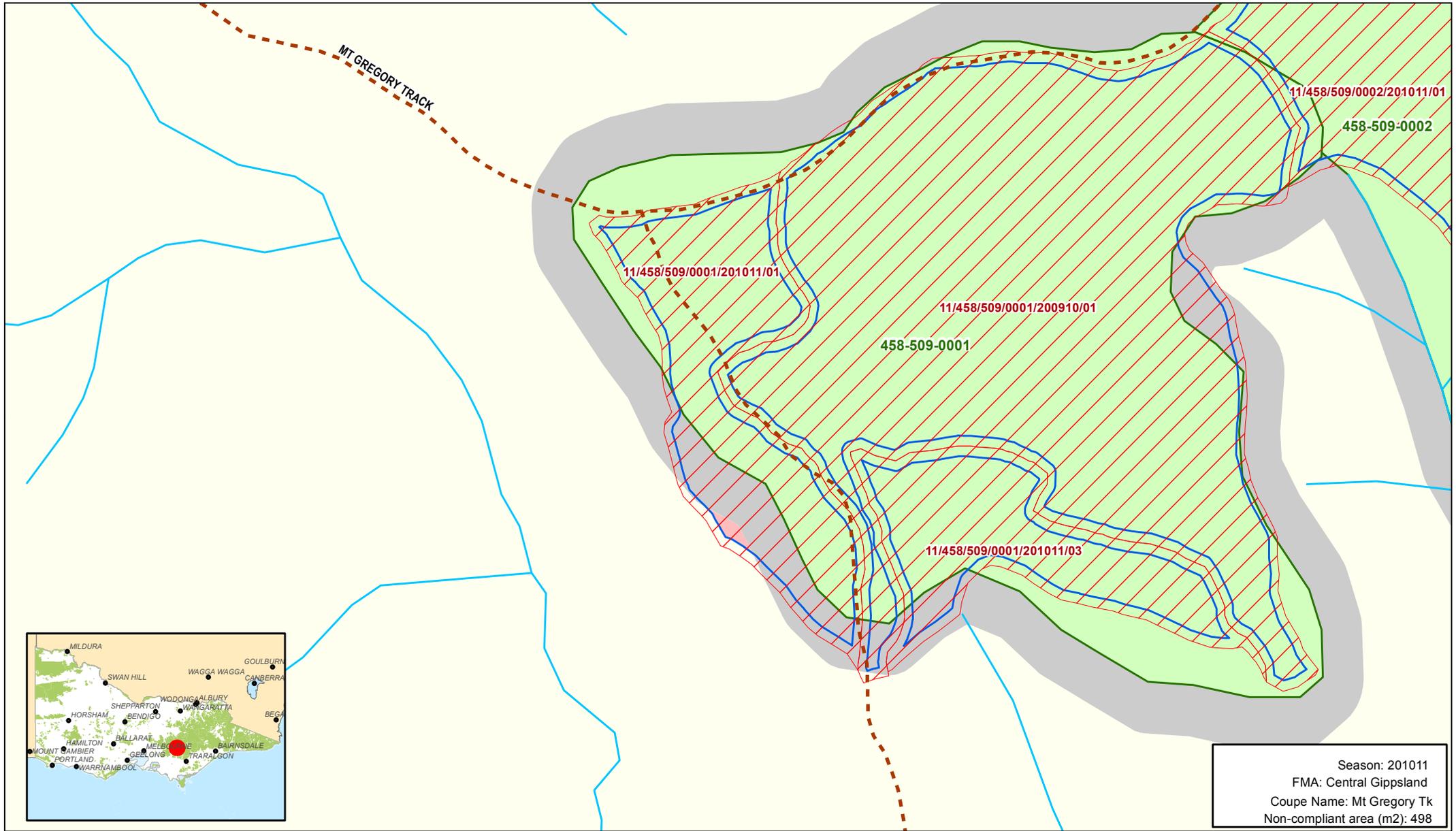


CLIENTS | PEOPLE | PERFORMANCE

Department of Sustainability  
 DSE Audit: Harvesting Performance

Job Number	31-2810101
Revision	A
Date	24 Feb 2012

TRP Compliance  
 VF coupes partially outside TRP



1:5,000 Paper Size A4

0 15 30 60 90 120



Metres

Horizontal Datum: GDA 1994  
Grid: GCS GDA 1994



- Logging History - allowance of GPS error (- 10 m)
- Logging History
- Area reported as non-compliant
- TRP boundary
- TRP+ procedural allowance (50 m)

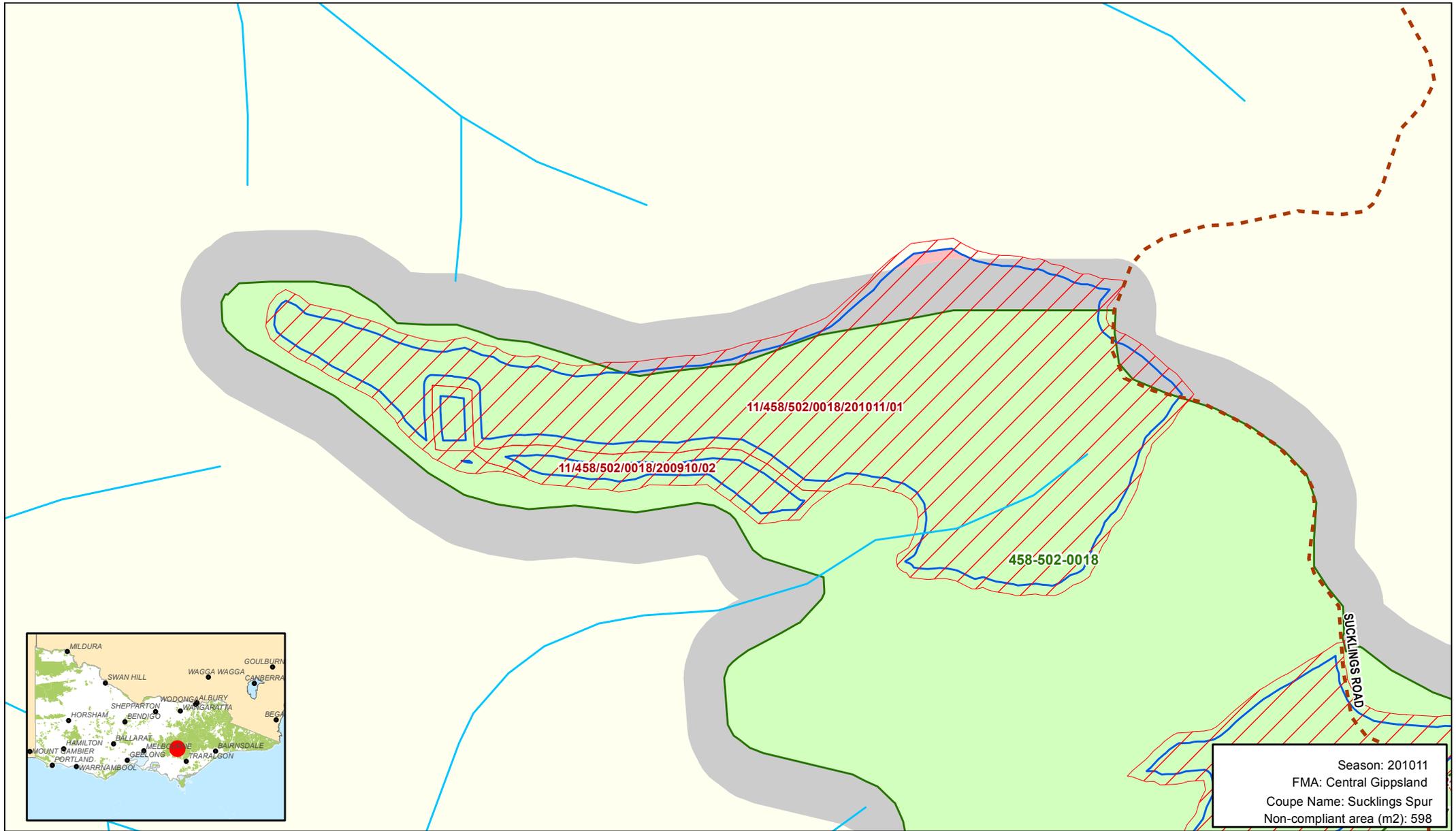
- Sealed Road
- Unsealed Road
- Unsealed Track



Department of Sustainability  
DSE Audit: Harvesting Performance

Job Number | 31-2810101  
Revision | A  
Date | 24 Feb 2012

**TRP Compliance**  
VF coupes partially outside TRP



Season: 201011  
 FMA: Central Gippsland  
 Coupe Name: Sucklings Spur  
 Non-compliant area (m2): 598

1:5,000 Paper Size A4

0 15 30 60 90 120



Metres

Horizontal Datum: GDA 1994  
 Grid: GCS GDA 1994



- Logging History - allowance of GPS error (- 10 m)
- Logging History
- Area reported as non-compliant
- TRP boundary
- TRP+ procedural allowance (50 m)

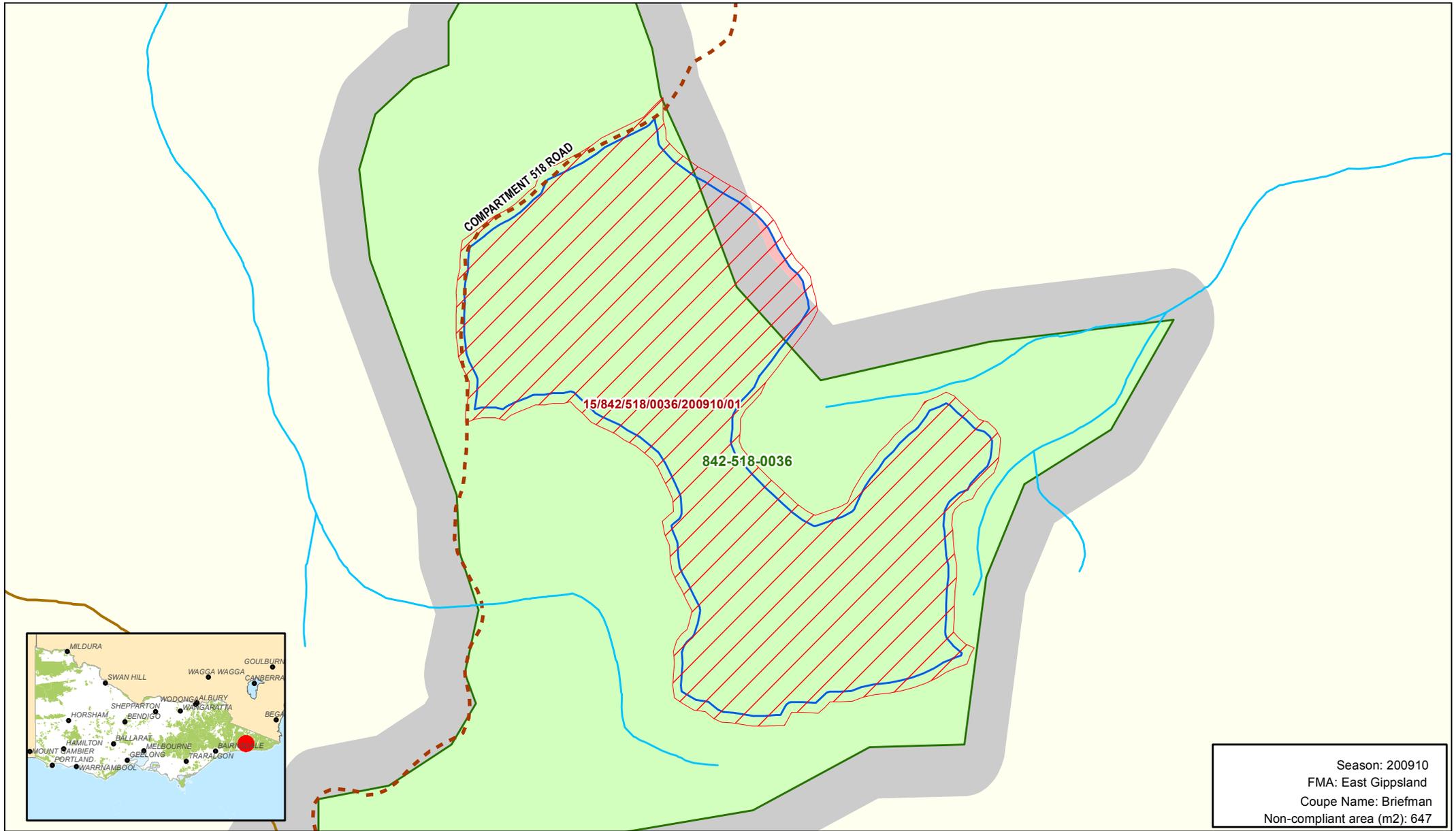
- Sealed Road
- Unsealed Road
- Unsealed Track



Department of Sustainability  
 DSE Audit: Harvesting Performance

Job Number	31-2810101
Revision	A
Date	24 Feb 2012

**TRP Compliance**  
**VF coupes partially outside TRP**



1:5,000 Paper Size A4

0 15 30 60 90 120



Metres

Horizontal Datum: GDA 1994  
 Grid: GCS GDA 1994



- Logging History - allowance of GPS error (- 10 m)
- Logging History
- Area reported as non-compliant
- TRP boundary
- TRP+ procedural allowance (50 m)

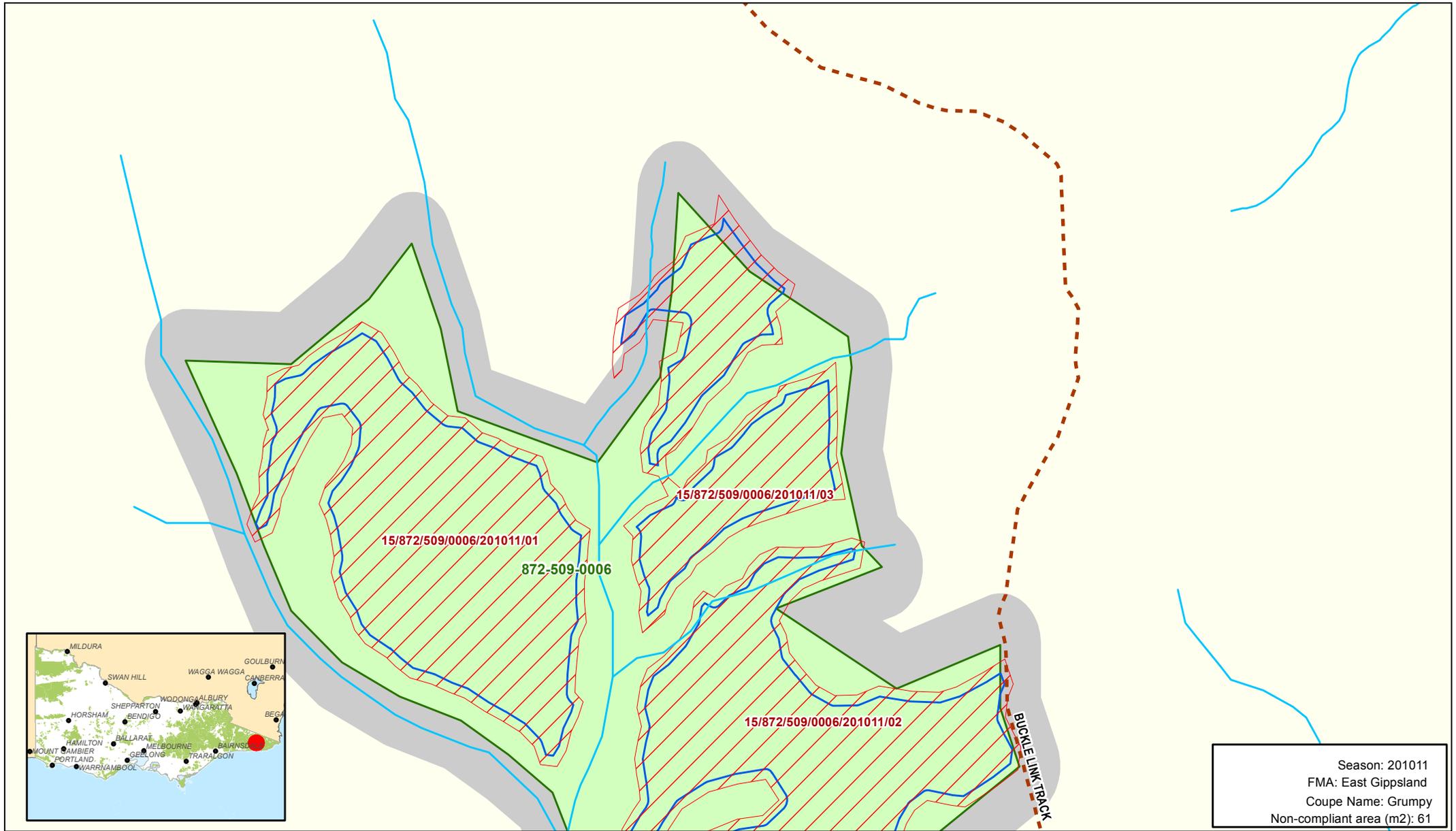
- Sealed Road
- Unsealed Road
- Unsealed Track



Department of Sustainability  
 DSE Audit: Harvesting Performance

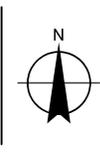
Job Number | 31-28101  
 Revision | A  
 Date | 24 Feb 2012

**TRP Compliance**  
**VF coupes partially outside TRP**



Season: 201011  
 FMA: East Gippsland  
 Coupe Name: Grumpy  
 Non-compliant area (m2): 61

1:5,000 Paper Size A4  
 0 15 30 60 90 120  
 Metres  
 Horizontal Datum: GDA 1994  
 Grid: GCS GDA 1994

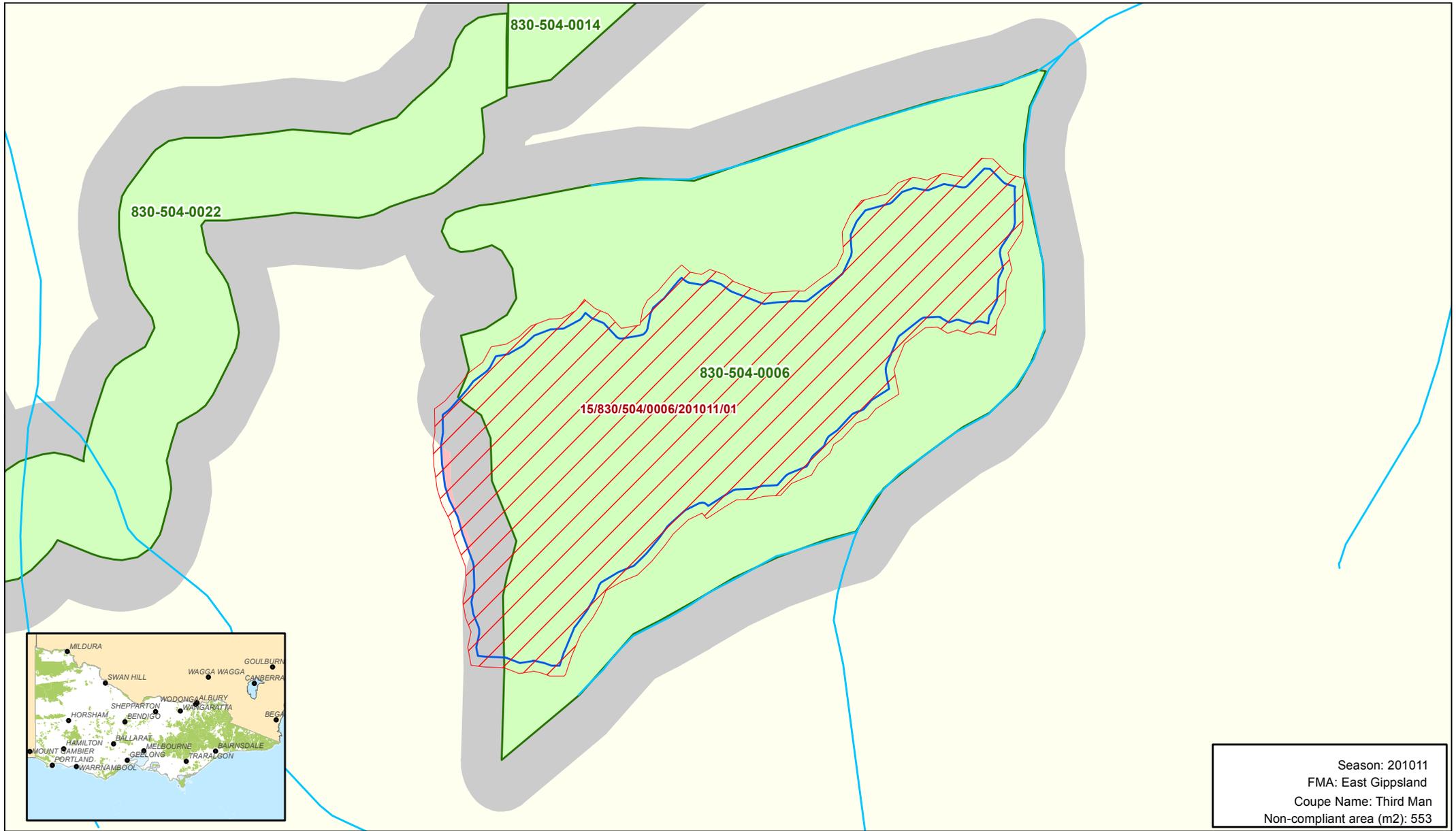


- Logging History - allowance of GPS error (- 10 m)
- Logging History
- Area reported as non-compliant
- TRP boundary
- TRP+ procedural allowance (50 m)
- Sealed Road
- Unsealed Road
- Unsealed Track



Department of Sustainability  
 DSE Audit: Harvesting Performance  
 Job Number | 31-2810101  
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 Date | 24 Feb 2012

**TRP Compliance**  
**VF coupes partially outside TRP**



Season: 201011  
 FMA: East Gippsland  
 Coupe Name: Third Man  
 Non-compliant area (m2): 553

1:5,000 Paper Size A4

0 15 30 60 90 120



Metres

Horizontal Datum: GDA 1994  
 Grid: GCS GDA 1994



- Logging History - allowance of GPS error (- 10 m)
- Logging History
- Area reported as non-compliant
- TRP boundary
- TRP+ procedural allowance (50 m)

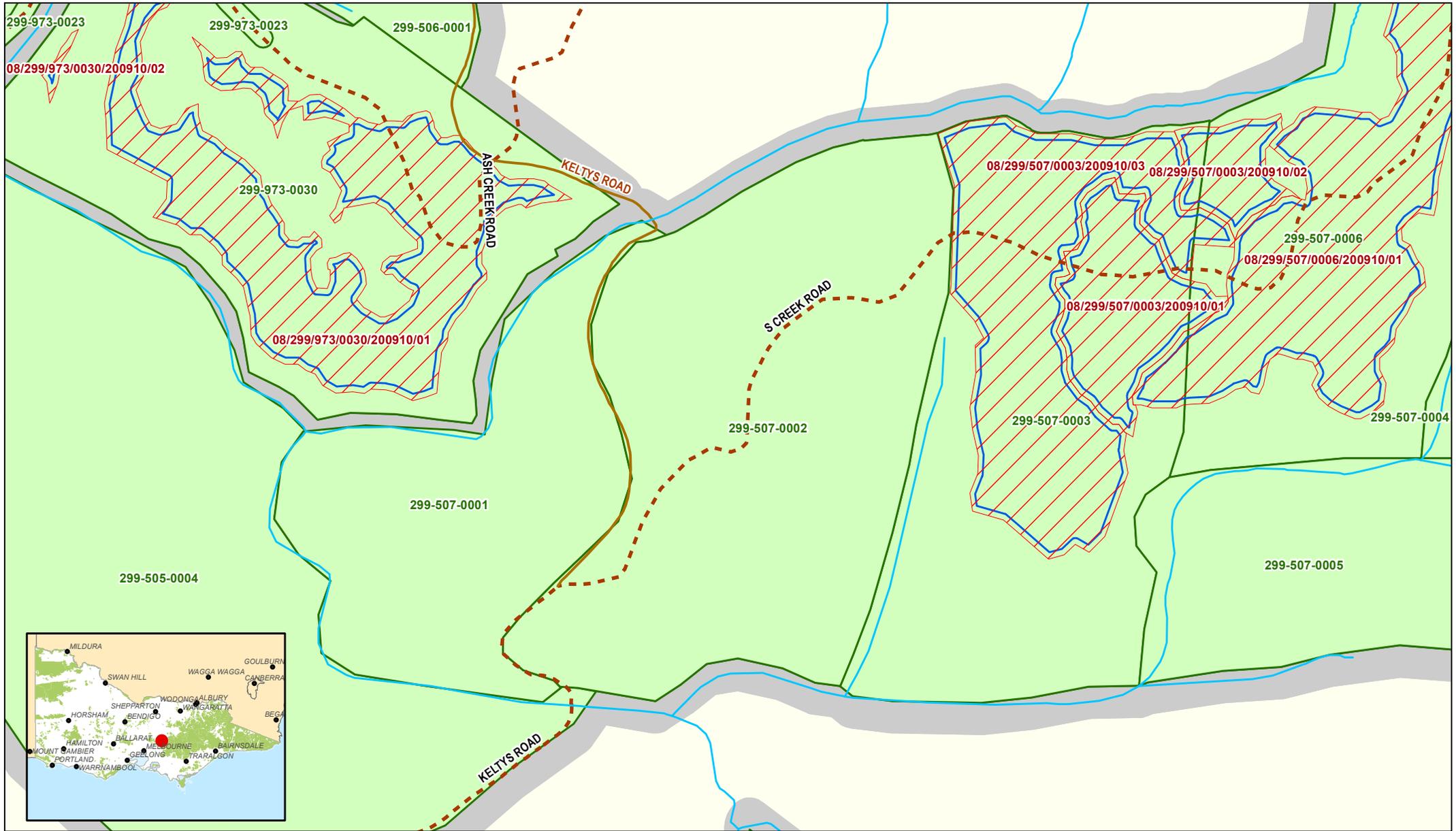
- Sealed Road
- Unsealed Road
- Unsealed Track



Department of Sustainability  
 DSE Audit: Harvesting Performance

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**TRP Compliance**  
**VF coupes partially outside TRP**



1:8,000 Paper Size A4

0 30 60 120 180 240

Metres

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 55



Logging History - allowance of GPS error (- 10 m)

VicForests Logging History

TRP boundary

TRP+ procedural allowance (50 m)

Sealed Road

Unsealed Road

Unsealed Track

River

Stream



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Department of Sustainability  
DSE Audit: Harvesting Performance

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Revision | A  
Date | 08 Mar 2012

### VicForests Quality Assurance Plan Completeness of logging history submission

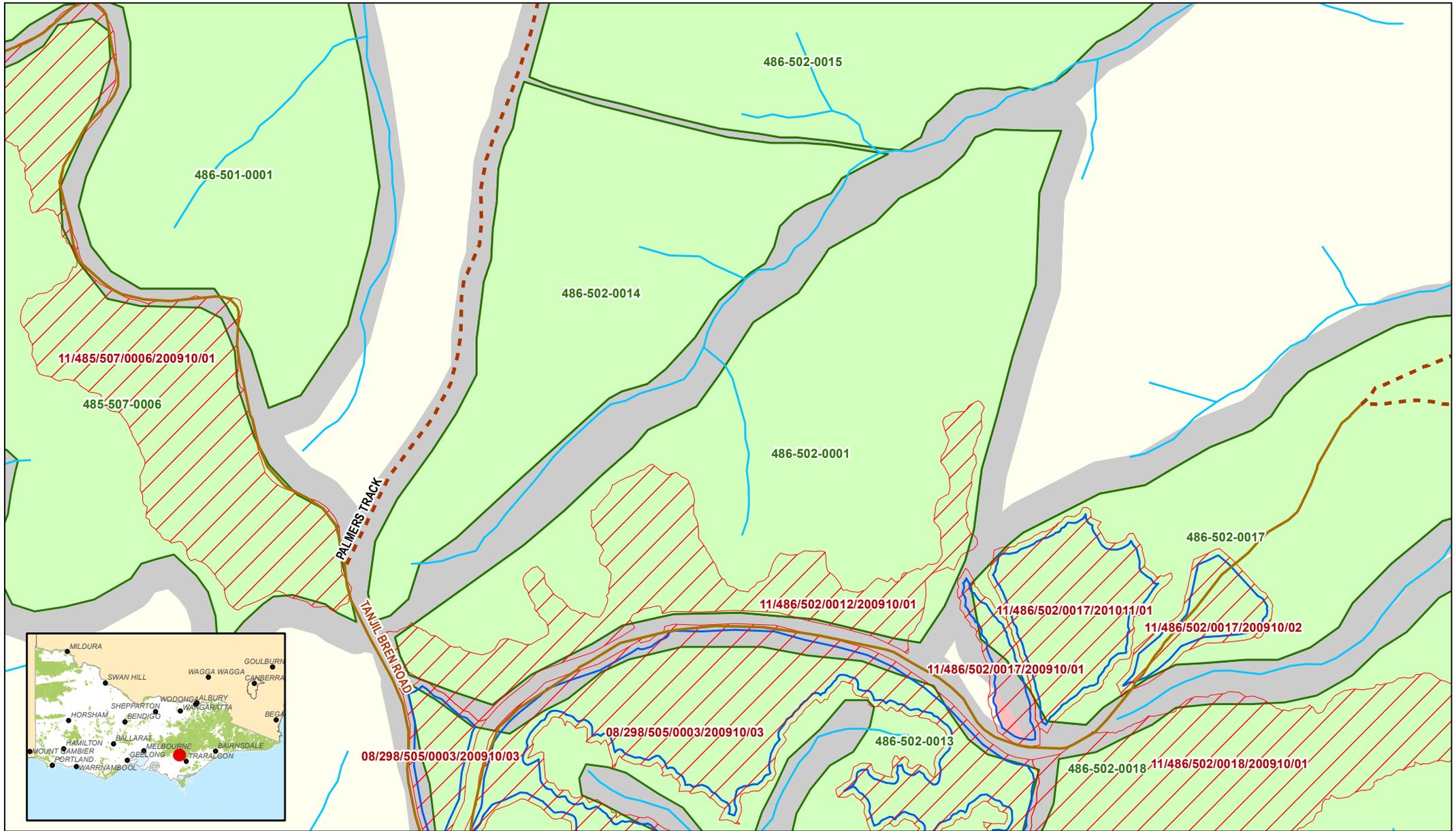
Coupe: 299-507-0002, FMA: Central District: Toolangi

180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

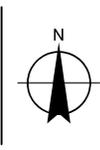
G:\31\2810101\GIS\Maps\Deliverables\312810101\_VF\_QA\_Plan\_A4L.mxd

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Data source: DSE: VicMap, Harvesting Information, 2011. Created by: emelero-blanca



1:8,000 Paper Size A4  
 0 30 60 120 180 240  
 Metres  
 Map Projection: Transverse Mercator  
 Horizontal Datum: GDA 1994  
 Grid: GDA 1994 MGA Zone 55



- Logging History - allowance of GPS error (- 10 m)
- VicForests Logging History
- TRP boundary
- TRP+ procedural allowance (50 m)
- Sealed Road
- Unsealed Road
- Unsealed Track
- River
- Stream

Coupe: 486-502-0001, FMA: Central Gippsland District: Erica



Department of Sustainability  
 DSE Audit: Harvesting Performance

Job Number	31-2810101
Revision	A
Date	08 Mar 2012

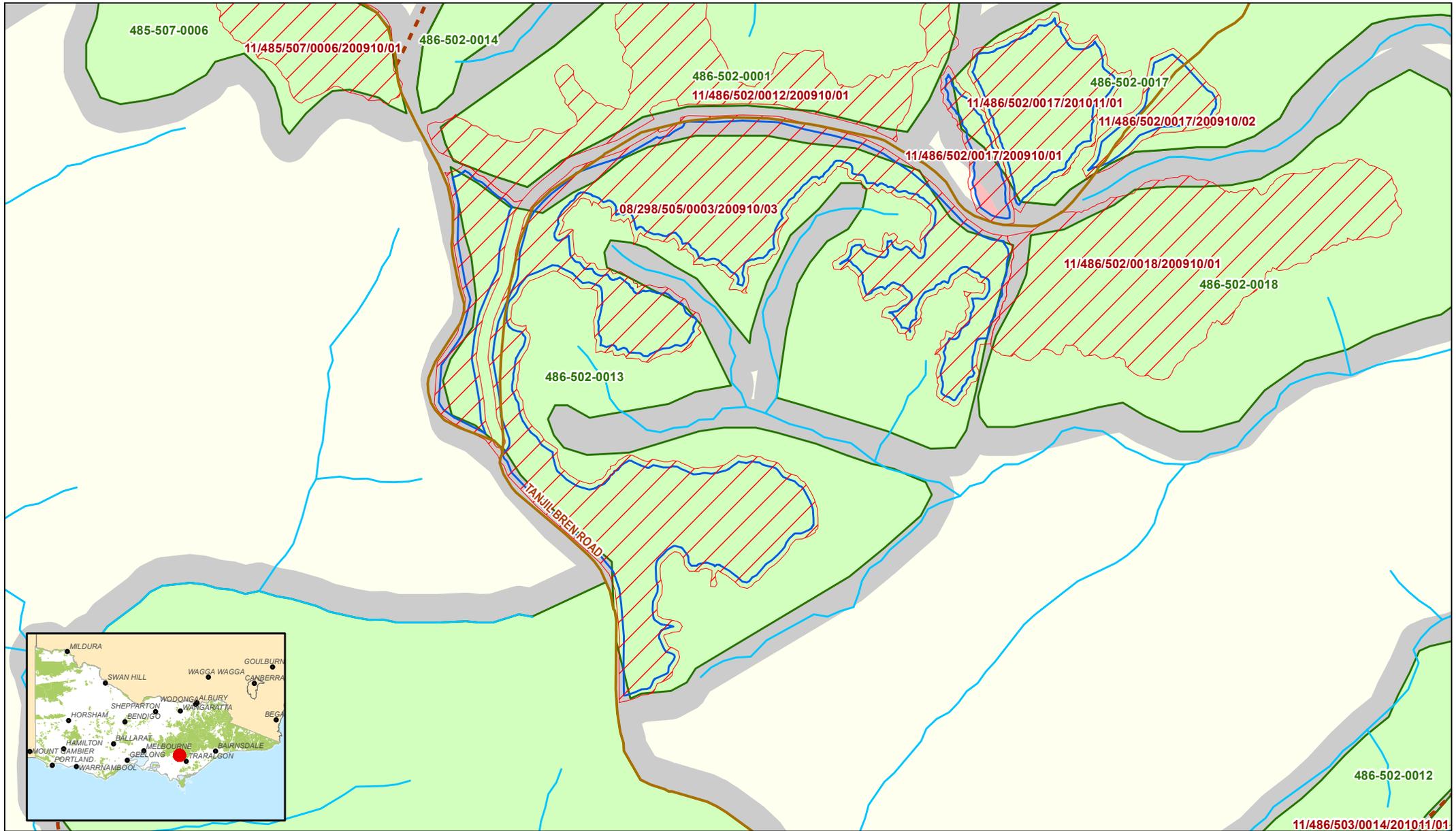
### VicForests Quality Assurance Plan Completeness of logging history submission

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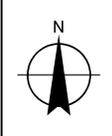
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Data source: DSE: VicMap, Harvesting Information, 2011. Created by:emelero-blanca



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 Metres  
 Map Projection: Transverse Mercator  
 Horizontal Datum: GDA 1994  
 Grid: GDA 1994 MGA Zone 55



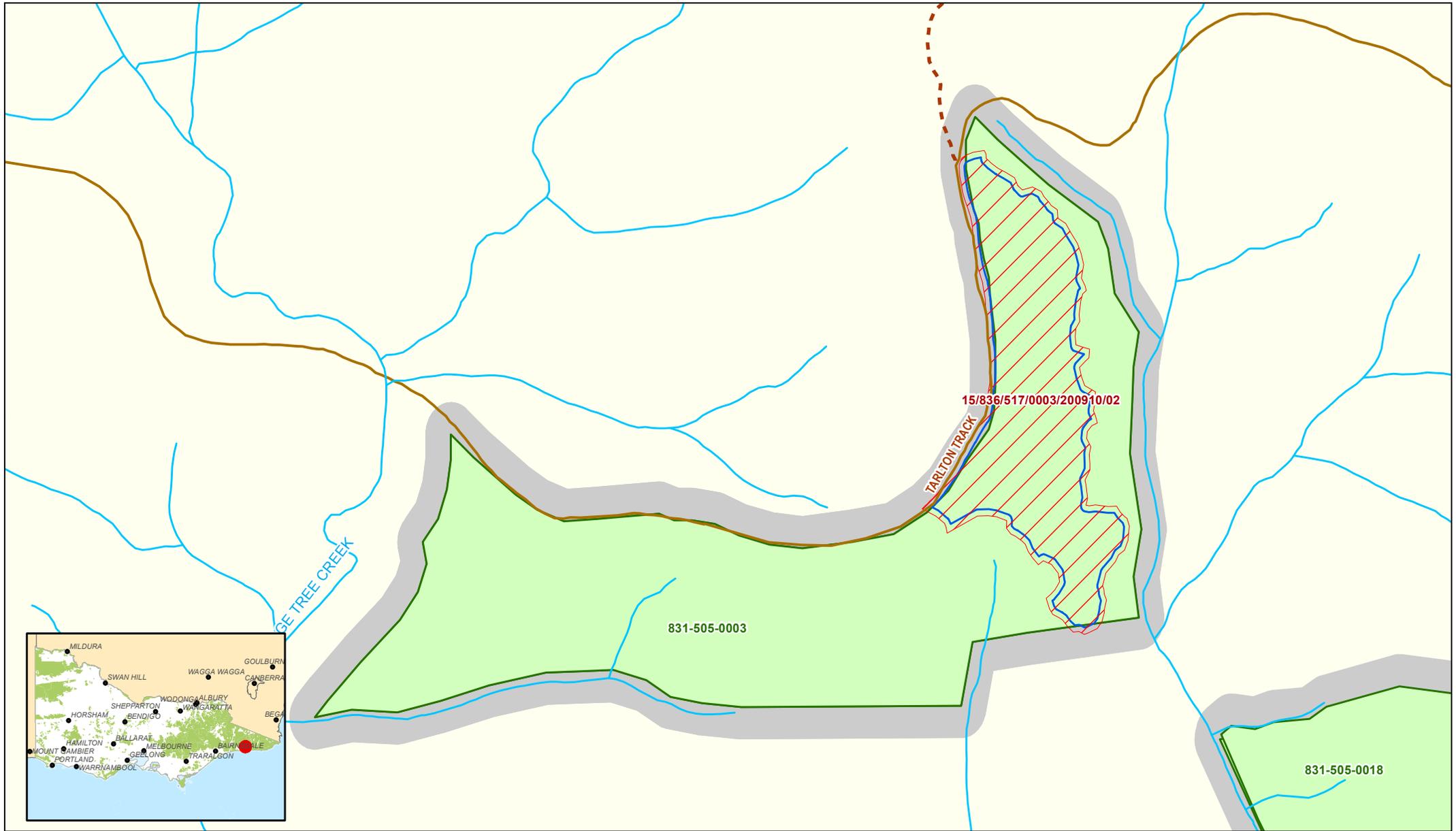
- Logging History - allowance of GPS error (- 10 m)
- VicForests Logging History
- TRP boundary
- TRP+ procedural allowance (50 m)
- Sealed Road
- Unsealed Road
- Unsealed Track
- River
- Stream



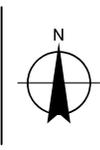
Department of Sustainability  
 DSE Audit: Harvesting Performance  
 Job Number | 31-2810101  
 Revision | A  
 Date | 08 Mar 2012

**VicForests Quality Assurance Plan**  
**Completeness of logging history submission**

Coupe: 486-502-0013, FMA: Central Gippsland District: Erica



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 Metres  
 Map Projection: Transverse Mercator  
 Horizontal Datum: GDA 1994  
 Grid: GDA 1994 MGA Zone 55



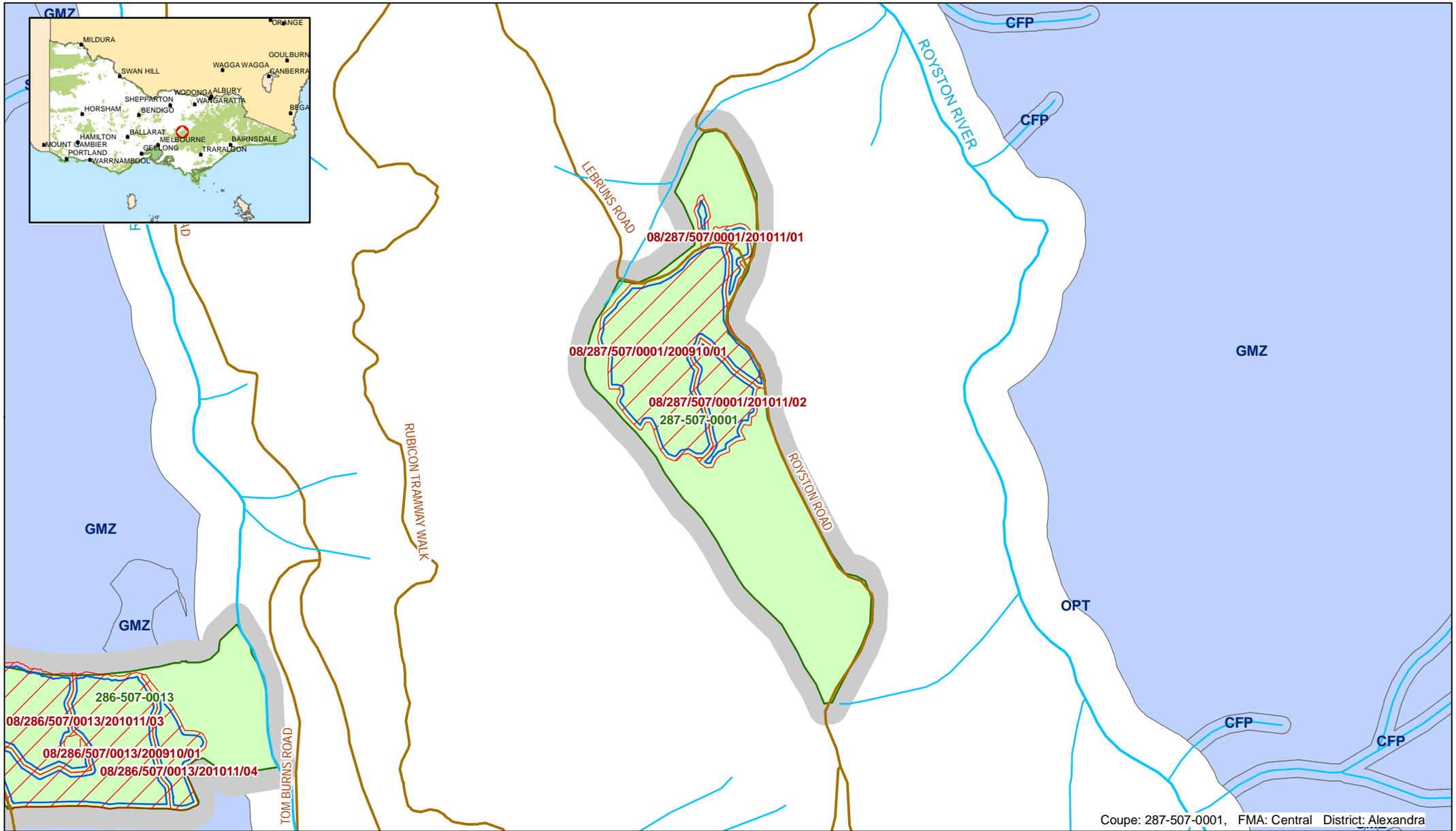
- Logging History - allowance of GPS error (- 10 m)
- VicForests Logging History
- TRP boundary
- TRP+ procedural allowance (50 m)
- Sealed Road
- Unsealed Road
- Unsealed Track
- River
- Stream

Coupe: 831-505-0003, FMA: East Gippsland District: Orbost



Department of Sustainability  
 DSE Audit: Harvesting Performance  
 Job Number | 31-2810101  
 Revision | A  
 Date | 08 Mar 2012

**VicForests Quality Assurance Plan**  
**Completeness of logging history submission**



Coupe: 287-507-0001, FMA: Central District: Alexandra

1:12,000 Paper Size A4  
 0 45 90 180 270 360  
 Metres

Horizontal Datum: GDA 1994  
 Grid: GCS GDA 1994



- Logging History - allowance of GPS error (- 10 m)
- VicForests Logging History
- WFA Eastern Vict
- TRP boundary
- TRP+ procedural allowance (50 m)

- Sealed Road
- Unsealed Road
- Unsealed Track
- River
- Stream

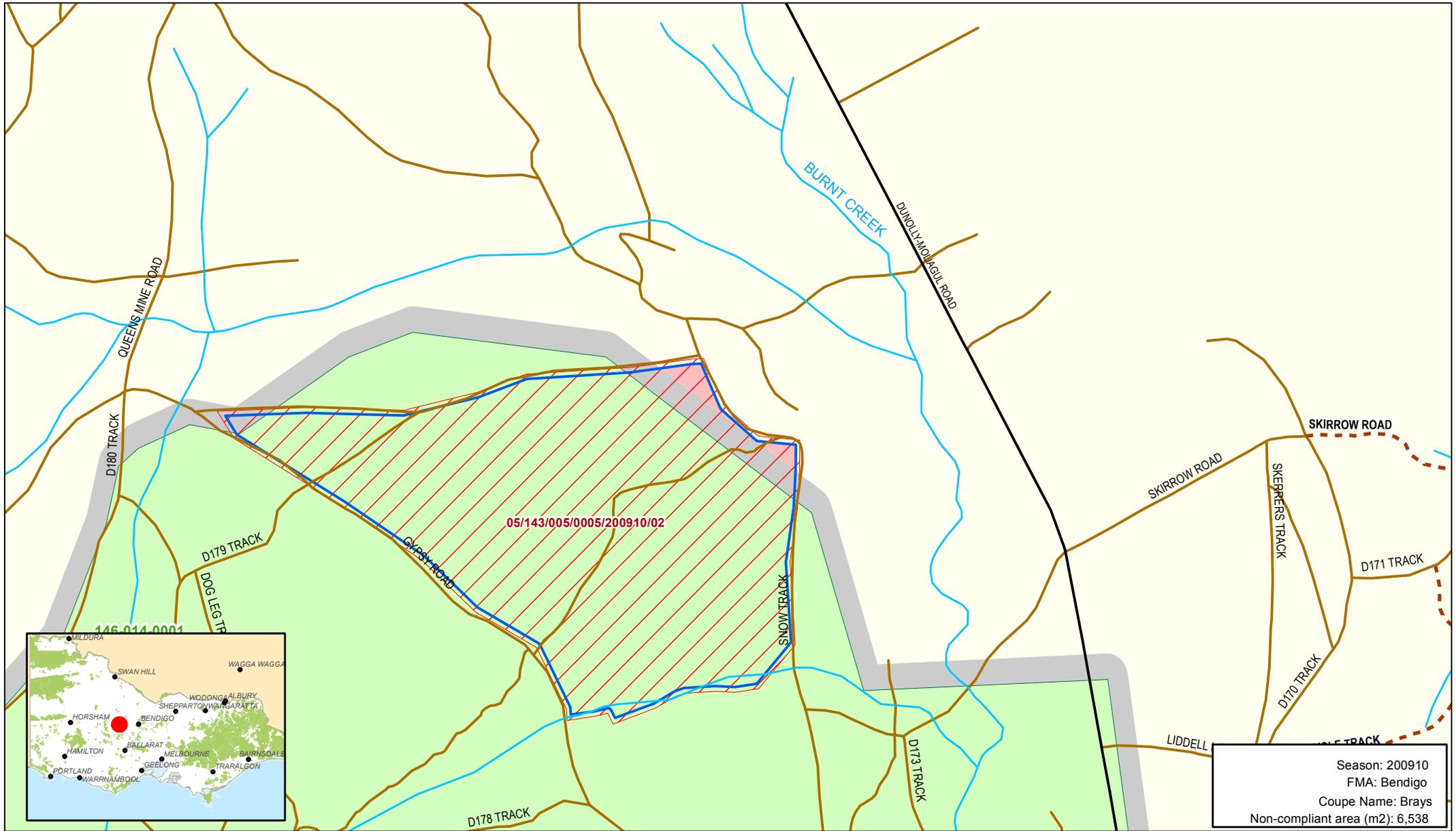


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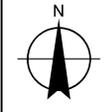
Department of Sustainability  
 DSE Audit: Harvesting Performance

Job Number | 31-2810101  
 Revision | A  
 Date | 18 Apr 2012

### Compliance with Allocation Order Coupes Outside Boundary of Working Forest Area



1:10,000 Paper Size A4  
 0 37.5 75 150 225 300  
 Metres



Map Projection: Transverse Mercator  
 Horizontal Datum: GDA 1994  
 Grid: GDA 1994 MGA Zone 55

- Area reported as non-compliant
- Logging History - allowance of GPS error (- 10 m)
- Logging History
- WUP
- WUP+ procedural allowance (50 m)

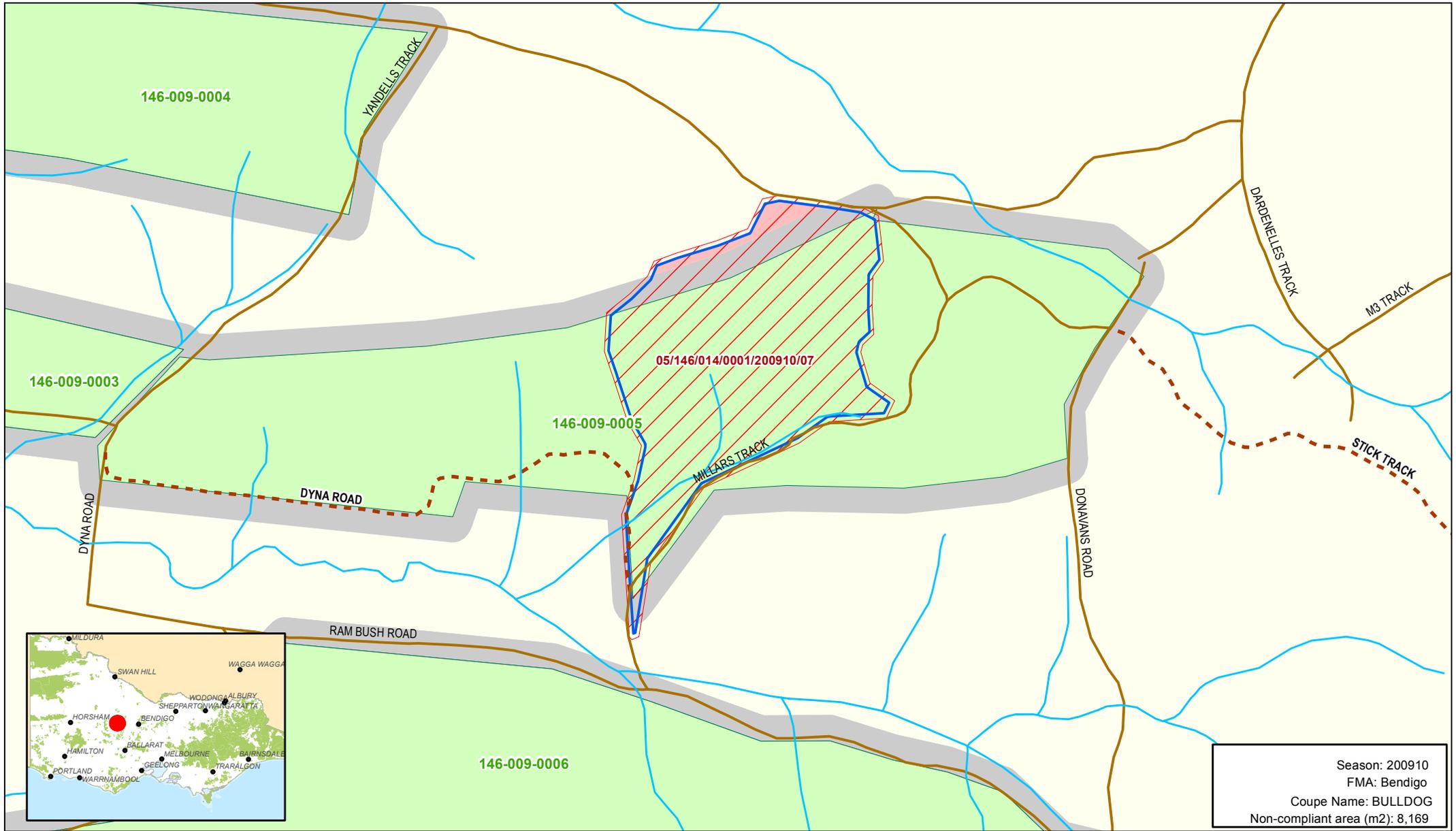
- Sealed Road
- Unsealed Road
- Unsealed Track



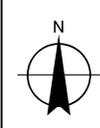
Department of Sustainability  
 DSE Audit: Harvesting Performance

Job Number	31-2810101
Revision	A
Date	24 Feb 2012

**WUP Compliance**  
**DSE coupes partially outside WUP**



1:10,000 Paper Size A4  
 0 37.5 75 150 225 300  
 Metres  
 Map Projection: Transverse Mercator  
 Horizontal Datum: GDA 1994  
 Grid: GDA 1994 MGA Zone 55



- Area reported as non-compliant
- Logging History - allowance of GPS error (- 10 m)
- Logging History
- WUP
- WUP+ procedural allowance (50 m)

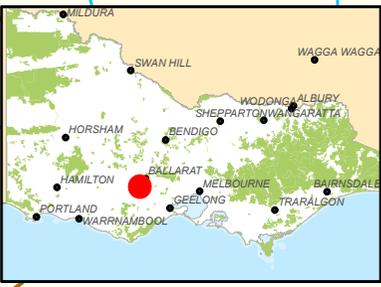
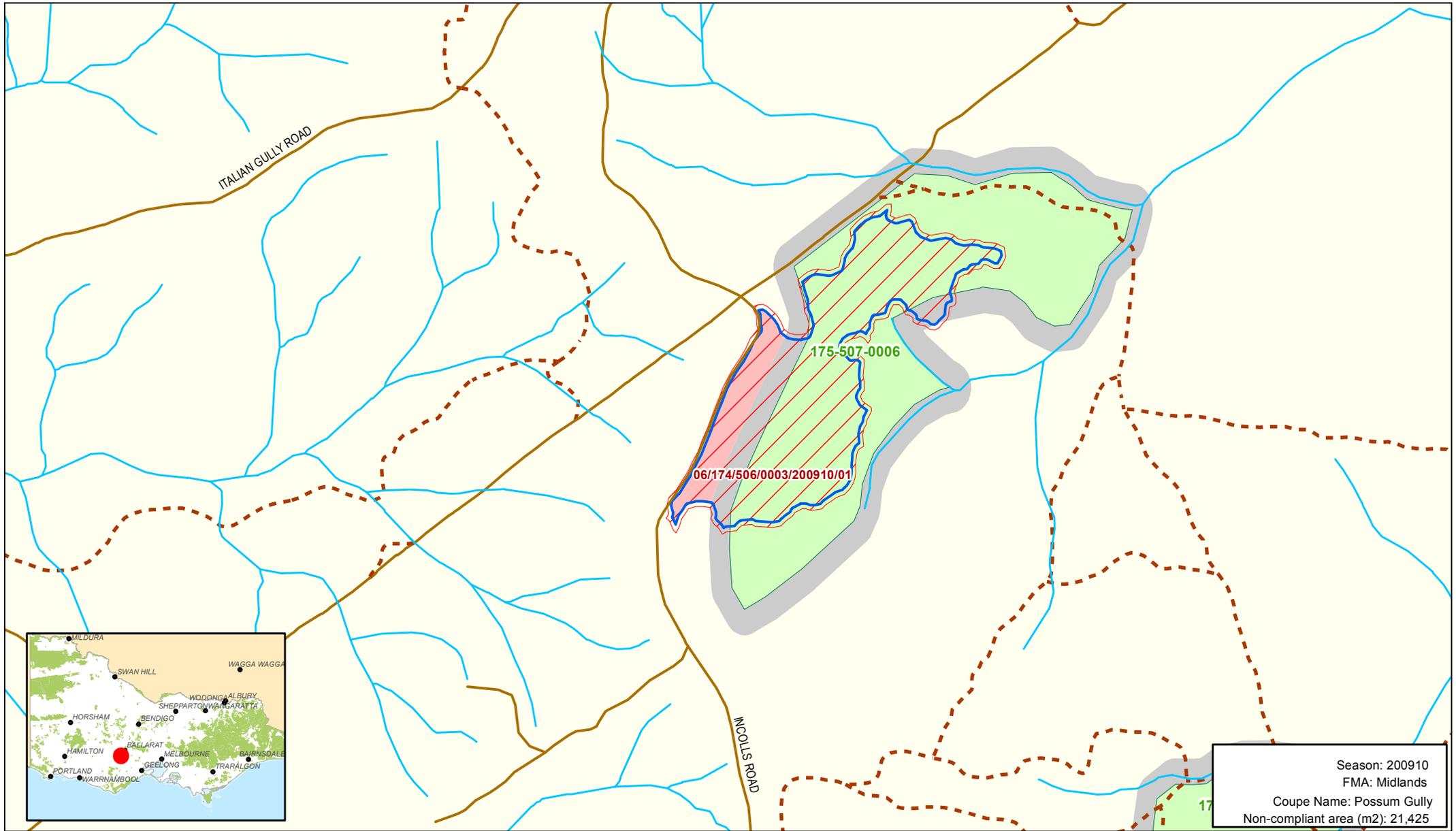
- Sealed Road
- Unsealed Road
- Unsealed Track



Department of Sustainability  
 DSE Audit: Harvesting Performance

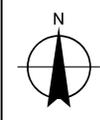
Job Number	31-2810101
Revision	A
Date	24 Feb 2012

**WUP Compliance**  
**DSE coupes partially outside WUP**



Season: 200910  
 FMA: Midlands  
 Coupe Name: Possum Gully  
 Non-compliant area (m2): 21,425

1:10,000 Paper Size A4  
 0 37.5 75 150 225 300  
 Metres  
 Map Projection: Transverse Mercator  
 Horizontal Datum: GDA 1994  
 Grid: GDA 1994 MGA Zone 55



- Area reported as non-compliant
- Logging History - allowance of GPS error (- 10 m)
- Logging History
- WUP
- WUP+ procedural allowance (50 m)

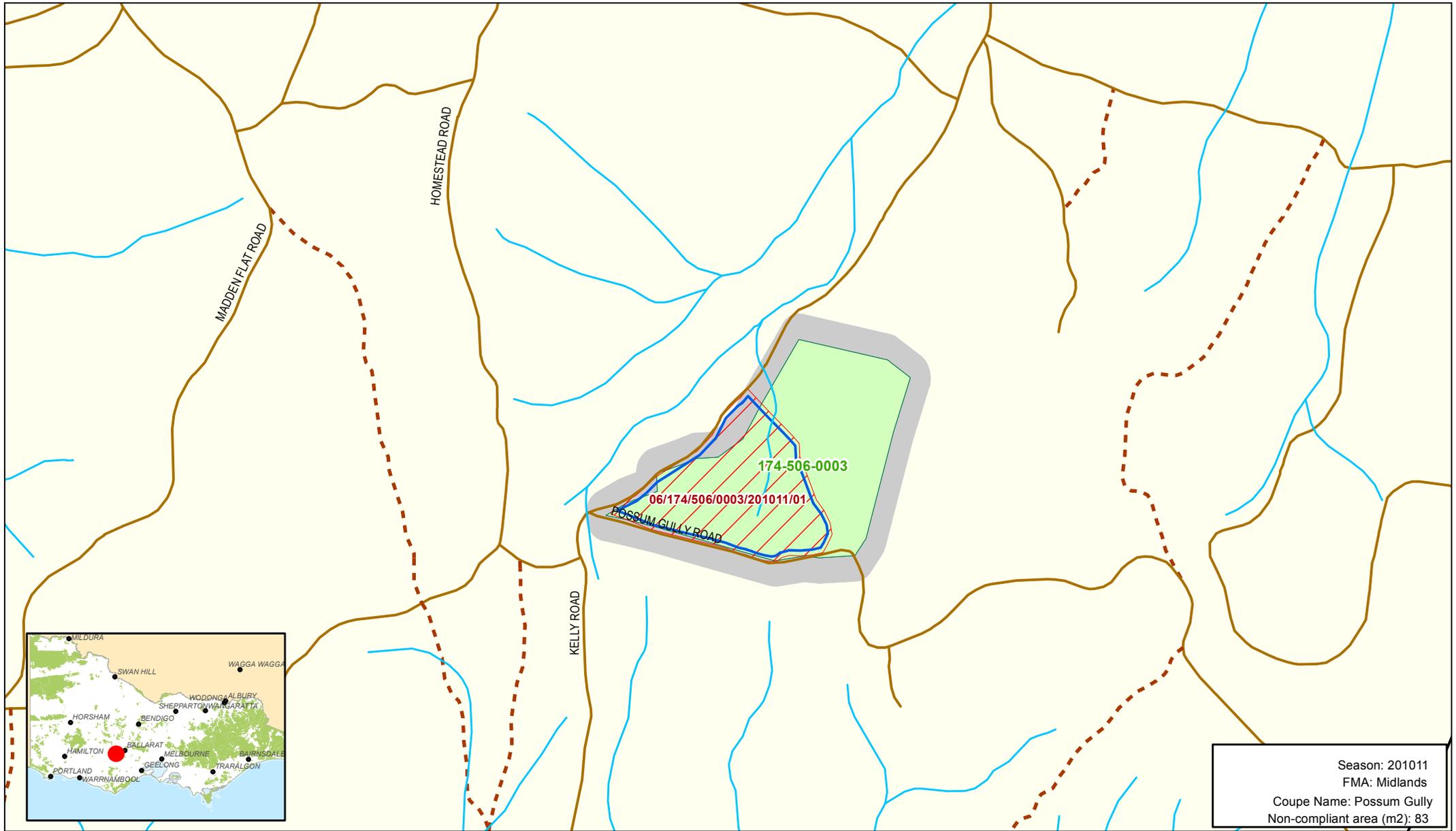
- Sealed Road
- Unsealed Road
- Unsealed Track



Department of Sustainability  
 DSE Audit: Harvesting Performance

Job Number | 31-2810101  
 Revision | A  
 Date | 24 Feb 2012

**WUP Compliance**  
**DSE coupes partially outside WUP**



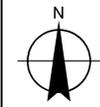
Season: 201011  
 FMA: Midlands  
 Coupe Name: Possum Gully  
 Non-compliant area (m2): 83

1:10,000 Paper Size A4

0 37.5 75 150 225 300



Map Projection: Transverse Mercator  
 Horizontal Datum: GDA 1994  
 Grid: GDA 1994 MGA Zone 55



- Area reported as non-compliant
- Logging History - allowance of GPS error (- 10 m)
- Logging History
- WUP
- WUP+ procedural allowance (50 m)

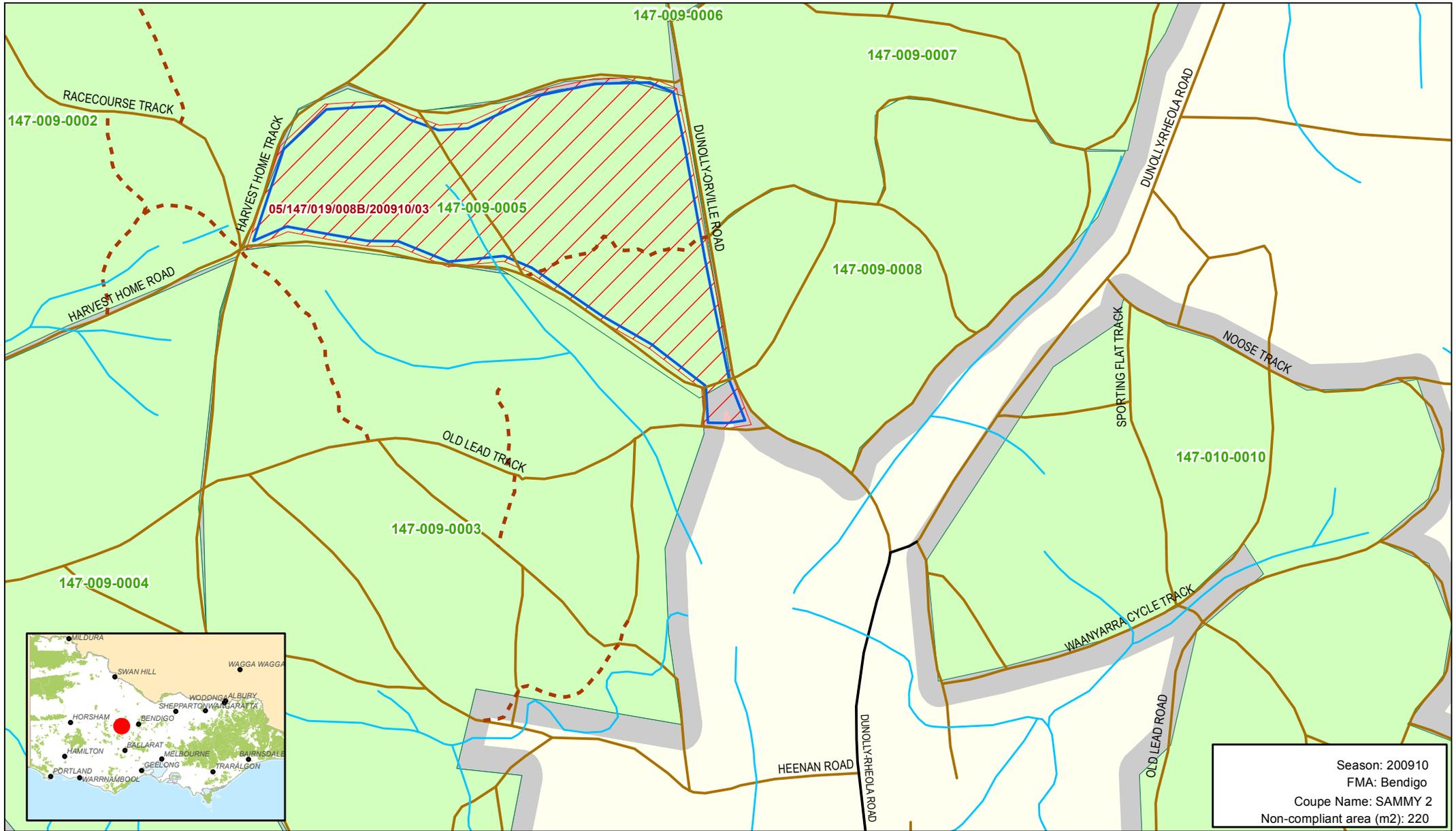
- Sealed Road
- Unsealed Road
- Unsealed Track



Department of Sustainability  
 DSE Audit: Harvesting Performance

Job Number | 31-2810101  
 Revision | A  
 Date | 24 Feb 2012

**WUP Compliance**  
**DSE coupes partially outside WUP**



Season: 200910  
 FMA: Bendigo  
 Coupe Name: SAMMY 2  
 Non-compliant area (m2): 220

1:10,000 Paper Size A4

0 37.5 75 150 225 300

Metres

Map Projection: Transverse Mercator  
 Horizontal Datum: GDA 1994  
 Grid: GDA 1994 MGA Zone 55



- Area reported as non-compliant
- Logging History - allowance of GPS error (- 10 m)
- Logging History
- WUP
- WUP+ procedural allowance (50 m)

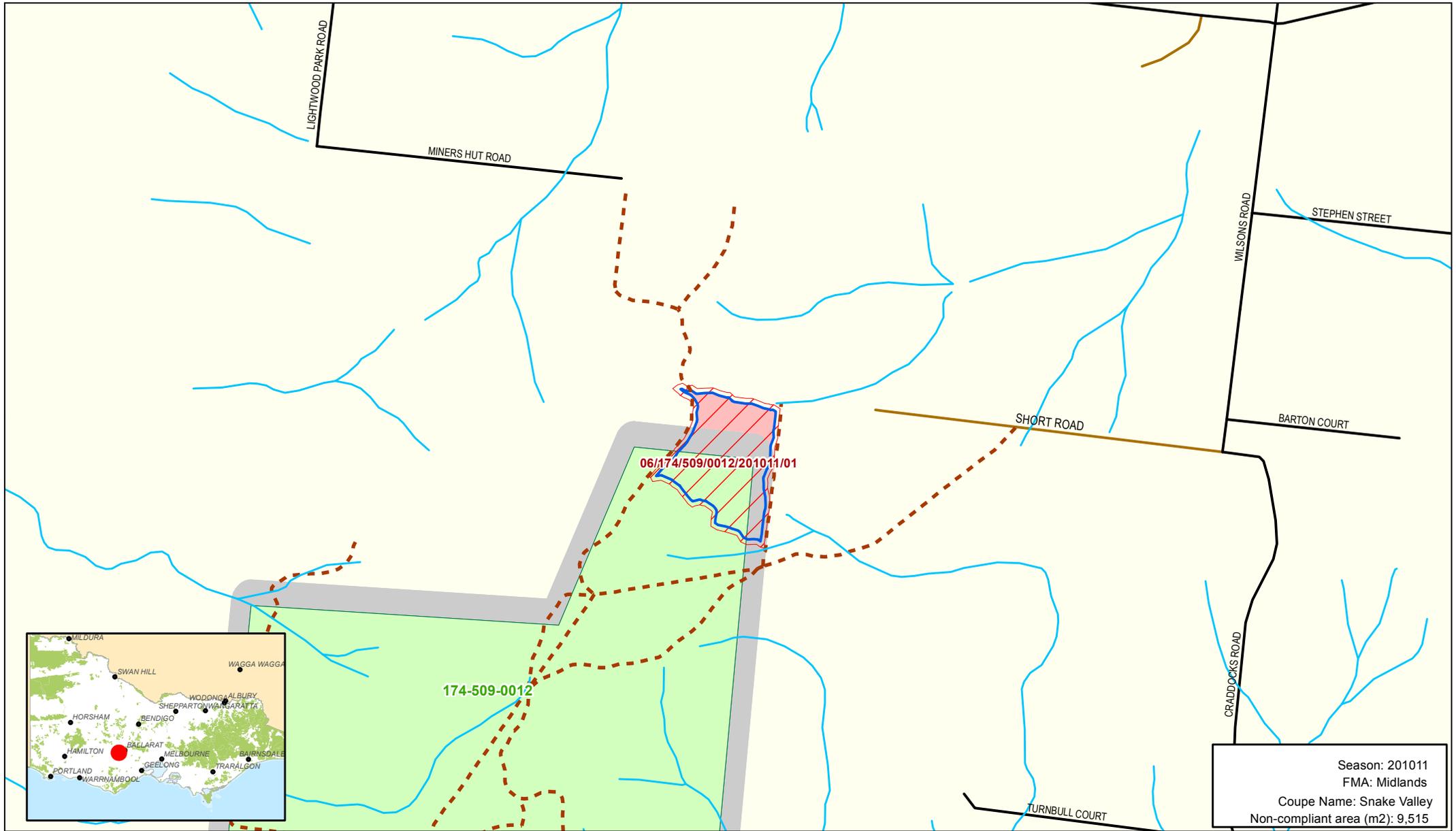
- Sealed Road
- Unsealed Road
- Unsealed Track



Department of Sustainability  
 DSE Audit: Harvesting Performance

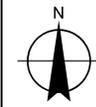
Job Number | 31-2810101  
 Revision | A  
 Date | 24 Feb 2012

**WUP Compliance**  
**DSE coupes partially outside WUP**



Season: 201011  
 FMA: Midlands  
 Coupe Name: Snake Valley  
 Non-compliant area (m2): 9,515

1:10,000 Paper Size A4  
 0 37.5 75 150 225 300  
 Metres  
 Map Projection: Transverse Mercator  
 Horizontal Datum: GDA 1994  
 Grid: GDA 1994 MGA Zone 55



- Area reported as non-compliant
- Logging History - allowance of GPS error (- 10 m)
- Logging History
- WUP
- WUP+ procedural allowance (50 m)

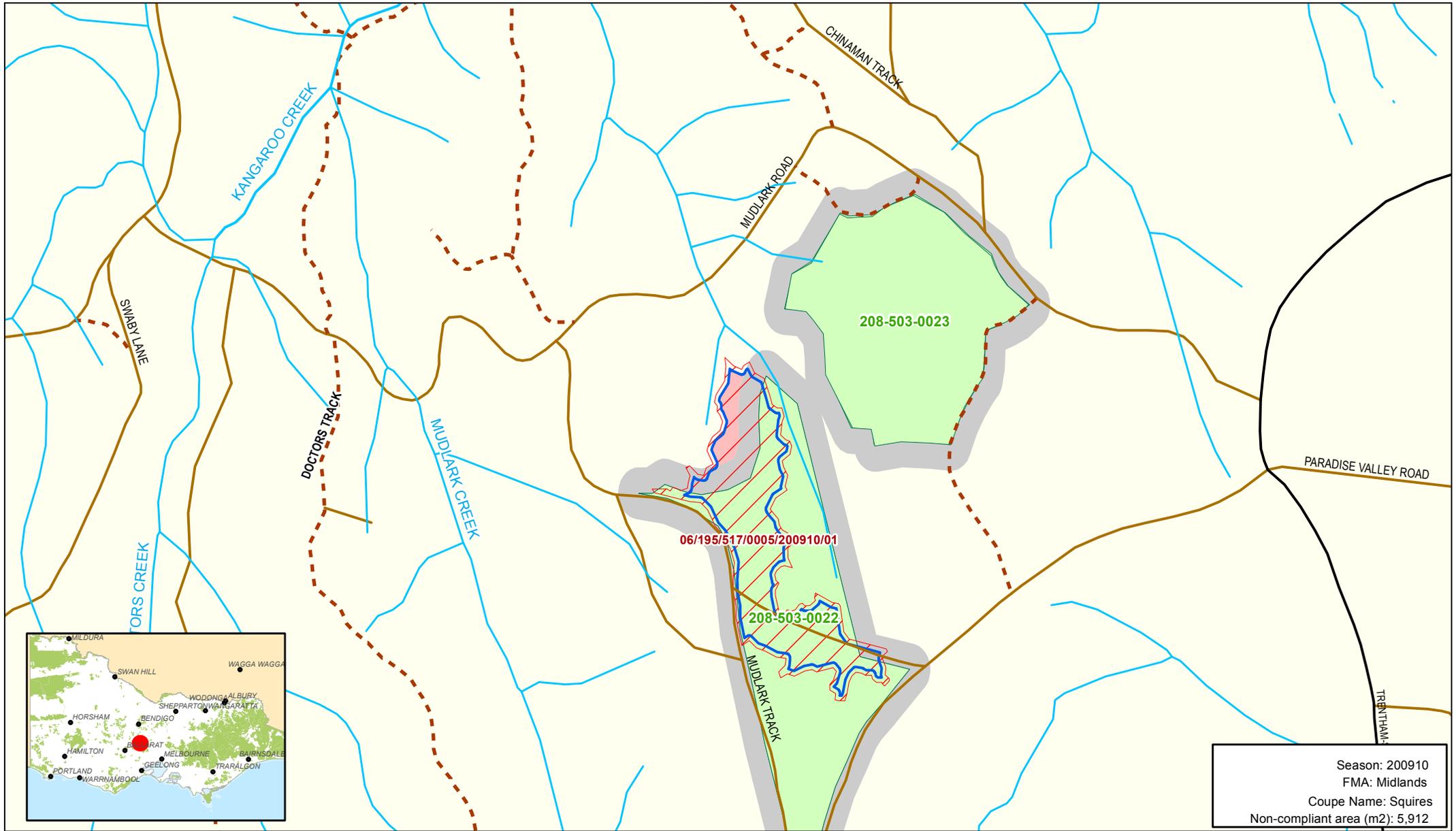
- Sealed Road
- Unsealed Road
- Unsealed Track



Department of Sustainability  
 DSE Audit: Harvesting Performance

Job Number | 31-2810101  
 Revision | A  
 Date | 24 Feb 2012

**WUP Compliance**  
**DSE coupes partially outside WUP**



Season: 200910  
 FMA: Midlands  
 Coupe Name: Squires  
 Non-compliant area (m2): 5,912

1:10,000 Paper Size A4

0 37.5 75 150 225 300

Metres

Map Projection: Transverse Mercator  
 Horizontal Datum: GDA 1994  
 Grid: GDA 1994 MGA Zone 55



- Area reported as non-compliant
- Logging History - allowance of GPS error (- 10 m)
- Logging History
- WUP
- WUP+ procedural allowance (50 m)

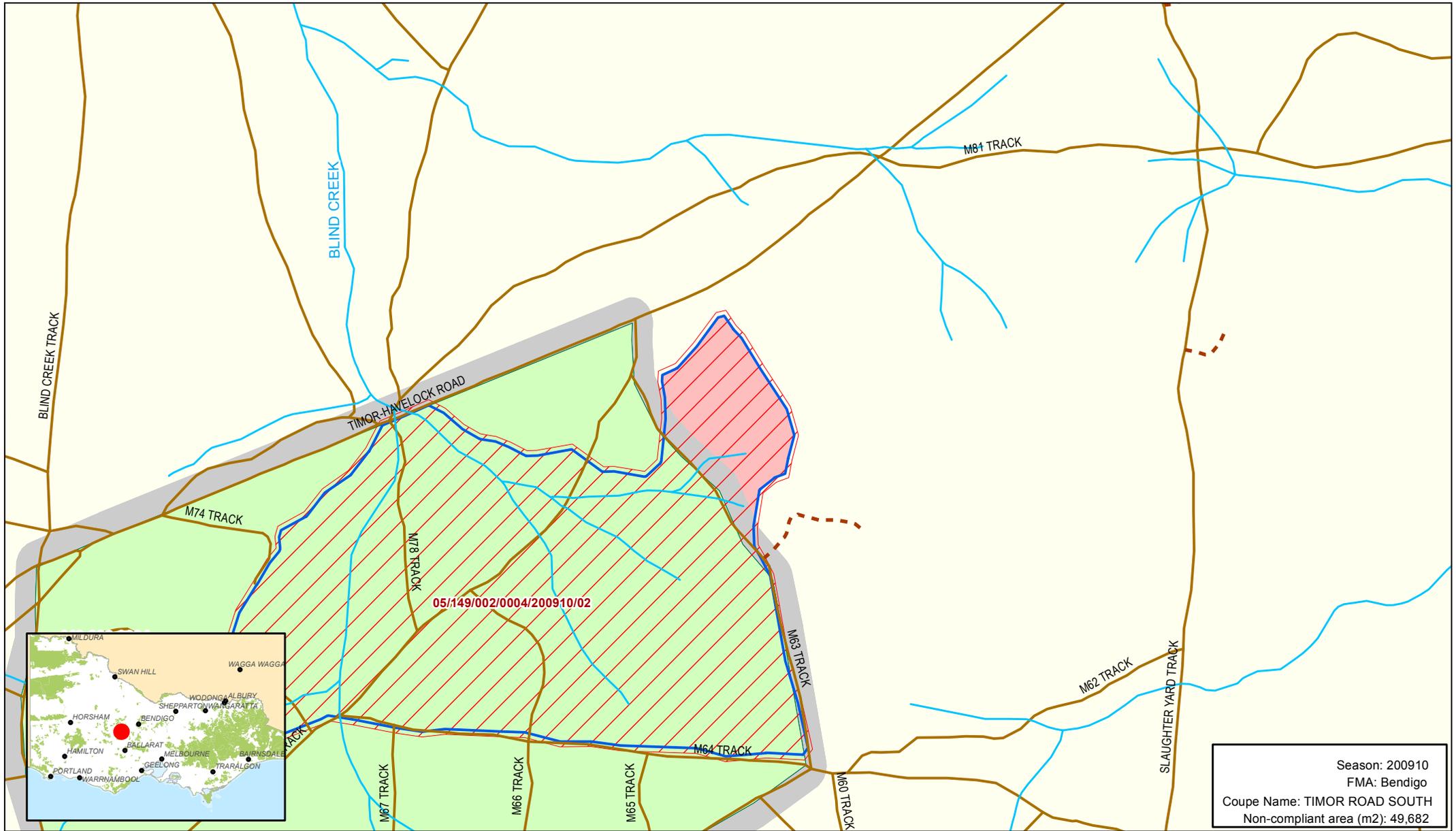
- Sealed Road
- Unsealed Road
- Unsealed Track



Department of Sustainability  
 DSE Audit: Harvesting Performance

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**WUP Compliance**  
**DSE coupes partially outside WUP**



Season: 200910  
 FMA: Bendigo  
 Coupe Name: TIMOR ROAD SOUTH  
 Non-compliant area (m2): 49,682

1:10,000 Paper Size A4

0 37.5 75 150 225 300

Metres

Map Projection: Transverse Mercator  
 Horizontal Datum: GDA 1994  
 Grid: GDA 1994 MGA Zone 55



- Area reported as non-compliant
- Logging History - allowance of GPS error (- 10 m)
- Logging History
- WUP
- WUP+ procedural allowance (50 m)

- Sealed Road
- Unsealed Road
- Unsealed Track

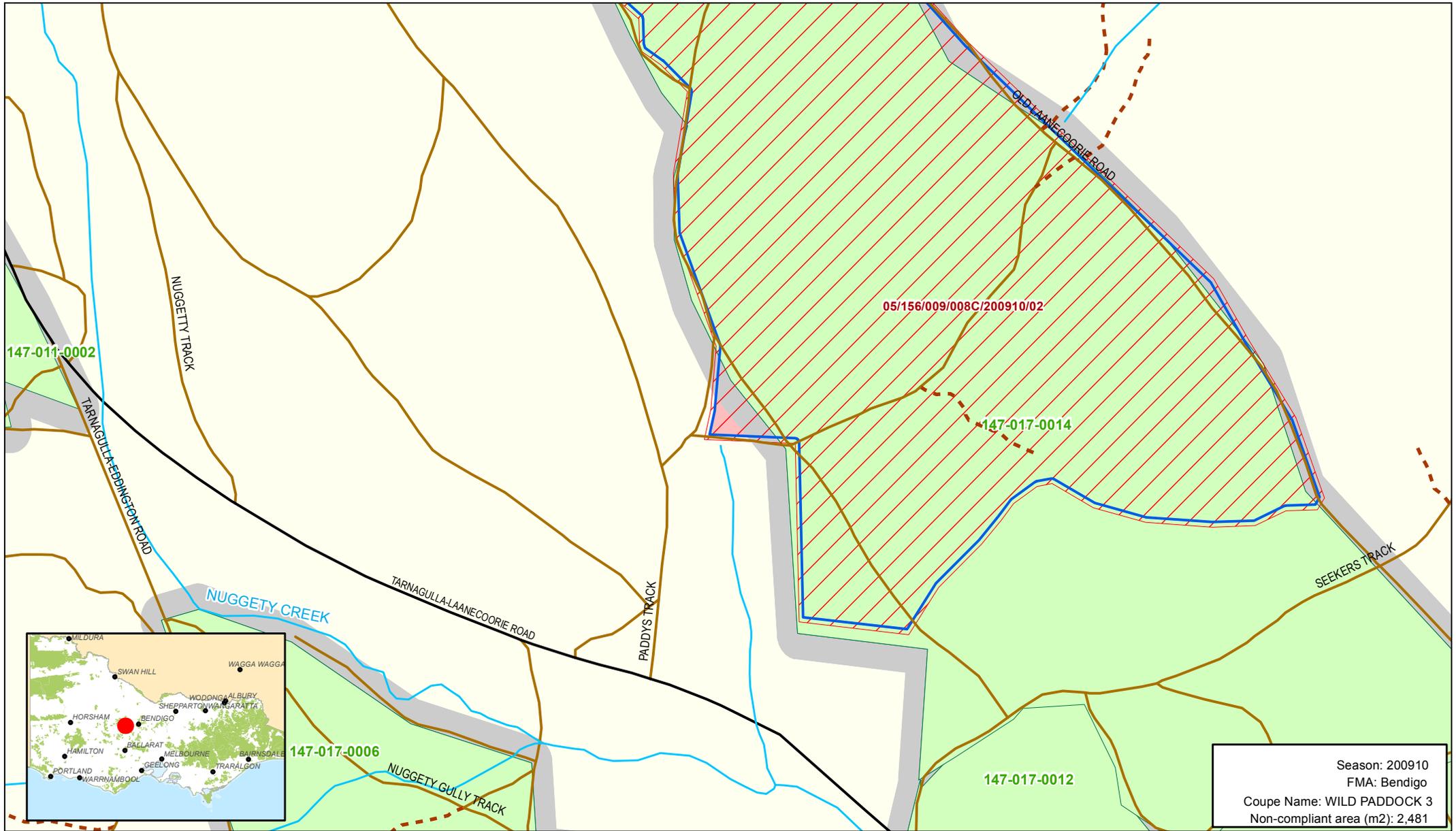


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 DSE Audit: Harvesting Performance

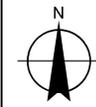
Job Number | 31-2810101  
 Revision | A  
 Date | 24 Feb 2012

**WUP Compliance**  
**DSE coupes partially outside WUP**



Season: 200910  
 FMA: Bendigo  
 Coupe Name: WILD PADDOCK 3  
 Non-compliant area (m2): 2,481

1:10,000 Paper Size A4  
 0 37.5 75 150 225 300  
 Metres  
 Map Projection: Transverse Mercator  
 Horizontal Datum: GDA 1994  
 Grid: GDA 1994 MGA Zone 55



- Area reported as non-compliant
- Logging History - allowance of GPS error (- 10 m)
- Logging History
- WUP
- WUP+ procedural allowance (50 m)

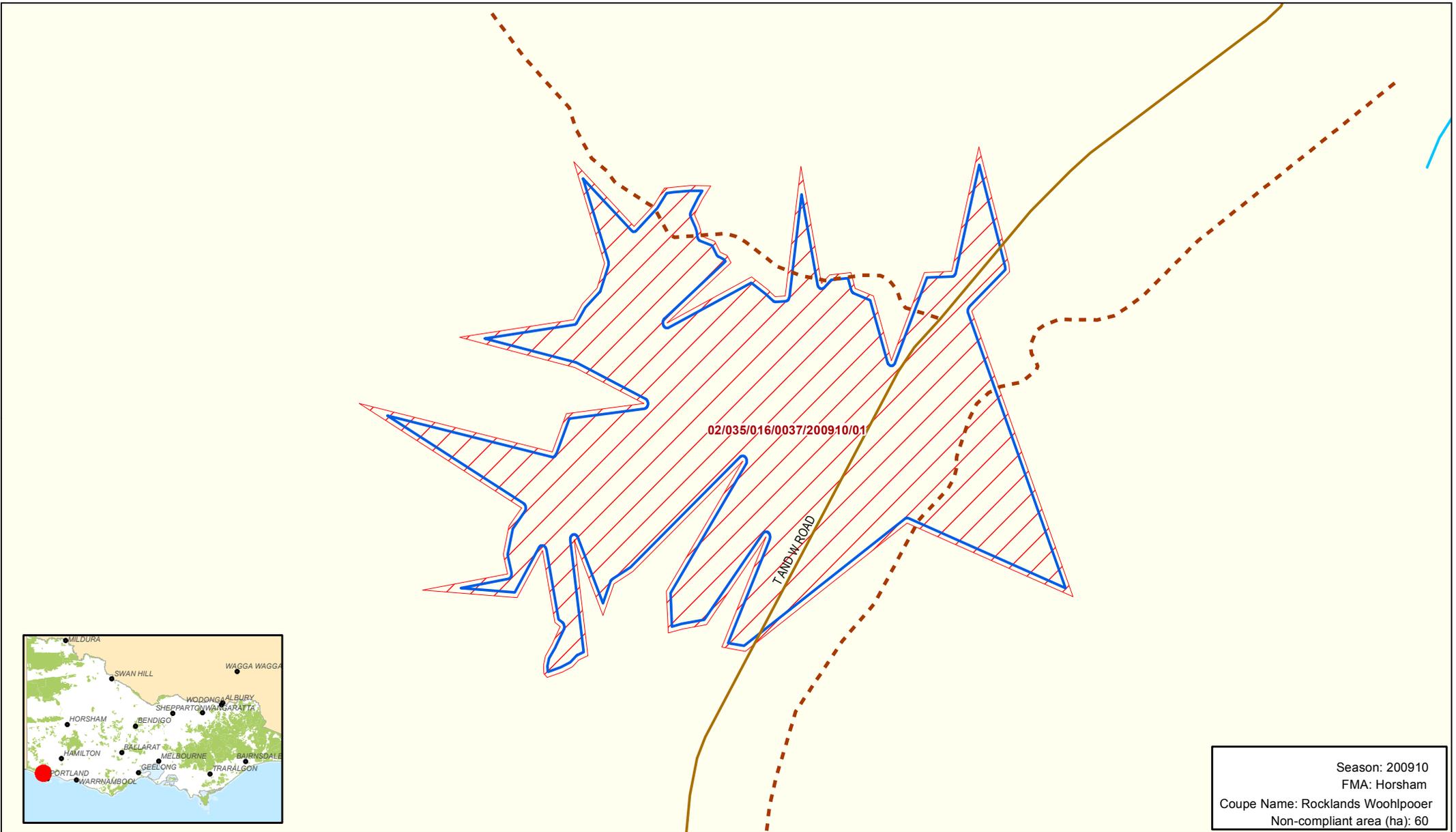
- Sealed Road
- Unsealed Road
- Unsealed Track



Department of Sustainability  
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 Date | 24 Feb 2012

**WUP Compliance**  
**DSE coupes partially outside WUP**



Season: 200910  
 FMA: Horsham  
 Coupe Name: Rocklands Woolpooper  
 Non-compliant area (ha): 60

1:10,000 Paper Size A4  
 0 37.5 75 150 225 300  
 Metres  
 Map Projection: Transverse Mercator  
 Horizontal Datum: GDA 1994  
 Grid: GDA 1994 MGA Zone 55



- Area reported as non-compliant
- Logging History - allowance of GPS error (- 10 m)
- Logging History
- WUP
- WUP+ procedural allowance (50 m)

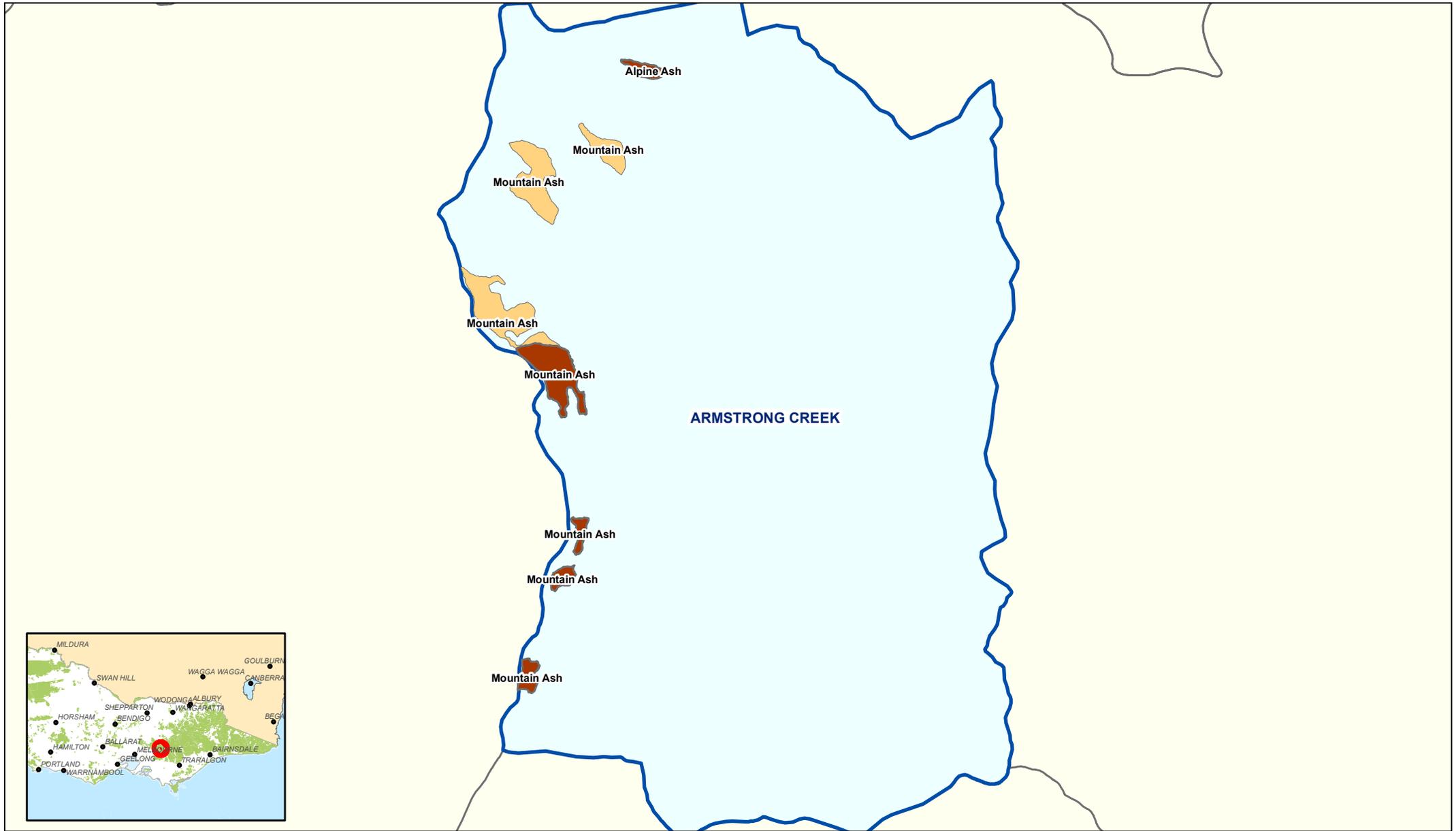
- Sealed Road
- Unsealed Road
- Unsealed Track



Department of Sustainability  
 DSE Audit: Harvesting Performance

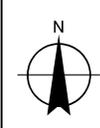
Job Number | 31-2810101  
 Revision | A  
 Date | 24 Feb 2012

**WUP Compliance**  
**DSE coupes totally outside WUP**



1:55,000 Paper Size A4  
 0 200 400 800 1,200 1,600  
 Metres

Horizontal Datum: GDA 1994  
 Grid: GCS GDA 1994



Logging History 2000/01-2010/11			
200001	200405	200809	Sealed Road
200102	200506	200910	Unsealed Road
200203	200607	201011	
200304	200708		



Department of Sustainability  
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**Water Supply Catchments Compliance**  
**Harvesting in Water Supply Catchments 2000-2010**



1:85,000 Paper Size A4

0 310 620 1,240 1,860 2,480

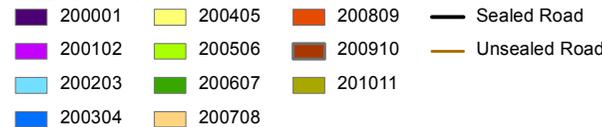


Metres

Horizontal Datum: GDA 1994  
Grid: GCS GDA 1994



Logging History 2000/01-2010/11



Department of Sustainability  
DSE Audit: Harvesting Performance

Job Number | 31-2810101  
Revision | A  
Date | 24 Feb 2012

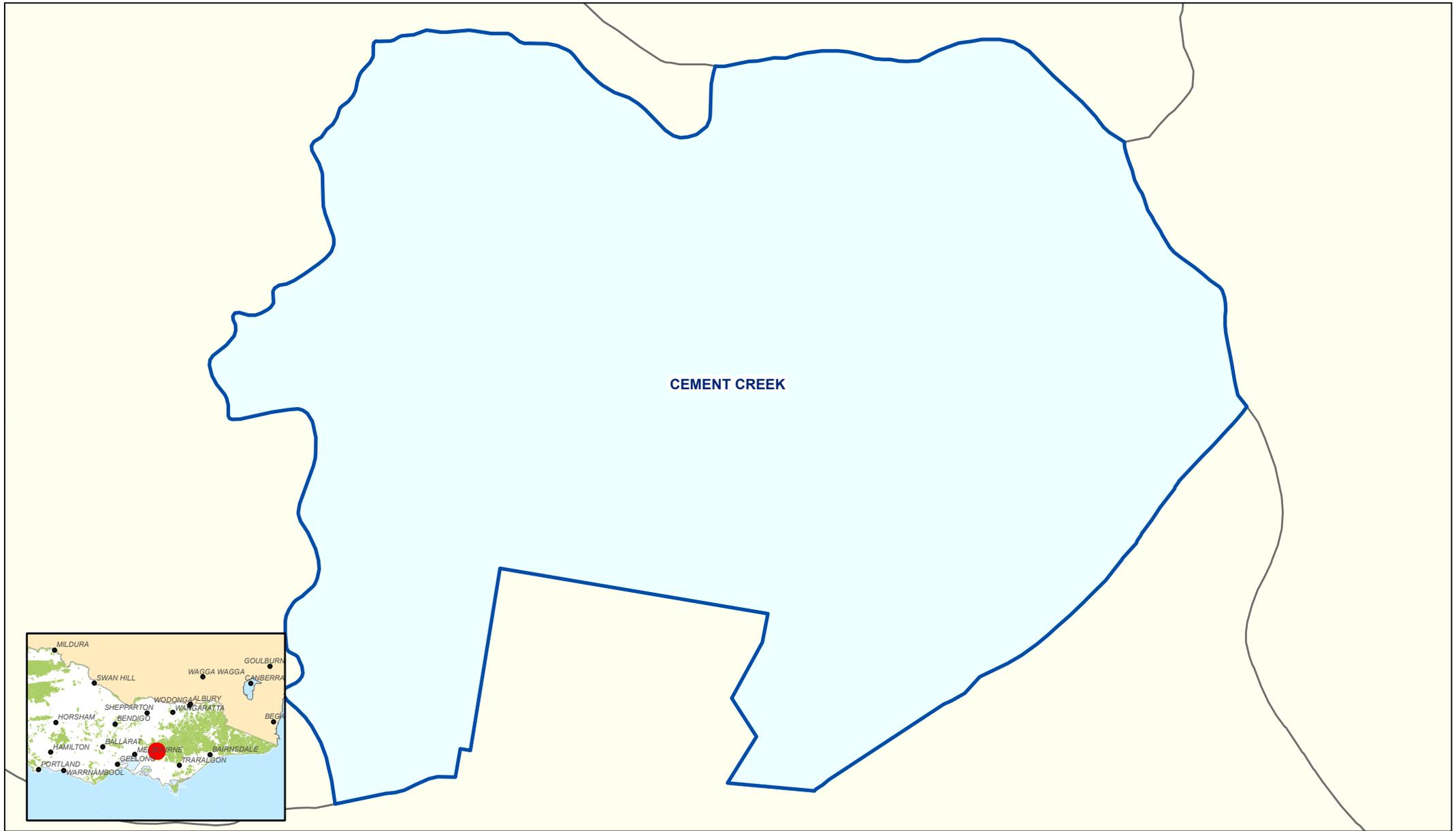
Water Supply Catchments Compliance  
Harvesting in Water Supply Catchments 2000-2010

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Data source: DSE, VicMap, Harvesting Information, 2011. Created by: emelero-blanca



CEMENT CREEK



1:20,000 Paper Size A4

0 75 150 300 450 600

Metres

Horizontal Datum: GDA 1994  
Grid: GCS GDA 1994



Logging History 2000/01-2010/11

200001	200405	200809
200102	200506	200910
200203	200607	201011
200304	200708	

— Sealed Road  
— Unsealed Road



Department of Sustainability  
DSE Audit: Harvesting Performance

Job Number | 31-2810101  
Revision | A  
Date | 24 Feb 2012

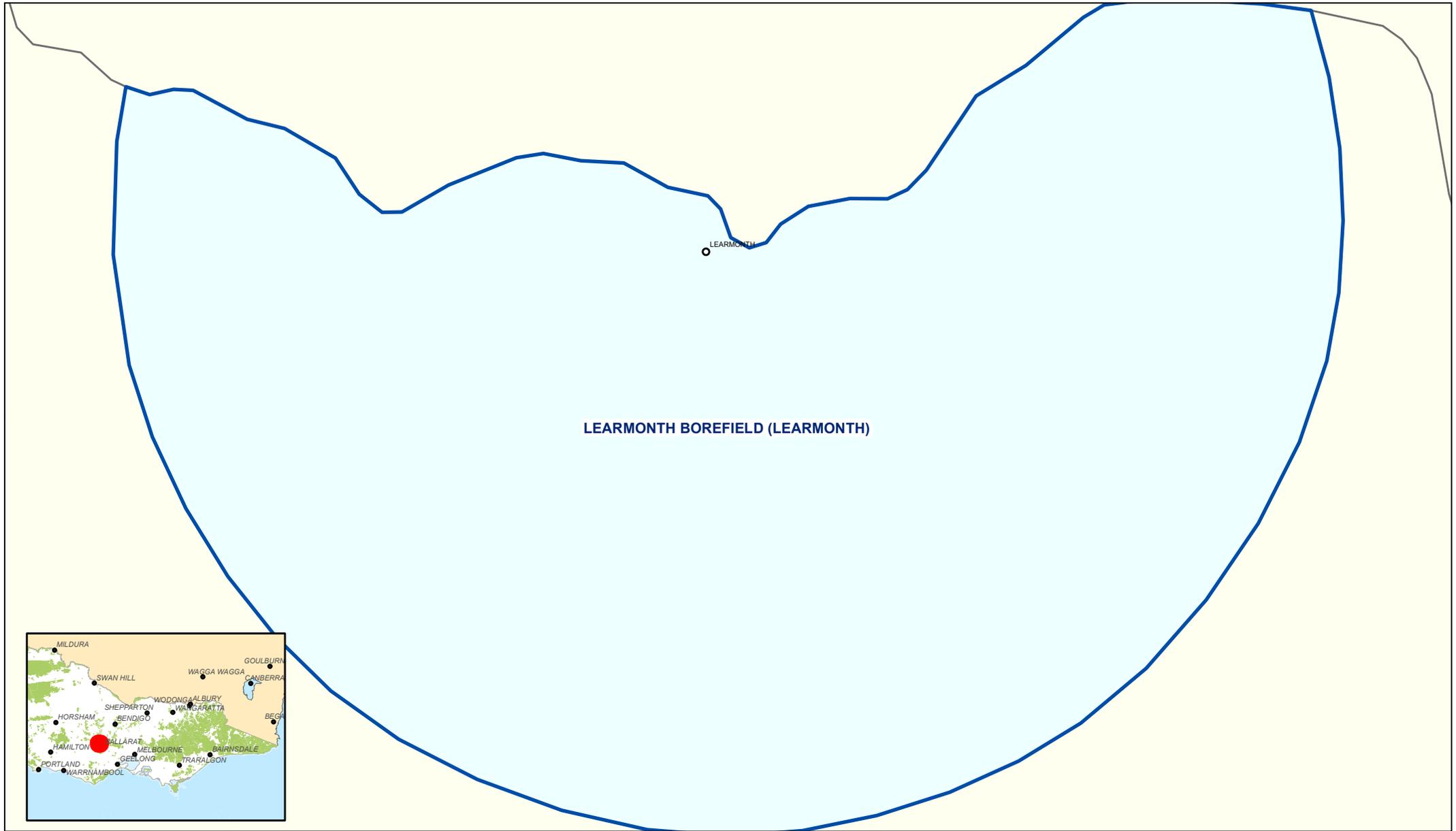
Water Supply Catchments Compliance  
Harvesting in Water Supply Catchments 2000-2010

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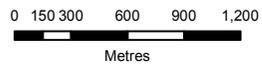
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1:40,000 Paper Size A4



Horizontal Datum: GDA 1994  
Grid: GCS GDA 1994



Logging History 2000/01-2010/11

200001	200405	200809
200102	200506	200910
200203	200607	201011
200304	200708	

— Sealed Road  
— Unsealed Road



Department of Sustainability  
DSE Audit: Harvesting Performance

Job Number | 31-2810101  
Revision | A  
Date | 24 Feb 2012

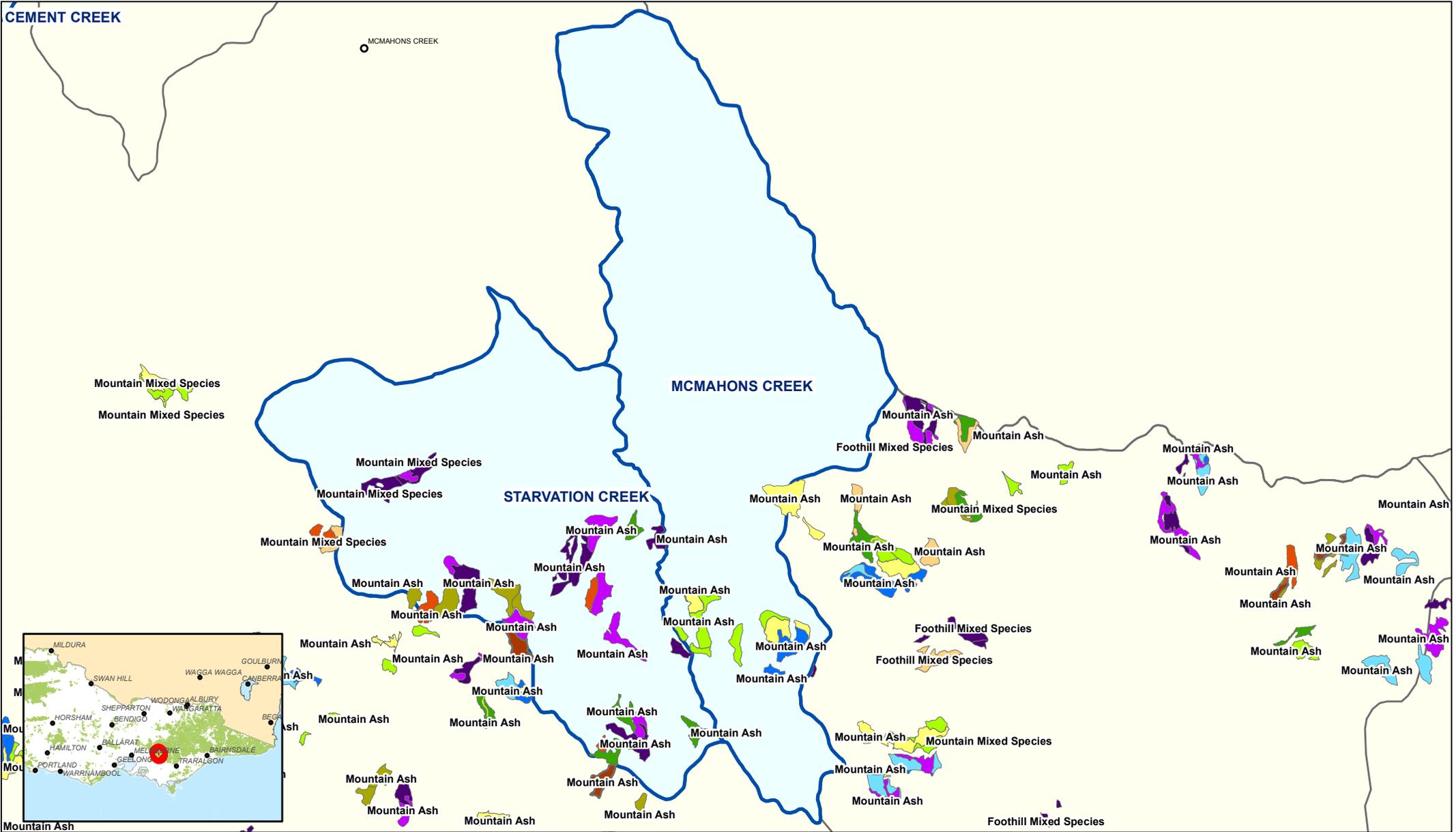
Water Supply Catchments Compliance  
Harvesting in Water Supply Catchments 2000-2010

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Data source: DSE, VicMap, Harvesting Information, 2011. Created by:emelero-blanca



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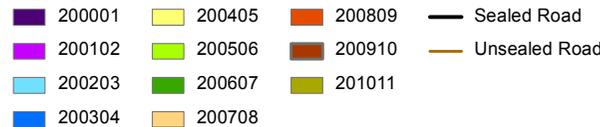


Metres

Horizontal Datum: GDA 1994  
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Logging History 2000/01-2010/11



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Department of Sustainability  
DSE Audit: Harvesting Performance

Job Number | 31-2810101  
Revision | A  
Date | 24 Feb 2012

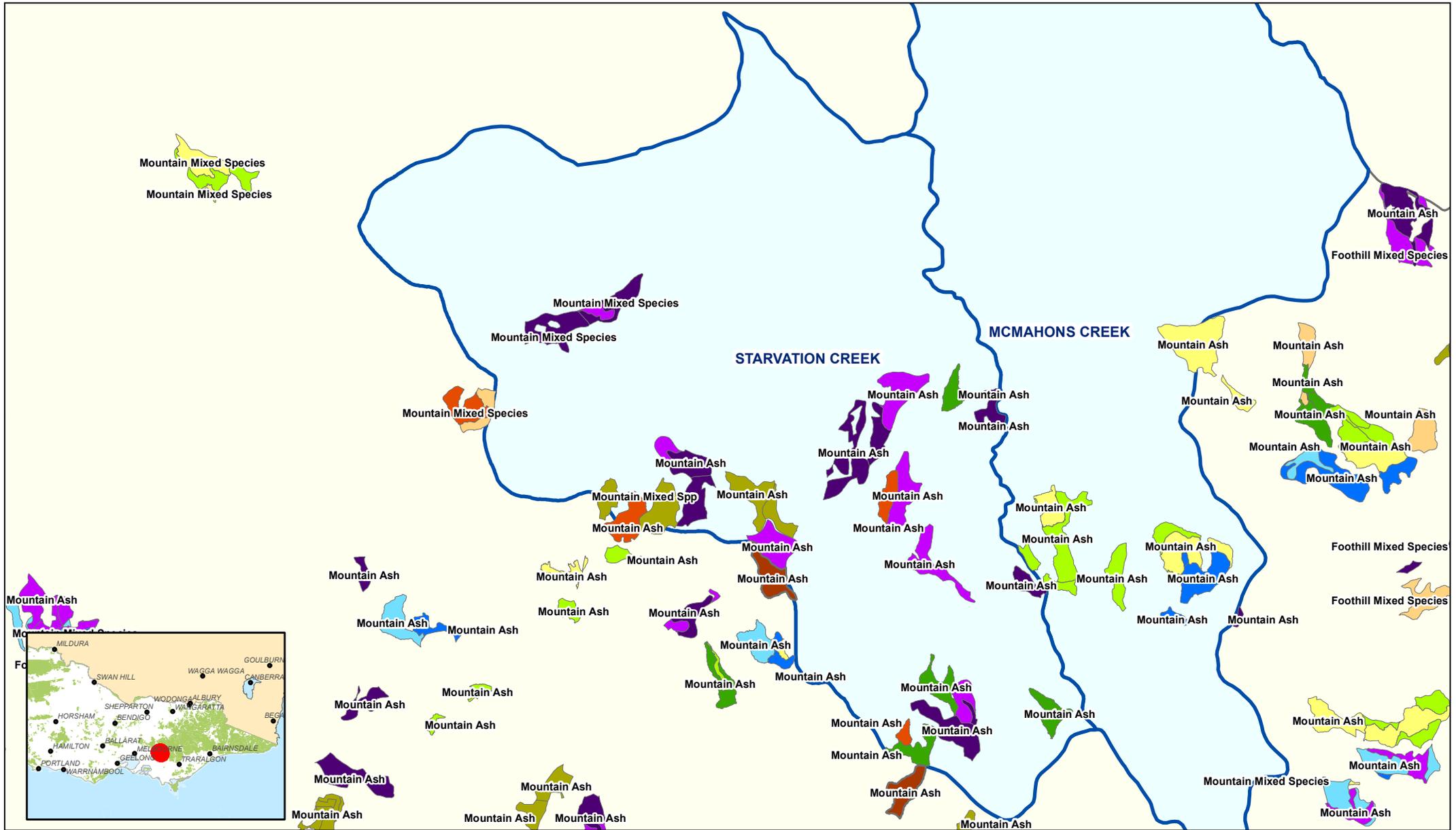
Water Supply Catchments Compliance  
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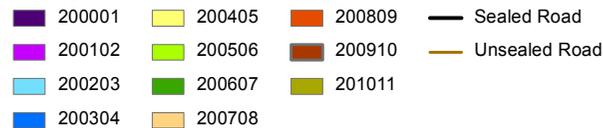


Metres

Horizontal Datum: GDA 1994  
Grid: GCS GDA 1994



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