Citation


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<tr>
<td>AFG</td>
<td>Australian Forest Growers</td>
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<tr>
<td>BIFFN</td>
<td>Box Ironbark Farm Forestry Network</td>
</tr>
<tr>
<td>CMA</td>
<td>Catchment Management Authority, Victoria</td>
</tr>
<tr>
<td>CSIRO</td>
<td>Commonwealth Scientific and Industrial Research Organisation</td>
</tr>
<tr>
<td>CVFP</td>
<td>Central Victorian Farm Plantations Inc.</td>
</tr>
<tr>
<td>DAFF</td>
<td>Department of Agriculture, Fisheries and Forestry, Canberra</td>
</tr>
<tr>
<td>DNRE</td>
<td>Department of Natural Resources and Environment, Victoria</td>
</tr>
<tr>
<td>DPI</td>
<td>Department of Primary Industries, Victoria</td>
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<td>DSE</td>
<td>Department of Sustainability and Environment, Victoria</td>
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<td>FFGV</td>
<td>Farm Forest Growers Victoria</td>
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<td>FFNAS</td>
<td>Farm Forestry National Action Statement</td>
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<tr>
<td>FFORNE</td>
<td>Farm Forestry North East Project, Victoria</td>
</tr>
<tr>
<td>GPF</td>
<td>Gippsland Private Forestry Inc.</td>
</tr>
<tr>
<td>GTRPC</td>
<td>Green Triangle Regional Plantation Committee</td>
</tr>
<tr>
<td>LGA</td>
<td>Local Government Area</td>
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<tr>
<td>MIS</td>
<td>Managed investment scheme</td>
</tr>
<tr>
<td>NFI</td>
<td>National Forest Inventory</td>
</tr>
<tr>
<td>NFFI</td>
<td>National Farm Forest Inventory</td>
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<td>NPI</td>
<td>National Plantation Inventory</td>
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<td>NUFG</td>
<td>Northern United Forestry Group</td>
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<tr>
<td>PFDC</td>
<td>Private Forestry Development Committee</td>
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<td>PNE</td>
<td>Plantations North East Inc.</td>
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<td>SERIC</td>
<td>South East Resource Information Centre</td>
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<tr>
<td>SIRFFN</td>
<td>Shepparton Irrigation Region Farm Forestry Network</td>
</tr>
<tr>
<td>SWAN</td>
<td>South West Agroforestry Group</td>
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<td>WAN</td>
<td>Wimmera Agroforestry Network</td>
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Summary

Background

Farm Forest Growers Victoria Incorporated (‘FFGV’), the peak industry group representing the Victorian farm forestry sector, was contracted in May 2009 by the Department of Primary Industries (‘DPI’) to undertake the ‘Victoria farm forestry scoping study’ to gain a deeper understanding of the nature and extent of the farm forestry resource in Victoria. FFGV identified this as a priority project because it had formed the view that the various data on farm forestry resources were, in general, incomplete and out-of-date. This lack of knowledge was regarded as a serious impediment to the development of strategies and programs to achieve growth in the non-industrial, private forestry sector.

Data collection

The primary data for this report was collected from 24 organisations involved in the farm forestry sector in Victoria. These included Private Forestry Development Committees (‘PFDCs’), Farm Forestry Networks, branches of Australian Forest Growers (‘AFG’) and forestry cooperatives. Organisations and their representatives (‘informants’) contacted were identified by the Consultant in conjunction with FFGV. All informants were asked about the nature and extent of farm forestry in their area of activity. Summary information was provided from existing databases and/or qualitative information was provided either verbally or in written format. One PFDC (Gippsland Private Forestry) provided information from its database customised to the specific request of the Consultant.

The primary data was supplemented by a desk-top review of literature including key Government policies, Government and industry strategies, and peer-reviewed literature on the farm forestry sector.

Findings

The nature and extent of farm forestry resources

The area of farm forestry in Victoria, excluding private native forests, was estimated to be 25 122 hectares which was six per cent of the statewide plantation forestry and farm forestry resource. With the addition of the 20 200 hectares of managed investment scheme (‘MIS’) plantations on leased farm land which forms part of a land holding on which farming practices are still undertaken, this combined private planted forestry resource on farm land in Victoria was 45 322 hectares, which was nearly 11 per cent of the statewide plantation forestry and farm forestry resource.

It was estimated that the farm forestry resource in Victoria was owned by at least 1000 farm forestry growers – a stark contrast to the industrial plantation estate for which it was estimated there were only about 20 industrial plantation companies that owned and/or operated plantation in Victoria. These statistics highlighted the challenge in understanding the nature of the farm forestry resource and developing and maintaining effective linkages and communications between growers and between growers and relevant organisations (e.g. industry, government).

Comparatively little was known about the private native forest sector. Drawing on literature, it was estimated that privately-owned native forests in Victoria occupied 1.025
million hectares, equivalent to 13 per cent of the state’s total area of native forests. Although there is no legal restriction on timber harvesting in this forest, there is considerable regulatory complexity. Only about 350 000 hectares of the privately-owned native forests are presumed to be suitable for commercial wood production.

**Review of farm forestry databases**

Drawing on a review of available databases, and discussions with informants from Farm Forestry Networks and grower organisations, it was found that:

- The nature and extent of the farm forestry sector in Victoria is poorly understood in relation to the industrial plantation sector.

- Comprehensive databases on farm forestry resources were developed in 2004 for three PFDC areas – central Victoria, north east Victoria and Gippsland. However, only one database – that for Gippsland – had been maintained to be up-to-date as at May 2009. The other two databases had not been updated since 2004.

- Substantial parts of Victoria with existing farm forestry resources – south west Victoria and north west Victoria – have limited information on farm forestry resources.

- At a statewide level, the data on the farm forestry sector (species, age, scale, location) is incomplete, inconsistent, out-of-date, unreliable and highly dispersed in its custody.

- These critical weaknesses in the datasets mean that there is no capacity at a regional level save for Gippsland nor at a statewide level to model woodflows for the purpose of regional planning and marketing of the resource.

- Qualitative information about the ownership of the farm forestry resource is extremely limited. Whereas the management and investment intent of the industrial plantation sector is broadly understood, there is scant information on that of the farm forestry sector.

- Under current structures and capacities of organisations in the farm forestry sector, there is very limited scope and prospect of databases being maintained let alone new data being collected. This is not necessarily for a lack of purpose or methodology – a key issue is a lack of resources and statewide direction and coordination.

- The methodology used in 2004 to collect spatially-referenced information on the nature and extent of the farm forestry resource in three regions in Victoria was rigorous, produced a high-quality product, and provides a template for future use. There are also methodologies that have been used widely in studies of natural resource management that could be applied to collect qualitative information about the farm forestry sector.

**Moving forward**

There is a need to rectify this data deficiency by conducting a detailed inventory of farm forestry in Victoria. A rationale, scope and approach to such an inventory, consisting of a mapping and inventory project and a qualitative survey of the farm forestry sector, is presented for consideration of parties involved in the farm forestry sector.
Chapter 1

Background

1.1 Gaps in the knowledge of farm forestry

Farm Forest Growers Victoria Incorporated (‘FFGV’) formed in 2008 as the peak industry group representing the Victorian farm forestry sector. FFGV, in conjunction with the Department of Primary Industries (‘DPI’), identified as a priority project the need to undertake a scoping study to gain a deeper understanding of the nature and extent of the farm forestry resource in Victoria. FFGV identified this as a priority project because it had formed the view that the various data on farm forestry resources were, in general, incomplete and out-of-date. This lack of knowledge was regarded as a serious impediment to the development of strategies and programs to achieve growth in the non-industrial, private forestry sector.

On 1 May 2009, DPI contracted FFGV to undertake the ‘Victoria farm forestry scoping study’, with a final report to be submitted by 26 June 2009.

The recommendations and options from the scoping study would provide the basis for a project aimed at:

- gaining a more thorough understanding of the Victorian farm forestry sector; and
- planning appropriate support structures to ensure a viable and sustainable industry.

This in turn would support development by DPI of a Farm Forestry Plan, as proposed in the draft Victorian Timber Industry Strategy (DPI 2009, p. 46).

1.2 This report

To deliver the scoping study, FFGV engaged HughStewart Consulting (‘Consultant’) to prepare a report that addressed 14 tasks (Appendix E).

The report is structured as follows:

- Chapter 2 describes the methodology used;

- Chapter 3 provides the results of six tasks that addressed Output one of the scoping study – the state of knowledge about the farm forestry sector drawing on existing data and information from farm forestry networks; and

- Chapter 4 draws on the results of Output one and provides the results of eight tasks that addressed Output two of the scoping study – a fully-scoped proposal to undertake a detailed inventory of farm forestry in Victoria.
Chapter 2

Method

2.1 Defining farm forestry

In the Farm Forestry National Action Statement (DAFF 2005), ‘farm forestry’ was defined as:

‘… the combination of forestry activity with cropping and or livestock production. The focus of the forestry activity is primarily commercial, although there may also be other objectives including shade and shelter for stock or crops, natural resource management including soil and water protection, habitat conservation, landscape and amenity values. Farm forestry can take many forms, including plantations on farms, woodlots, timber belts, alleys, wide-spaced tree plantings and sustainably managed private native forests. Farm forestry plantations are predominantly of a smaller scale than industrial plantations and may have less emphasis on timber or fibre production as primary outputs.

Importantly, farm forestry is practiced by farmers and other landholders, using the resources and knowledge available to them. The farmer or landholder makes the critical decisions, from establishment and management to marketing of products and services.’ (DAFF 2005, p. 1).

This is the primary definition, with the following qualification, for ‘farm forestry’ as described in this study:

- farm forestry is generally small-scale, though not always. Thus, an alternative description of the scope of the study is ‘non-industrial private forestry’. To avoid an arbitrary quantification of scale for either farm forestry or industrial forestry, the latter is considered to be a corporate forestry enterprise that operates a plantation estate that has, or intends to have, a long-term wood supply contract;

- areas of managed investment schemes (‘MIS’) plantations where they are on farmer-owned leased land which forms part of a land holding on which farming practices are still undertaken, were not included as farm forestry. This is consistent with the view of DAFF (2005, p. 1) in its definition of farm forestry, in that ‘… the farmer or landholder makes the critical decisions, from establishment and management to marketing of products and services.’ However, an understanding of the extent of this resource is important because at the end of the contract with the MIS, a farmer who had leased land for Blue Gum (*Eucalyptus globulus*), for instance, may choose to manage the stumps to grow a farm forest from coppice; and

- private native forests were included in this study of the farm forestry sector.

Definitional problems add a level of complexity to policies and programs that support the targeted sector; hence, a broad view of farm forestry was taken for this study. However, the definition is not as broad as that used by the Australian Government in its ‘State of the Forests Report’ in which farm forestry was defined as:
‘Establishment and/or management of trees on farmland for commercial, aesthetic and/or environmental reasons.’ (MPIGA 2008, p. 234).

That is, in this study, revegetation of farm land for aesthetic or environmental purposes with no intent to harvest forest products is not included in the scope of farm forestry.

2.2 Spatial boundaries used to collect private forestry information

In this study, information was collected from a range of organisations whose activities are defined by three main types of regions:

- National Plantation Inventory (‘NPI’) regions (Figure 1, p. 60);
- Private Forestry Development Committee (‘PFDC’) areas (Figure 2, p. 61); and
- Farm Forestry Networks (Figure 3, p. 64).

National Plantation Inventory regions

The fifteen NPI regions were created in 1997 and formed the basis for the regional reporting of both the industrial and farm forestry resources. These NPI regions were identified as best representing economic wood supply zones (Wood et al. 2001). The five NPI regions that are either wholly or partly in Victoria are:

- Green Triangle (south east South Australia and south west Victoria);
- Central Victoria (wholly in Victoria);
- Murray Valley (north east Victoria and southern New South Wales);
- Central Gippsland (wholly in Victoria); and
- East Gippsland / Bombala (east Gippsland in Victoria and south east New South Wales).

The plantation resource in Victoria at 2005, by NPI region, is shown in Figure 4 (p. 63).

Private Forestry Development Committee areas

In the 2002 revision of ‘Plantations 2020 Vision’ (released in January 2004), the PFDCs were acknowledged as fundamental to the ongoing implementation of the national plantation strategy. The role of the PFDCs in relation to the Plantations 2020 Vision included:

- development of regional plantation and farm forestry strategies to encourage forest–based industries;
- formulating marketing, investment and wood flow plans; and
- improving information flows on marketing and management of plantations and private forests (PA 2002).

The four PFDC areas that are either wholly or partly in Victoria are:
• Green Triangle (south east South Australia and south west Victoria), under the jurisdiction of the Green Triangle Regional Plantation Committee Inc.;

• Central Victoria (wholly in Victoria), under the jurisdiction of Central Victorian Farm Plantations Inc.;

• North east Victoria (wholly in Victoria), under the jurisdiction of Plantations North East Inc.; and

• Gippsland (wholly in Victoria), under the jurisdiction of Gippsland Private Forestry Inc.

The PFDC areas are closely related to the NPI regions, but the none of the boundaries of PFDC areas concord with boundaries of NPI regions.

The future role of PFDCs is unclear and discussed in Section 3.10.

Farm Forestry Networks

The approximate areas of activity of farm forestry networks in Victoria are shown in Figure 3 (p. 62). None of the networks have a definitive area of activity, and some networks have overlapping areas of activity. The map of the boundaries of farm forestry networks is dated; for example, network number one (Mallee) shown on the map (Figure 3, p. 62) is no longer operating.

None of the approximate farm forestry network boundaries as shown in Figure 3 (p. 62) concord with PFDC areas or NPI regions.

Spatial boundaries used to report results of this study

Results from this study were presented in different regional typologies because PFDC areas and NPI regions did not capture information for north west Victoria where there is farm forestry activity, and none of the typologies captured all of the information sought for this study.

2.3 Data collection

Primary data

The primary data for this report was collected from 24 organisations involved in the farm forestry sector in Victoria (Appendix A). These included PFDCs, Farm Forestry Networks, branches of Australian Forest Growers (‘AFG’) and forestry cooperatives. Organisations to be contacted were identified by the Consultant in conjunction with FFGV.

Representatives of these organisations (‘informants’) were mostly contacted by telephone during 19 May to 17 June 2009. Several meetings were held with informants. All informants were asked about the nature and extent of farm forestry in their area of activity. Summary information was provided from existing databases and/ or qualitative information was provided either verbally or in written format. One PFDC (Gippsland Private Forestry) provided information from its database customised to the specific request of the Consultant.
Document review

The primary data was supplemented by a desk-top review of literature including key Government policies, Government and industry strategies, and peer-reviewed literature on the farm forestry sector.

2.4 Report review

Draft findings were presented to FFGV and DPI on 10 June 2009 at a meeting at the offices of DPI in Melbourne. Feedback from both parties was incorporated into a draft report that was submitted to DPI on 15 June 2009. Further feedback from DPI was incorporated into a final report that was submitted to DPI on 26 June 2009.
Chapter 3

Output one: State of knowledge about the farm forestry sector

3.1 Introduction

This Chapter presents findings about the state of knowledge of Victoria’s farm forestry sector based on existing databases and literature, supplemented by qualitative information from informants contacted during the study.

3.2 The size and location of Victoria’s farm forestry estate

The area of farm forestry in Victoria, excluding private native forests, was estimated to be 25,122 hectares (Table 3.1). In addition, there was 20,200 hectares of MIS plantations on leased farm land which forms part of a land holding on which farming practices are still undertaken, located in central and western Victoria and comprising mainly Blue Gum plantations. This latter category was included because at the end of a contract with a MIS entity, a farmer who had leased land for Blue Gum may choose to manage the stumps to grow a farm forest from coppice, which would bring the plantation under the definition of farm forestry as used in this study. Together, this combined private planted forestry resource on farm land in Victoria was 45,322 hectares (Table 3.1).

Table 3.1 Estimated area of farm forestry in Victoria, excluding private native forests

<table>
<thead>
<tr>
<th>Region</th>
<th>Area of farm forestry (hectares)</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victoria part of Green Triangle NPI region</td>
<td>1330</td>
<td>URS Forestry (2008, p. 16)</td>
</tr>
<tr>
<td>North west Victoria</td>
<td>4500</td>
<td>URS Forestry (2008, p. 13)</td>
</tr>
<tr>
<td>Central Victoria PFDC area</td>
<td>3998</td>
<td>CVFP (2006, p. 15)</td>
</tr>
<tr>
<td>North east Victoria PFDC area</td>
<td>10,144</td>
<td>DSE (2004)</td>
</tr>
<tr>
<td>Gippsland PFDC area</td>
<td>5150</td>
<td>GPF (2009a)</td>
</tr>
<tr>
<td><strong>Sub-total for Victoria</strong></td>
<td><strong>25,122</strong></td>
<td></td>
</tr>
<tr>
<td><strong>MIS plantations on leased farm land</strong></td>
<td><strong>20,200</strong></td>
<td>URS Forestry (2008, p. 5)</td>
</tr>
<tr>
<td><strong>Total for Victoria</strong></td>
<td><strong>45,322</strong></td>
<td></td>
</tr>
</tbody>
</table>

A range of information were available for regional estimates of farm forestry in Victoria, but there were stark differences in the spatial coverage and in the reliability, age and

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^ Areas of managed investment schemes (‘MIS’) plantations that are on farmer-owned leased land which forms part of a land holding on which farming practices are still undertaken (URS Forestry 2008, p. 5).
attributes of the data. The information presented in Table 3.1 was selected from various sources by the Consultant as best representing the regional farm forestry resource. These sources are discussed in the next Section, together with other regional data that further informed the nature and extent of farm forestry in different regions in Victoria.

Resources in regions

Victoria part of Green Triangle NPI region

The data for this region in Table 3.1 was sourced from URS Forestry (2008, p. 16). URS Forestry used information provided by the South Australian Government, the South East Resource Information Centre (‘SERIC’) and data collected by Central Victorian Farm Plantations. The information suggested 2001 hectares of farm forestry plantations in the Green Triangle NPI region, of which 1330 hectares was in Victoria (URS Forestry 2008, p. 16).

Other, less complete, information relevant to the Victoria part of the Green Triangle region was obtained by the Consultant. Though not used in Table 3.1, it is presented to illustrate the activities of other groups who have databases on farm forestry:

- The database of members (past and present) of the South West Agroforestry Network (‘SWAN’) showed 1728 hectares of farm forestry. An informant from SWAN said that the database was not up-to-date or complete. For instance, the informant estimated that it was about five years since data had been captured. In addition, the informant said that DPI at Hamilton had a farm forestry database that indicated about 300 hectares of trial and demonstration farm forestry plantings, but there was some overlap of this database with that held by SWAN. The approximate area of activity of SWAN is shown in Figure 3 (p. 62) (Farm Forestry Network # 9).

- The Consultant contacted Primary Industries and Resources, South Australia, the forestry agency of the Government of South Australia. An informant working in farm forestry extension said that in the Green Triangle region, there was about 8000 to 10 000 hectares of Radiata Pine (*Pinus radiata*) farm forestry. In addition, their farm forestry database showed 2300 hectares of *Eucalyptus* species, and 305 hectares of other species. A small proportion of this farm forestry resource was in Victoria.

North west Victoria

The data for this region in Table 3.1 was sourced from URS Forestry (2008, p. 13). For that study, the north west Victoria region included the area south of the Murray River to the South Australia border in the west and Echuca in the east, and extended south to include Horsham, Maryborough and Castlemaine. Commercial forestry in the region was based around the native Box-Ironbark and River Red Gum forests. Estimates of the current areas of farm forestry plantations were provided by the Department of Primary Industries, which indicated about 4500 hectares (URS Forestry 2008, p. 13).

Other, less complete, information relevant to north west Victoria was obtained by the Consultant. Though not used in Table 3.1, it is presented to illustrate the activities of other groups who have databases on farm forestry:
The Box Ironbark Farm Forestry Network (‘BIFFN’) was resurrected in early 2006 when a Master TreeGrower course\(^1\) was conducted. BIFFN is now an incorporated association. Information provided in 2009 by about one-third of its members indicated 210 hectares of farm forestry. The approximate area of activity of BIFFN is shown in Figure 3 (p. 62) (Farm Forestry Network # 8).

An informant from the Wimmera Agroforestry Network (‘WAN’) said that the total area of farm forestry within WAN was not known, but was estimated to be more than 1000 hectares. WAN once had a database, but its current location was not known. The approximate area of activity of WAN is shown in Figure 3 (p. 62) (Farm Forestry Network # 10).

The Northern United Forestry Group (‘NUFG’) provided information collected from its members in 2009, which indicated 170 hectares of farm forestry. The area of activity of the NUFG is not shown on Figure 3 (p. 62), but it covers a region from Kerang to Echuca in the north of the State, and almost to Bendigo in the south.

**Central Victoria PFDC area**

The data for this region in Table 3.1 was sourced from the ‘Vic Farm Tree’ database developed by Central Victorian Farm Plantations (‘CVFP’). This database contained 3998 hectares of farm forestry plantations registered with the CVFP area in August 2005. However, the database had only data volunteered by growers, and therefore underestimated the total size of the farm forestry resource in the region (CVFP 2006).

**North east Victoria PFDC area**

The data for this region in Table 3.1 was sourced from the database of Plantations North East (‘PNE’). The database was developed as part of a collaborative private forestry inventory project between DSE and PFDCs (DSE 2004). The database contained 10 144 hectares of farm forestry, this being the category of 'non-industrial' plantations in the database. An informant from PNE said that the database had not been maintained or updated since 2004.

Within the north east Victoria PFDC area, there were two other farm forestry groups that had databases on farm forestry growers, but the information held had few attributes compared to the PNE database and it would have been expected that the growers in these other two groups would have been captured by the PNE database unless they were post-2004. The groups were:

- The Farm Forestry North East Project (‘FFORNE’). FFORNE is a cooperative of landowners in north east Victoria that was formally registered in 1999 with an eight-member board and has 70 members growing approximately 1700 hectares of hardwoods (mainly Blue Gum (Eucalyptus globulus) and Shining Gum (E. nitens)) which are being managed for high quality sawlog production.

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\(^1\) A short educational course on agroforestry and farm forestry for farmers and regional advisers (Reid 2008).
• The Shepparton Irrigation Region Farm Forestry Network (‘SIRFFN’) provided summary information to the Consultant, which indicated that there was 313 hectares spread across 150 stands owned by 75 growers. The database was developed in 2000 from an inventory of the resource and has been updated as SIRFFN becomes aware of new farm forestry plantings. The approximate area of activity of SIRFFN is shown in Figure 3 (p. 62) (Farm Forestry Network # 11).

Gippsland PFDC area

The data for this region in Table 3.1 was sourced from the database of Gippsland Private Forestry (‘GPF’), which was developed as part of the collaborative private forestry inventory project between DSE and PFDCs (DSE 2004).

GPF had maintained and updated the database, with information current to May 2009. It was the most up-to-date database of private forestry used in the study, and summary information from the database was provided to the Consultant (GPF 2009a).

Farm forestry in a statewide context

The area of farm forestry in Victoria, excluding private native forests, was estimated to be 25 122 hectares which was six per cent of the statewide plantation forestry and farm forestry resource (Table 3.2). With the addition of the 20 200 hectares of MIS plantations on leased farm land which forms part of a land holding on which farming practices are still undertaken, this combined private planted forestry resource on farm land in Victoria was 45 322 hectares which was nearly 11 per cent of the statewide plantation forestry and farm forestry resource (Table 3.2).

Table 3.2 Plantation forestry and farm forestry resources in Victoria

<table>
<thead>
<tr>
<th>Category</th>
<th>Softwood</th>
<th>Hardwood</th>
<th>Other categories</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total plantation area, Victoria A</td>
<td>219 910</td>
<td>200 739</td>
<td>1463</td>
<td>422 112</td>
</tr>
<tr>
<td>Farm forestry B</td>
<td>n.d. C</td>
<td>n.d.</td>
<td>n.d.</td>
<td>25 122</td>
</tr>
<tr>
<td>MIS plantations on leased farm land D</td>
<td>-</td>
<td>20 200</td>
<td>-</td>
<td>20 200</td>
</tr>
<tr>
<td>Total farm forestry</td>
<td>n.d.</td>
<td>n.d.</td>
<td>n.d.</td>
<td>45 322</td>
</tr>
</tbody>
</table>

(10.7%) E

A Plantation area in 2008, which includes some farm forestry resources (Gavran & Parsons 2009, p. 3).
B From this study.
C Not determined.
D Areas of managed investment schemes (‘MIS’) plantations that are on farmer-owned leased land which forms part of a land holding on which farming practices are still undertaken (URS Forestry 2008, p. 5).
E Proportion of the total plantation area.
3.3 Comparison of results with other studies

In this section, the results from this study are discussed in the context of two previous studies, conducted at a national level, of the farm forestry sector:

- farm forestry resources estimated for NPI regions as at September 2000 (Wood et al. 2001); and

- farm forestry resources estimated for regions within states to complement the information provided in the National Plantation Inventory of 2007 (URS Forestry 2008).

Plantation resource at September 2000

In the National Forest Inventory for 2000, resource statistics for planted forests were captured in two separate inventories as industrial plantations under the NPI and farm forestry plantations under the National Farm Forest Inventory (‘NFFI’). The NFFI was designed to capture information from regional sources on the commercial farm forest resource. The term ‘farm forestry’ applied to:

‘… plantations that are owned outright by individuals with total plantation estates less than 1,000 hectares. … This definition does not include other recognised elements of farm forestry such as private native forest management, and joint venture and annuity schemes.’ (Wood et al. 2001, p. 6).

From the NFFI conducted in November 2000, Victoria had approximately 24 000 hectares of farm forestry, which was 4.1 per cent of the statewide resource of plantations (i.e. industrial plantations plus farm forestry) (Table 3.3). However, this was an overestimate of the farm forestry resource in Victoria, as the Green Triangle region statistics were not partitioned in to the South Australian part and the Victorian part of the region.

For the farm forestry inventory, the extent to which the statistics represented the total estimated regional resource, based on the qualitative knowledge of experts, was expressed as a ‘percentage inclusion’ (Wood et al. 2001, p. 8). The percentage inclusions for the NPI regions across Victoria were: Green Triangle (90+); Central Victoria (80+); Murray Valley (north east Victoria) ( 90+); Central Gippsland (90+); East Gippsland / Bombala (80+).

The NPI has not reported statistics on farm forestry separately from those for industrial plantations since 2001. Because there is no longer a separate farm forestry inventory, available data on farm forestry areas have been combined with other data for plantations (Parsons, Gavran & Davidson 2006). Data presented in Table 3.3 are at least four years older than data presented in Table 3.1.
Table 3.3 Farm forestry resources at September 2000 in National Plantation Inventory regions in Victoria

<table>
<thead>
<tr>
<th>National Plantation Inventory region</th>
<th>Softwood</th>
<th>Hardwood</th>
<th>Total farm forestry</th>
<th>Proportion of region resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Triangle</td>
<td>2932^A</td>
<td>2616</td>
<td>5548</td>
<td>2.5%</td>
</tr>
<tr>
<td>Central Victoria</td>
<td>3212</td>
<td>3081</td>
<td>6293</td>
<td>12.7%</td>
</tr>
<tr>
<td>North east Victoria part of Murray Valley C</td>
<td>2213</td>
<td>2235</td>
<td>4448</td>
<td>3.2%^D</td>
</tr>
<tr>
<td>Central Gippsland</td>
<td>5627</td>
<td>1344</td>
<td>6971</td>
<td>7.7%</td>
</tr>
<tr>
<td>East Gippsland / Bombala</td>
<td>195</td>
<td>580</td>
<td>775</td>
<td>1.8%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14 179</strong></td>
<td><strong>9856</strong></td>
<td><strong>24 035</strong></td>
<td><strong>4.1%</strong></td>
</tr>
</tbody>
</table>

^A Statistics from Wood et al. (2001).

^B National Plantation Inventory region (Gavran & Parsons 2009). In the Green Triangle region, 57 per cent of plantations at 2008 were in Victoria (J Kellas, Green Triangle Regional Plantation Committee, pers. comm., 29 April 2009). In the East Gippsland / Bombala region, 10 per cent of plantations at 2005 were in Victoria (derived from Plantation Information Network, Bureau of Rural Sciences, accessed at http://data.brs.gov.au/mapserv/plant/database1.phtml).

^C The statistics in Wood et al. (2001) reported farm forest plantations for the Murray Valley region in two geographies: north east Victoria and the Murray Riverina.

^D Total farm forest plantations (north east Victoria plus Murray Riverina) as a proportion of the total resource in the Murray Valley region.

**Study of farm forestry resources in Australia at 2007**

An overview of farm forestry across major regions in Australia was prepared to complement the information provided in the NPI of 2007 (URS Forestry 2008). The regions used in the analysis generally corresponded to the NPI regions and the PFDC regions, but some other regions were used that did not concord with NPI or PFDC regions.

For the study, the definition of farm forestry (DAFF 2005) was expanded to include plantings of woody fodder crops. Information on the extent of farm forestry was derived mostly from three sources: the NPI database (updated on an ongoing yet *ad hoc* basis) that is maintained by the Bureau of Rural Sciences, PFDCs and state government agencies.

The estimate of farm forestry plantations in Victoria (Table 3.4) included:

- forestry species planted on private land for commercial production as part of a broader farming system;
- plantations established as joint ventures on private farms; and
- areas of managed investment schemes (‘MIS’) plantations where they are on farmer-owned leased land which forms part of a land holding on which farming practices are...
still undertaken. [MIS plantations where a whole farm is leased or where farms have
been purchased were not included.]

The total area estimated for Victoria (31 637 hectares) was 20 per cent of the area of farm
forestry plantations in Australia and the second highest area of farm forestry on a state
basis behind Western Australia. However, this is an underestimate of the area in Victoria,
because all of the farm forestry area for the Murray Valley (9011 hectares), which includes
north east Victoria, was assigned to New South Wales.

The region ‘Central and western Victoria’ combined the Central Victoria NPI region and the
Victorian part of the Green Triangle NPI region. The ‘Gippsland’ region represented
the combined Central Gippsland NPI region and the Victorian part of the East Gippsland /
Bombala NPI region.

Table 3.4 Estimated farm forestry plantation areas by region and forest category

<table>
<thead>
<tr>
<th>Region</th>
<th>Farm forestry plantations</th>
<th>Private native forest A</th>
<th>Woody fodder crops</th>
</tr>
</thead>
<tbody>
<tr>
<td>North west Victoria</td>
<td>4500</td>
<td>n.d. D</td>
<td>n.d.</td>
</tr>
<tr>
<td>Central and western Victoria (‘CWV’)</td>
<td>1330</td>
<td>n.d.</td>
<td>n.d.</td>
</tr>
<tr>
<td>MIS plantations on leased farm land in CWV B</td>
<td>20 200</td>
<td>n.d.</td>
<td>n.d.</td>
</tr>
<tr>
<td>Gippsland</td>
<td>5607</td>
<td>n.d.</td>
<td>n.d.</td>
</tr>
<tr>
<td><strong>Victoria</strong> C</td>
<td><strong>31 637</strong></td>
<td><strong>1 298 000</strong></td>
<td><strong>2000 - 5000</strong></td>
</tr>
</tbody>
</table>

Source: URS Forestry (2008, p. 5).

A Total area of native forest on private land, of which a proportion is available for harvesting and a
smaller proportion is actively managed for timber production.

B Areas of managed investment schemes (‘MIS’) plantations have been included as farm forestry where
they are on farmer-owned leased land which forms part of a land holding on which farming practices are
still undertaken.

C All of the farm forestry area for the Murray Valley, which includes north east Victoria, was assigned to
New South Wales.

D Not determined.

The estimate of 1330 hectares of farm forestry plantations for central and western Victoria
(Table 3.4) is significantly lower than the estimate of 5328 hectares for the arguably
equivalent combined regions of the Victoria part of the Green Triangle NPI region and the
Central Victoria PFDC area (Table 3.1), illustrating the difficulty in reconciling and
reporting on farm forestry areas using the existing fragmented sources of information.
3.4 Growers involved in farm forestry

The number of growers actively involved in farm forestry in Victoria was estimated to be at least 1000 (Table 3.5).

Table 3.5 Estimated number of growers actively involved in farm forestry, excluding private native forestry

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of growers</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victoria part of Green Triangle NPI region</td>
<td>70</td>
<td>SWAN (database)</td>
</tr>
<tr>
<td>North west Victoria</td>
<td>170</td>
<td>BIFFN, NUFG, WAN</td>
</tr>
<tr>
<td>Central Victoria PFDC area</td>
<td>266</td>
<td>CVFP (2004) (database)</td>
</tr>
<tr>
<td>Gippsland PFDC area</td>
<td>205</td>
<td>GPF (2009a) (database)</td>
</tr>
<tr>
<td>Victoria</td>
<td>1011</td>
<td></td>
</tr>
</tbody>
</table>

Farm forestry growers in regions

Victoria part of Green Triangle NPI region

The data for this region was sourced from the South West Agroforestry Network (‘SWAN’). The database records of members of SWAN (past and present) showed 70 growers owning farm forestry. An informant from SWAN said that the database was not up-to-date or complete, and estimated that it was about five years since data had been captured.

North west Victoria

The Box Ironbark Farm Forestry Network (‘BIFFN’) was resurrected in early 2006 and an informant said that it now had 33 members.

An informant from the Wimmera Agroforestry Network (‘WAN’) said there were currently 17 members, but another 21 previous members were known to have farm forestry plantings. However, an informant from DPI who previously maintained a database of farm forestry growers operating in the area of activity of WAN, but not necessarily a member of WAN, said that there were more than 100 growers when the informant last viewed the database (more than one year ago).

An informant from the Northern United Forestry Group (‘NUFG’) said that the group had 38 farming families who had been working together on farm forestry in northern Victoria since 1998.
It was estimated from this information that there were at least 170 landholders who had farm forestry on their properties in north west Victoria (Table 3.5).

**Central Victoria, north east Victoria and Gippsland PFDC areas**

Information on the number of growers was obtained from the databases of farm forestry resources provided by the Central Victorian Farm Plantations (CVFP 2004), Plantations North East (DSE 2004) and Gippsland Private Forestry (GPF 2009a). Collectively, these three PDFC areas had 771 growers (Table 3.5).

**Australian Forest Growers**

An informant from the national office of Australian Forest Growers (‘AFG’) advised that AFG had 211 full members and 57 associate members in Victoria. For example, the full members of AFG branches included: Green Triangle, 7; Ballarat, 56; Melbourne, 48; North East Victoria, 49; Gippsland, 41.

Some of these members would have been captured by other databases (e.g. particularly those developed by the PFDCs), and this data has therefore not been added as a separate category in Table 3.5. Also, AFG branches have a diverse membership; for instance, an informant from the Green Triangle branch of the AFG, which had 46 members in South Australia and Victoria, said that the membership was a mix of industrial and non-industrial growers, consultants, contractors, and businesses operating sawmills.

**Number of farm forestry growers compared to industrial plantation growers**

The number of growers actively involved in farm forestry in Victoria was estimated to be at least 1000 (Table 3.5). On the other hand, the industrial plantation forestry sector in Victoria had relatively few owners and/or operators – from a review of the list of plantation companies who provided information to the National Plantation Inventory for the purpose of developing regional forecasts of woodflows (see Appendix 2 in Parsons, Frakes & Gavran 2007, p. 47), the Consultant estimated there were about 20 industrial plantation companies operating in Victoria.

Thus, in the total plantation forestry and farm forestry resource in Victoria, at least 1000 farm forestry growers were estimated to own about six per cent of the resource yet only about 20 industrial plantation companies owned and/or operated about 94 per cent of the resource. These statistics highlight the challenge in understanding the nature of the farm forestry resource and developing and maintaining effective linkages and communications between growers and between growers and relevant organisations (e.g. industry, government).

**Uptake of farm forestry by landholders**

This section discusses findings from literature about trends at a national level in the uptake of farm forestry, and factors influencing the uptake of farm forestry, to provide a broader

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*2 A company operating a managed investment scheme establishes, manages and harvests plantations under contract to many retail investors who each become forest growers by purchasing one or more woodlots in a scheme.*
context for the findings presented in this study for the area of farm forestry in Victoria and the number of participating growers.

**Trend in uptake at a national level**

Even though the benefits of farm forestry have been strongly promoted, uptake was perceived to be slow in the 1990s (Race 1999; Schirmer, Kanowski & Race 2000) and since then (Race & Curtis 2007), such that it has been adopted by relatively few Australian farmers (Parsons, Gabran & Davidson 2006). Since 2001, only 33,000 hectares of farm forests, excluding those planted by Managed Investment Schemes on leased farm land, have been established (URS Forestry 2008, p. vii). Further, across Australia, there are large differences in the adoption of farm forestry at a regional level (Race & Curtis 2007). As Reid and Stephen (2007, p. 1) observed: ‘… despite a dramatic increase in the number of farmers taking an active interest … it remains difficult to ascertain if this potential will ever be realised.’

**Factors influencing farm forestry decisions**

Key lessons about the adoption of farm forestry in Australia have been derived from wide-ranging research on the topic (e.g. Pannell et al. 2006; Race & Curtis 1997; Schirmer, Kanowski & Race 2000) and distilled by Race and Curtis (2007). The research suggested that landholders will adopt conservation practices, including farm forestry, that are aligned with their achievement of their individual or family objectives, including their need for financial security and social acceptance. Within this framework, willingness and capacity to adopt farm forestry depended on additional factors, including:

- personal characteristics of the landholder and their immediate family (e.g. levels of education, knowledge and skills, duration of farming experience in the area, primary occupation, stage of life, family succession);

- social context of the landholder (e.g. prevailing norms related to ‘best practice’ farming, information flows through networks, opportunities for education and training, local organisations, and the level of trust in agents delivering extension services); and

- nature of the practice (e.g. the ability to trial it, its observability, its level of complexity and re-skilling required, its fit with existing farming systems and lifestyle, and the timing and extent of the returns) (Race & Curtis 2007).

To explore these factors in a Victorian context, a random mail survey of rural landholders in three catchments in Victoria – Goulburn-Broken, Ovens and Wimmera – was conducted during 1999 to 2002. The study obtained 1746 completed surveys across the three catchments (response rates ranged from 47 to 73 per cent). The results revealed low levels of adoption of farm forestry – in each of the three catchments, no more than 10 per cent of respondents had established farm forestry, with median areas of farm forestry of four to 12 hectares per property which were small compared to median property sizes in the catchments (Race & Curtis 2007, pp. 171-173).

Investment in farm forestry was significantly correlated with a small number of socio-economic farming variables. For example:
• landholders who had undertaken ‘best practice’ farming activities were also likely to have invested in farm forestry; and

• in two of the catchments, there was a positive correlation between landholders’ concern about a decline in the productivity of their farmland and the establishment of farm forestry.

However, uptake of farm forestry in the three catchments was not significantly linked to occupation (i.e. farmer or non-farmer) (Race & Curtis 2007, pp. 172-173).

Other factors influencing farm forestry decisions were explored in the survey. Financial factors – insufficient income to invest in any new land-use, better returns available from off-property investments, markets dominated by industry and thus not confident growers will receive fair returns, high uncertainty about long-term markets – rated much higher than such other factors as time and effort to acquire new knowledge and skills, or bad experiences with farm forestry in the area (Race & Curtis 2007).

Financial factors have been identified as major impediments to farm forestry for many years (e.g. Curtis & Race 1998; Lott & Gooding 2008). For instance, Curtis and Race (1998) noted that it was difficult to assess the viability of farm forestry in the Green Triangle because prices received by small-scale growers were not disclosed, and that growers expressed concerns about the equity of joint ventures and their weak negotiating and marketing positions in the forestry industry dominated by large organisations. Lott and Gooding (2008) found that a lack of understanding of the economics of farm forestry remained an impediment to its adoption by the wider farming community. Further, a significant impediment to the uptake of farm forestry in Australia is the difficulty and relatively high cost faced by growers when undertaking harvesting – the problem is caused by the use in small-scale forests of fully-mechanised and integrated harvesting and haulage systems designed for high-volume output in industrial plantations (Lambert 2003).

### 3.5 Predominant tree species in the farm forestry estate

From the NFFI conducted in November 2000, Victoria had approximately 24 000 hectares of farm forestry (Table 3.3), of which 59 per cent was softwood (principally Radiata Pine) and 41 per cent was hardwood (principally *Eucalyptus* species).

Since then, several studies have provided information about the tree species in different parts of the farm forestry resource in Victoria, showing that a wide range of species have been planted. For example, Jenkin (2005) collated information from mailed surveys to growers identified from four databases held by two Farm Forestry Networks and two PFDCs. The results indicated about 70 species planted across the regions surveyed (south west Victoria, central Victoria, north central Victoria and Gippsland),. There was a high degree of species fragmentation, with half of the stands less than three hectares in size. The small-scale plantings included species from the genera of *Acacia, Casuarina, Cupressus, Eucalyptus, Grevillea* and *Picea* (Jenkin 2005).

Overall, from the survey, Radiata Pine and Blue Gum were the species with the largest areas planted and had the most sequential years of planting, making these two species most likely to be an effective commercial wood resource. There was a species trend: Radiata
Pine was mostly planted during the 1970s and 1980s whereas Blue Gum was the species mostly planted from the 1990s onward (Jenkin 2005).

In north west Victoria, the main species in a total farm forestry resource of about 4500 hectares were Red Ironbark (E. sideroxylon) and Sugar Gum (E. cladocalyx) (Table 3.6).

Table 3.6 Farm forestry plantation in north west Victoria

<table>
<thead>
<tr>
<th>Species</th>
<th>Area (hectares)</th>
<th>Proportion of region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Ironbark (E. sideroxylon)</td>
<td>2000 - 2500</td>
<td>51%</td>
</tr>
<tr>
<td>Sugar Gum (E. cladocalyx)</td>
<td>1500</td>
<td>34%</td>
</tr>
<tr>
<td>Blue Mallee (E. polybractea)</td>
<td>240</td>
<td>6%</td>
</tr>
<tr>
<td>Flat-topped Yate (E. occidentalis)</td>
<td>200</td>
<td>5%</td>
</tr>
<tr>
<td>River Sheoak (Casuarina cunninghamiana)</td>
<td>150</td>
<td>3%</td>
</tr>
<tr>
<td>Pinaster Pine (Pinus pinaster)</td>
<td>50</td>
<td>1%</td>
</tr>
<tr>
<td>Total</td>
<td>4140 - 4640</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Adapted from URS Forestry (2008, p. 14).

Informants from Farm Forestry Networks in north west, central and west Victoria (BIFFN, WAN, NUFG) said that farm forestry growers were continuing to plant a range of hardwoods, principally Eucalyptus species. For example, an informant from NUFG said that the group’s extensive research into suitable native trees for farm forestry was being used to establish low-rainfall farm forestry as a commercially viable enterprise, providing forest products, environmental services and community benefits. Another informant said that the success of SMARTimbers – a farm forest grower cooperative – in developing a market for sawlogs from Sugar Gum farm forests had been a significant factor leading to new plantings of the species, particularly in western Victoria.

The information about the species in the farm forestry resource in Victoria indicates that a diverse range of species has been planted by a large number of growers. This is an important, yet often unrecognised, attribute of the farm forestry estate – plantings of the better-known species in new environments together with lessor-known species provide the essential testing of the genetic material with potential for farm forestry and of the geographic scope of the farm forestry resource.
3.6 Estimated volumes of wood potentially supplied by the farm forestry estate

Gippsland PFDC area

Gippsland Private Forestry (‘GPF’) compiled an estimate of the merchantable volume of wood in the private, non-industrial Radiata Pine resource in Gippsland (GPF 2009b). The resource estimate was based on a project undertaken by GPF in consultation with 20 private growers in the region in 2002.

The study estimated that there was 3800 hectares of non-industrial plantations of Radiata Pine, with nearly half of the plantations aged 23 years or greater and therefore at, or soon approaching, final harvest age. This resource was estimated to have a standing merchantable volume in 2009 of approximately 1.2 million cubic metres. Of the total volume, approximately 30 per cent was in stands with existing farm forestry agreements for supply of the logs to industrial processors (GPF 2009b, pp. 2-3).

Given that most of the resource was at least 10 years of age (GPF 2009b, p. 5), and that Radiata Pine in Victoria normally has a rotation age of 30 years (Parsons, Frakes & Gavran 2007, p. 46), most of this volume was potentially available for processing over the next 20 years.

In addition, continued growth of the resource would provide more volume potentially available for processing over the next 20 years, though an estimate of this extra volume would require further analysis of the data supplemented by information (for which a survey would be required) of the intentions of growers in relation to management of their forestry land after a mature plantation had been final harvested.

In regard to the latter point, an informant from GPF said that recent experience in the region was that a significant proportion of Radiata Pine stands in the farm forestry resource were not being replanted after final harvesting by the owner of the first plantation. That is not to say that the land was not being replanted by another investor, but again the trend illustrated the need for ongoing information about the farm forestry sector.

Other regions

While there have been other studies of woodflows from plantation resources in other regions, none have specifically modelled the woodflows from the farm forestry estate. For instance, in 2006, Central Victorian Farm Plantations Inc. produced a Private Forestry Action Plan (‘Plan’) for the Central Victorian Region. The Plan had a number of actions, including the development of a regional woodflow plan which was identified as a high priority need. The woodflow plan (CVFP 2009) presented anticipated wood production from forests (native forests and plantations) across the region for the period 2010 to 2029, aggregated into flows over five-year periods. Wherever available, the woodflow plans developed by individual companies were used in the preparation of industry level aggregates, and these accounted for more than three-quarters of the woodflows modelled across the forest estate. However, the farm forestry component of the woodflows was not reported separately.

At a national level, forecast wood flows from Australia’s plantations, based on standard management regimes for softwood and hardwood plantations, have been prepared by the
National Plantation Inventory. Forecasts have been prepared for all NPI regions and then aggregated to provide a national forecast. The third such forecast was for the period 2005 to 2049, and was based mainly on areas of plantation already established (Parsons, Frakes & Gavran 2007). The majority of forecast volumes were derived directly from the data provided by the owners and managers of large plantation estates. For the NPI regions in Victoria, only wood flows for Central Gippsland included data on farm forestry which was provided by GPF.

**Future studies of woodflows**

To provide a reliable estimate of the wood flows from the farm forestry estate in Victoria over the next 20 years, an up-to-date database (as available for the Gippsland PFDC area) would be required for all regions, and information about the intentions of growers following final harvesting of plantations would be required. With such information, the methodologies used by Gippsland Private Forestry (GPF 2009b), Central Victorian Farm Plantations (CVFP 2009) and the National Plantation Inventory (Parsons, Frakes & Gavran 2007), all of which are similar, could be used to forecast woodflows.

### 3.7 Key markets for the farm forestry resource

**Key markets currently supplied by the farm forestry resource**

The key markets currently supplied by the farm forestry resource in Victoria have been described in a number of recent studies of the wider plantation forestry sector that covered Central Victoria (CVFP 2006, 2009; URS Australia 2003), Gippsland (Cameron, Gibbs & Meynink 2005) and Victoria (URS Australia 2007; URS Forestry 2008). These studies indicate that farm forestry resources generally have access to a range of markets but there are regional differences in the structure of markets such that not all products have access to competitive markets.

For example, the extent and range of softwood processors operating in Central Victoria provides plantation growers (and by inference farm forestry growers) with a full range of product markets (URS Australia 2003). There are three main processing centres located in Geelong, Colac and Ballarat, plus a number of smaller mills operating outside these centres that provide important additional processing capacity to the region (CVFP 2009).

In contrast, Gippsland lacks a local market for high-grade large softwood logs suitable for veneer and plywood, and lacks a processor (e.g. medium density fibre board mill) to utilise low-grade logs and thus facilitate timely thinning of Radiata Pine plantations (Cameron, Gibbs & Meynink 2005). However, for Radiata Pine, the region has two large sawlog processing plants and one major pulp and paper processing facility. One softwood sawlog exporter operates in the region, which has access to major ports at Geelong, Melbourne and Eden. There are also a number of smaller processors who produce a range of products including sawn timber, treated timbers and pallet material (GPF 2009b).

**Key markets potentially supplied by the farm forestry resource**

Emerging markets for the Victorian forestry industry (URS Australia 2007) and for Australia’s farm forestry industry (URS Forestry 2008) are dependent, amongst other factors, on open and competitive markets for emerging forest products, the development of
markets for externalities and public goods provided by farm forests, and research and development into relevant technologies and market mechanisms (URS Australia 2007).

The emerging markets for farm forestry, together with existing markets for reference, are summarised at Table 3.7.

Table 3.7 Existing and emerging markets for farm forestry

<table>
<thead>
<tr>
<th>Existing larger scale markets</th>
<th>Existing smaller scale and ‘niche’ markets</th>
<th>Emerging markets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Softwood sawn timber</td>
<td>Firewood</td>
<td>Woody fodder crops</td>
</tr>
<tr>
<td>Hardwood sawn timber</td>
<td>Fibre cement A</td>
<td>Industrial carbon</td>
</tr>
<tr>
<td>Veneer, plywood &amp; laminated</td>
<td>Sandalwood</td>
<td>Engineered strand lumber</td>
</tr>
<tr>
<td>veneer lumber</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Posts and poles</td>
<td><em>Eucalyptus</em> oil</td>
<td>Bioenergy</td>
</tr>
<tr>
<td>Composite wood products</td>
<td>Activated carbon</td>
<td>Biofuels</td>
</tr>
<tr>
<td>Log and woodchip exports</td>
<td></td>
<td>Carbon sequestration</td>
</tr>
<tr>
<td>Pulp and paper</td>
<td></td>
<td>Other environmental services</td>
</tr>
</tbody>
</table>

Source: Adapted from URS Forestry (2008, Tables 4 & 6, pp. 6 & 9).

A Fibre cement pulp is a specialised product; supply is currently imported (URS Forestry 2008, p. 10).

Of the emerging markets, woody fodder crops, industrial carbon, engineered strand lumber, bioenergy, biofuels and environmental services other than carbon were ranked as having a market outlook that was ‘medium’, on a scale of ‘low’ (speculative market opportunity that may develop but requires significant research and development, or technological change, before transactions could be freely undertaken), ‘medium’ (an emerging market that presents a significant opportunity for development) and ‘high’ (emerging market where there are already strong signals of transactions and the outlook for market development is good). By comparison, carbon sequestration was ranked as having a market outlook that was high (URS Forestry 2008, pp. 11-12).

Failure of markets

The term ‘market failure’ has been used to describe the situation in which markets may fail to yield economically efficient investment in natural resource management when:

- there are non-market impacts from production that are not taken into account in private production and consumption decisions (i.e. externalities and public goods);
- property rights are poorly defined or enforced and investment is discouraged while consumption is often higher than the optimal level (the common property problem); or
- there is imperfect competition and producers or consumers, acting out of self-interest, fail to arrive at levels of production that maximise welfare (FAO 1999, p. 23).
Thus, even though technical knowledge to grow forest products sustainably is available, and global markets for forest products are not a major constraint, regional and/or local markets can ‘fail’ and are often compounded by policy and institutional failures (e.g. incorrect pricing of forestry outputs, policies that encourage the development of other land-uses) (FAO 1999).

The Australian Forest Growers have identified market failure for non-corporate private plantation growers in relation to imperfect competition – that is, lack of market access and information are two key impediments for these growers (AFG 2008, p. 30).

Another form of market failure identified by the private forestry sector in Australia, which applies to Victoria, relates to the lack of interest and therefore investment in long-rotation plantations to produce hardwood sawlogs, that potentially could augment the dwindling supplies available from public native forests. For instance, VAFI (2008) argued that there was evidence of market failure in the plantation and private native forests sector, which affected the ability of this sector to expand to augment supplies from existing resources. More work is needed to discover why investments in long rotation plantations managed for native species hardwood sawlogs appears not to be occurring at a significant level.

For sawlogs to be attractive to the farm forestry sector, the issue of the long time-frame for the investment is a major consideration. New markets may also need to be developed for these solid wood products, a challenge which has been taken up by SMARTimbers, a farm forest growers cooperative. Farm forestry also provides environmental services (i.e. the externalities). Markets for these services are critical in lower-rainfall regions favoured for plantation expansion in contemporary policy for natural resource management (AFG 2008, p. 30).

3.8 The nature and extent of private native forest resources

Private native forest resources in Victoria

Privately-owned native forests in Victoria occupy 1.025 million hectares\(^3\), equivalent to 13 per cent of the state’s total area of native forests (MPIGA 2008, p. 10). Although there is no legal restriction on timber harvesting in this forest (MPIGA 2008, p. 54), only about 350,000 hectares of the privately-owned native forests are presumed to be suitable for commercial wood production (Poynter c. 2008, p. 1). However, it was noted:

‘This estimate, however, has little concrete basis because the actual harvest from these forests is very low, although it is not monitored by government agencies and so is not accurately known’ (Poynter c. 2008, p. 1).

Furthermore, there is considerable regulatory complexity related to the harvesting of private native forests in Victoria.

The lack of knowledge about private native forest in Victoria is similar to the situation in New South Wales and Queensland, whereas Tasmania has a dedicated government agency

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\(^3\) This is a more recent estimate than that of 1.3 million hectares reported by URS Forestry (2008), as shown in Table 3.4.
that has collected comprehensive information about its private native forests that are a significant source of wood products (Poynter c. 2008).

In the five-yearly report in 2008 of ‘Australia’s state of the forests’, the supply of sawlogs from private native forests was reported as significant in Tasmania, New South Wales and Queensland; however, for other states, recent data on private sawlog supply were not available (MPIGA 2008, p. 60).

However, the average proportion of total hardwood sawlog and veneer log volumes in Victoria during 1997 to 2007 supplied from private native forests was reported as 2.5 per cent (Parsons & Pritchard 2009, p. 9).

Private native forest resources in regions in Victoria

The Central Victorian Farm Plantations PFDC region contains around 140 000 hectares of private native forest, which are dispersed and are generally in small holdings. There is little information about the condition or standing volumes of timber in the region’s private native forest, or the management intent of the forest owners. However, the extent of these forests suggests that they may provide a substantial future resource for timber production (CVFP 2009).

In Gippsland, the potentially harvestable native forest is about 40 000 hectares, though it is under fragmented ownership and management, with little actively managed for production of timber (Cameron, Gibbs & Meynink 2005). As noted by the authors:

‘Commercial harvesting of this native forest is subject to a cumbersome approval process involving local government as the responsible authority and the Department of Sustainability and Environment (DSE) as the referral authority’ (Cameron, Gibbs & Meynink 2005, p. 30).

In an analysis of the private native forest resources by region, using Comprehensive Regional Assessment data, the areas reported in Victoria were: Central Highlands, 107 000 hectares; East Gippsland, 63 000 hectares; Gippsland, 178 000 hectares; North East Victoria, 174 000 hectares; and West Victoria, 247 000 hectares (Parsons & Pritchard 2009, p. 3).

3.9 Synopsis of databases accessed for the study

Farm forestry resources, excluding native forest

Details of the databases reviewed for this study are provided at Appendix B. From this review, and from discussions with informants from Farm Forestry Networks and grower organisations, the following conclusions are drawn about the extent, nature and condition of databases on farm forestry resources in Victoria:

1. Comprehensive databases on farm forestry resources were developed in 2004 for three PFDC areas – central Victoria, north east Victoria and Gippsland (Appendix C). However, only one database – that for Gippsland – had been maintained to be up-to-date as at May 2009. The other two databases had not been updated since 2004; an informant from one of those PFDCs said that the core operating funds received by the PFDC were insufficient for it to maintain the database.
2. Substantial parts of Victoria with existing farm forestry resources – south west Victoria and north west Victoria – have limited information on farm forestry resources.

3. At a statewide level, the data on the farm forestry sector (species, age, scale, location) is incomplete, inconsistent, out-of-date, unreliable and highly dispersed in its custody.

4. These critical weaknesses in the datasets mean that there is no capacity at a regional level save for Gippsland nor at a statewide level to model woodflows for the purpose of regional planning and marketing of the resource.

5. Qualitative information about the ownership of the farm forestry resource is extremely limited. Unlike the industrial plantation forestry sector, which has relatively few companies operating in Victoria (estimated to be about 20)\(^4\), the farm forestry sector was estimated to comprise about 1000 growers. Whereas the management and investment intent of the industrial sector is broadly understood, there is scant information on that of the farm forestry sector.

6. Under current structures and capacities of organisations in the farm forestry sector, there is very limited scope and prospect of databases being maintained let alone new data being collected. This is not necessarily for a lack of purpose or methodology – a key issue is a lack of resources and statewide direction and coordination.

7. In regard to methodology, the process used in 2004 to collect spatially-referenced information on the nature and extent of the farm forestry resource was rigorous, produced a high-quality product, and provides a template to be used again. There are also robust methodologies that have been used widely in studies of natural resource management that could be applied to collect qualitative data about the farm forestry sector.

**Private native forest resources**

In contrast to the farm forestry resources that have been established on farm land, little information is available nationally on the condition of private native forests (e.g. current timber volumes, growth rates, projected yield), save for Tasmania where Private Forests Tasmania coordinates an estimation of potential log supply each five years (Parsons & Pritchard 2009).

This conclusion applies to Victoria. During this study, apart from an estimate of the total area of the private native forest resources, the Consultant found scant information in the literature about the nature of these resources; for example, the area being managed for commercial wood production, the volume and type of wood products being produced or that could be potentially produced, the management intent of the forest owners).

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\(^4\) Estimated by the Consultant by reviewing the list of plantation companies who provided information to the National Plantation Inventory for the purpose of developing regional forecasts of woodflows (see Appendix 2 in Parsons, Frakes & Gavran 2007, p. 47).
3.10 Structure and linkages of Victoria’s farm forestry networks

The structure and linkages of Victoria’s Farm Forestry Networks and related grower’s organisations is illustrated at Appendix D. Key organisations shown in this schematic diagram are discussed below.

Australian Forest Growers (‘AFG’)

AFG is a national association with branches in all States. It is the only national organisation representing and promoting the interests of private forestry and farm tree growers. There are five branches operating in Victoria (with some branches crossing States). AFG has provision within the organisation for the branches within a State to form a State Committee.

Farm Forest Growers Victoria (‘FFGV’)

FFGV is the peak farm forest growers body in Victoria. Its members comprise almost all the incorporated farm forestry grower groups in Victoria. An informant from FFGV said that its documents showed that it was formed in 2008 out of concern that the benefits provided by the farm forestry sector were being overlooked and support from Government was diminishing. Its charter includes ‘… FFGV will promote and advance the farm forestry sector of private forestry in Victoria’.

FFGV has members who are AFG branches and as well there are various farm forestry groups outside the AFG structure which are picked up under the FFGV structure. An informant from FFGV said the fact that there are numerous farm forestry groups in Victoria that are outside the AFG structure was a key driver for the formation of FFGV.

An informant from FFGV said that continuing discussions about funding to provide an ongoing professional service to the farm forestry sector was a key issue for the organisation.

Farm Forestry Networks

Seven Farm Forestry Networks are shown in the Appendix D. These have various histories, structures, purposes, capacities and current levels of activities. Some are growing in membership and capacity, whereas others appear to be in decline, for various reasons.

Private Forestry Development Committees (‘PFDCs’)

PFDCs were structured as community-based groups that worked to support sustainable and commercial private forestry (DAFF 2007). They were originally established under the framework of the national strategy for plantation expansion (‘Plantations 2020 Vision’), to facilitate the development of a commercial forestry and farm forestry culture in each region that would attract a broad spectrum of investors (PVIV 1997). Federal and State funding for PFDCs ended at 30 June 2008; however, all PFDCs in Victoria, which are incorporated bodies, continue to function but are scaling down their activities. They are in the process of considering options to continue to represent the interests of the private forestry sector in Victoria (Stewart 2009).
Trees Victoria

Trees Victoria was formed as an incorporated association in response to the decisions by both the state and federal governments to cease funding of the PFDCs. It is designed to be a statewide organisation on the suggestion from PFDCs and its stakeholders that a statewide industry body might be an appropriate next step.

Trees Victoria plans to commence operations in July 2009. Its future will be determined by the actions it takes in 2009–2010 and by the contributing stakeholders – outcomes of discussions about ongoing funding will be a key issue for the organisation.

Sustainably Managed Australian Regional Timbers (‘SMARTimbers’)

In central Victoria, farm foresters set up the SMARTimbers cooperative in 2001. The cooperative will market small quantities of their Eucalyptus, Acacia, Casuarina or Cupressus species, for high quality furniture or appearance products. The cooperative has access to mature farm forests and has successfully marketed timber – an informant from the SMARTimbers said that the cooperative had 43 members and was handling in the order of 500 cubic metres of sawlogs per year, mostly Sugar Gum (E. cladocalyx), with the annual volume slowly increasing. Refer to: http://www.smartimers.com.au/.

The Farm Forestry North East Project (‘FFORNE’)

The FFORNE hardwood cooperative was formally registered in 1999 with an eight-member Board and the 70 members who were growing about 1700 hectares of eucalypts for high quality sawlog production in Victoria. The cooperative has farm forest growers in north east and central Victoria who plan to be a major supplier of high quality sawlogs to the timber processing industry; however, an informant from the cooperative said that it would be at least 10 years before the first trees were sufficiently mature for harvesting. Thus, unlike SMARTimbers, members of the FFORNE cooperative have a wholly immature farm forestry resource. Refer to: http://www.fforne.com.au/.

Timber Towns Victoria (‘TTV’)

TTV is an incorporated local government association (formed in 1985) representing the interests of municipal councils in relation to forestry on both public and private land. Its primary function is to provide a forum for local government to address the management of forests and forest industries and their impact on local communities.

TTV is formally recognised by the Municipal Association of Victoria (MAV) as the key representative of local government in relation to forestry issues as they impact on municipal councils. The TTV secretariat is co-located at the MAV. Currently there are 21 member local government authorities in Victoria.

Local Government Authorities (‘LGAs’)

LGAs are key organisations for farm forestry given their role in land-use determination through the planning scheme and their regulatory role in forestry on private land.
Catchment Management Authorities (‘CMAs’)

An important regional body for farm forestry, given the pivotal role of CMAs in natural resource management. Some CMAs have been an important source of support and funds for the private forestry sector (e.g. Corangamite CMA), and the West Gippsland CMA has provided considerable support to farm forestry through the PDFC, Gippsland Private Forestry.

3.11 Discussion of Output one

1. There is strong interest in farm forestry, especially among the various groups that collectively comprise the ‘farm forestry community’ – all groups contacted for this study cooperated to provide what information they held and there was widespread support amongst those representatives of groups contacted for a comprehensive inventory of the sector.

2. However, while compiling the data and interviewing many farm forestry contacts, it became evident that the capacity and priority of groups to collate and maintain key information had waned – possibly due to financial constraints.

3. The areas of activity of farm forestry networks, PFDCs and other groups in some cases are diffuse and in other cases overlap, making it difficult to reconcile the various data sources to obtain a definitive picture of the farm forestry sector in Victoria.

4. The present data on farm forest area and other tributes of farm forests, with the exception of one Farm Forestry Network and one PFDC, was incomplete, unreliable and out-of-date, highlighting a lack of coordination amongst the farm forestry sector of purpose, priority, capacity and resources to capture and maintain this vital information. This is in stark contrast to the industrial plantation sector.

5. At first glance, the Victorian private forestry plantation estate statistics appear to be comprehensive, but on close examination, it is deficient in that it is not possible to readily discern for the farm forestry segment information at a regional level on the predominant species and age-class distribution as is available for the industrial plantation segment (e.g. see Parsons, Gavran & Davidson 2006).

6. Following on from point five, the true nature of the farm forestry sector is arguably ‘masked’ by the industrial forestry sector. That is, while the statewide picture is that recent expansion of hardwood plantations has been driven by investment, through managed investment schemes, in short rotation hardwoods for production of pulplogs, the management intent of investment in farm forests is not clearly understood from the available information. It may be quite different to that of industrial hardwood plantation growers, and needs to be known in order to understand, for example, potential supplies of hardwood sawlogs from the private forestry sector in Victoria.

7. The qualitative information related to the farm forestry sector in Victoria is dated (the most recent surveys at a catchment level were conducted during 1999 to 2002) and substantial parts of Victoria were not surveyed (e.g. Gippsland, south west Victoria). This data deficiency needs to be rectified, particularly given that it was predicted, for instance, that about half of all farm properties were expected to change hands during 2006 to 2016 in the Corangamite region (Curtis et al. 2006, p. 41).
3.12 Conclusion

The nature and extent of the farm forestry sector in Victoria is poorly understood in relation to the industrial plantation sector. This situation is in stark contrast to the comprehensive and updated information generated by the industrial plantation sector and by DSE and VicForests\(^5\) who manage native forests on public land for timber production.

This is a glaring deficiency, given that the farm forestry sector was estimated to have more than 1000 growers whose farm forests (inclusive of managed investment scheme plantations on leased farm land which forms part of a land holding on which farming practices are still undertaken), collectively comprised nearly 11 per cent of the statewide plantation forestry and farm forestry resource.

There is a need, for a range of reasons, to rectify this data deficiency by conducting a detailed inventory of farm forestry in Victoria. The rationale, scope and approach to such an inventory is presented in Chapter four.

\(^5\) A State-owned commercial forestry business operating in Victoria that commenced operations in 2004 as part of the Victorian Government’s policy to separate the forest policy, regulatory and commercial functions related to management of native forests on public land (see www.vicforests.com.au/index.htm).
Chapter 4

Output two: A proposal for a detailed inventory of farm forestry in Victoria

4.1 Introduction

This Chapter presents a project proposal to undertake a detailed inventory of farm forestry in Victoria. The recommended proposal has two main components:

- compilation of plantation area maps and a stand attributes database for farm forestry in Victoria; and

- a qualitative survey, targeted at specific segments of the farm forestry sector, of farm forestry practitioners plus a sample of landholders not currently engaged in farm forestry.

Before providing the details of the proposed project, a rationale for the project is presented.

4.2 The need for a detailed inventory of farm forestry in Victoria

Plantation forestry not meeting expansion targets or community expectations in south east Australia

The ‘Plantations for Australia: The 2020 Vision’ (hereafter ‘Plantations 2020 Vision’) for plantation forestry in Australia, launched in 1997 by government and the plantation industries, has a national target of trebling plantations from one million hectares to three million hectares between 1997 to 2020. The strategy aimed to convert the annual $2 billion trade deficit in wood and wood products into a trade surplus (PVIC 1997). Average annual plantings of 80 000 hectares are required to achieve the target. However, the areas of new plantations established from 1997 to 2007 indicate that, on average, the net increase has been about 70 000 hectares each year (derived from Gavran & Parsons 2008, p. 2; Parsons & Gavran 2007, p. 6). Further, some plantation regions in south east Australia have fallen well short of notional targets to date (e.g. north east Victoria), signalling a disconnect between national forestry policy and practice in the Victorian context.

The dominant source of capital for plantation expansion in recent years has been managed investment schemes (Davidson et al. 2008) and, in 2007, these schemes planted 90 per cent of all new hardwood plantations and 69 per cent of all new softwood plantations (Gavran & Parson 2008, p. 6). This type of project, which allows people not ‘on the land’ to conduct an agricultural production business, is backed by legislation allowing immediate tax deductibility of the non-capital component of the initial investment (Cummine 2005). However, the global financial crisis that developed during 2008 added a new dimension to the prospects for forestry companies operating managed investment schemes, with emerging evidence that the current model may not be sustainable, adding considerable uncertainty to the scale of commercial forestry that can be sustained (Stewart 2009).
There is a widespread view that the Plantations 2020 Vision notional target of three million hectares by 2020 will not be achieved. For instance, plantation development targets of plantation owners and managers collated by the National Plantation Inventory, indicated that the national plantation estate could reach 2.3 to 2.4 million hectares by about 2020 (Parsons, Frakes & Gavran 2007, p. 7). A contributing factor is that without substantial new sources of investment, it is likely that the rate of expansion will soon decline as the large areas of new plantations established during 1999 to 2001 (predominantly short-rotation hardwoods) are replanted (Gavran & Parsons 2008).

Even though expansion has not occurred at the level intended by governments and industry, expansion of industrial plantations has caused widespread community concern. For example, there are policy issues related to potential impacts on catchment water yield when pastures and crops are replaced by plantations – empirical evidence of potential impacts has been collated (BRS 2003) and this issue is being addressed in the National Water Initiative (COAG 2004). At a regional level, concerns have been expressed about the impacts of plantations on depopulation, services for rural communities, and effects on neighbouring farmland (e.g. infestations of weeds and pest animals) (Mercer & Underwood 2002; Schirmer & Tonts 2003; Williams, Nettle & Petheram 2003; Stewart et al. 2007; Schirmer et al. 2008). These concerns continue to raise questions about the compatibility of the traditional industrial plantation model in contemporary rural Victoria – a landscape that is undergoing unprecedented social and economic change.

The role of farm forestry

Policy setting

The Plantations 2020 Vision focussed on overcoming impediments to the expansion of plantation forestry. Elements of the Plantations 2020 Vision framework that were particularly relevant to farm forestry (PVIC 1997) were to:

- increase the availability of suitable land for plantations (e.g. by fostering local government recognition of the economic and social benefits of regional plantation development, and by treating plantation forestry as other agricultural industries when applying local government planning regulations and state legislation);

- establish a commercial plantations culture (e.g. by disseminating information, principally through Regional Plantation Committees (since renamed as PFDCs), to facilitate the development of a commercial forestry and farm forestry culture in each region that would attract a broad spectrum of investors); and

- improve information flows (e.g. by promoting the natural resource benefits of commercial trees, and informing farmers of the comparative profitability of plantations) (PVIC 1997).

Policy specific to farm forestry was developed by the Australian government when it established the National Farm Forestry Roundtable (1998–2000), which culminated in the release of the Farm Forestry National Action Statement (‘FFNAS’) in 2005, which outlines actions for the Australian, State and Territory governments and the farm and wood products industries to encourage development of farm forestry (Davidson et al. 2008).
The FFNAS articulated a role for farm forestry as follows:

‘Farm forestry is important because it not only provides income diversification for farmers and resources for regional industries, but it can also improve the condition and sustainability of natural resources by addressing resource degradation issues such as water quality, soil erosion, loss of native habitat and fragmentation of tree cover. Re-establishment of trees in the landscape also sequesters atmospheric carbon. The commercial aspect of farm forestry provides an economic incentive for improved natural resource management.’ (DAFF 2005, p. 1).

In a policy context, the FFNAS complemented the Plantations 2020 Vision, as well as the planning and investment framework for regional natural resource management defined by the National Action Plan for Salinity and Water Quality and the Natural Heritage Trust (DAFF 2005). The FFNAS was endorsed by all the State and Territory governments through the Natural Resource Management and Primary Industry Ministerial Councils in August 2005 (DAFF 2005).

At a state level, the Government of Victoria set a private forestry strategy for 2002–2005, aimed at integrating farm forestry within existing farming systems, and encouraging the expansion of plantations in rural landscapes (DNRE 2002), then launched a Plantation Incentives Strategy in 2005 which marked a shift in government emphasis for private forestry from farm forestry to investments in large-scale commercial plantations managed on long rotations (DPI 2005), then released in 2009 a draft of a new timber industry strategy for Victoria (DPI 2009). Forest policy including policy related to farm forestry has thus undergone significant shifts in the past decade, and clearly the need exists to articulate a long-term farm forestry policy applicable to rural landscapes in Victoria experiencing significant social and economic change.

**Progress with farm forestry in Victoria**

Although farm forestry had been supported by broad policy at both national and state levels, and has been promoted as a way of generating a wide range of socio-economic and environmental outcomes at a regional scale (Reid & Stephen 2007), expansion of the farm forestry estate at a national level between 2001 and 2007 was only about 33 000 hectares, with greatest progress in Western Australia driven by direct government involvement in farm forestry plantations (URS Forestry 2008, p. 21). While the statistics do not allow estimates of the change in farm forestry during that period on a state-by-state basis (i.e. regional boundaries used to collate statistics cross states), it can be inferred for the data presented by URS Forestry (2008) and data collated by the Consultant in this study that the area of farm forestry in Victoria during 2001–2007 has changed little and, in some regions, may have decreased, though such estimates are hampered by the lack of reliable data on the farm forestry sector.\(^6\)

**Is there a land-base for farm forestry?**

Victoria has a substantial land base suitable for expansion of farm forestry. This was demonstrated by a study in 2008 that examined opportunities for different agroforestry

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\(^6\) These estimates do not include farm land leased for MIS plantations.
systems across natural resource management regions in Australia.\(^7\) The project included stakeholder engagement by way of a questionnaire sent to regional representatives of Australian Forest Growers and Private Forestry Development Committees (Polglase et al. 2008). A key objective of the study was to identify regions that presented the greatest opportunities for large-scale investments in agroforestry and therefore where investments of funds for research and development might be directed (p. 83).

Based on regional consultations with a range of experts (e.g. PFDCs, state agencies), production systems were developed that were considered to offer the best prospects for large-scale expansion of agroforestry. The economics of these systems were modeled across five ‘geoclimatic zones’ in Australia: the ‘southern dry’ zone (275-550 millimetres annual rainfall) covered northern and north west Victoria, and the ‘southern wet’ (more than 550 millimetres annual rainfall) covered the balance of the State (Polglase et al. 2008, p. 9).

The results showed that Victoria has a substantial land base suitable for expansion of farm forestry. Specifically, the natural resource management regions in Victoria of Corangamite, Glenelg-Hopkins, Goulburn-Broken and North east Victoria were rated as ‘high’ in terms of their capacity and capability for investment in profitable agroforestry (Polglase et al. 2008, pp. x-xi).

**Can small-scale farm forestry succeed?**

At present, the role of small-scale, farm-based plantation forestry in the high rainfall farming zone of Victoria is small in scale and importance of wood supply. However, a contrast is its importance in building a connection to local rural communities. An unanswered question is the extent to which successful models for small-scale forestry practised in Scandinavia and Europe can be mirrored in temperate Australia, and indeed to what extent are these models desirable?

Three Victorian researchers have studied small-scale forestry in Europe to gain lessons for farm forestry in Australia (Box 4.1). Experiences show that when there is a strong forestry culture, private forestry can successfully operate at small scale. Further, farm forestry can play a key role in rural development, temper community angst created by industrial forestry expansion and can play a role in bridging the rural–urban divide provided that community aspirations as well as economic and environmental considerations were considered. Trends in small-scale forestry included the increasing marketing of traditional harvest residues as fuelwood for heating and energy production and the marketing of other forestry services (e.g. recreational access, hunting leases).

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\(^7\) Agroforestry was used in a broad context, being ‘any situation in which trees are planted on agricultural land. In that sense it can be trees that are planted for any combination of environmental or commercial reasons and can range in scale from woodlots to those of industrial plantation companies’ (Polglase et al. 2008, p. 2).
Box 4.1 Farm forestry experiences in Europe and Scandinavia

Three people from Victoria recently studied small-scale private forestry in Europe and Scandinavia as visiting fellows of the Winston Churchill Memorial Trust.

The first study (Lang 2002) focussed on patterns of forest ownership and timber marketing. The study found that there is a strong private forestry culture that has grown with national policies relating to sustainable forestry originating more than 100 years ago. Average forest size in northern Europe and Scandinavia is less than 10 hectares. One in five Finnish people owns forest and/or works in the forestry industry, making private forestry a major part of the national economy. However, in some countries (e.g. Germany), private forest owners are increasingly absentee and not capable or knowledgeable about forest management, thus emphasising the increasing importance of forest owner’s associations in the management and marketing of resources. Forest owner’s associations in some countries (e.g. Sweden) also operate their own mills and manufacturing facilities. Despite the small scale of individual ownership, the sector is viable as integrated harvesting and haulage is geared to handling numerous small parcels of logs, and timber is processed in well-dispersed mills of varying size serving established local and regional markets. A key to the viability of forestry is government and/or European Union subsidies to offset the management costs of long rotations.

Lambert (2003) studied harvesting systems and technology designed for small-scale forests in Finland and Sweden where private forestry is successful using slow-growing species managed on long (at least 80 years) rotations. In Finland, private forest associations are highly organised, and the largest has 127 000 forest owners, representing nearly half of privately-owned forest in the country. The main lessons were: group-managed resources lead to a significant reduction in the overhead cost of harvesting; self-loading trucks are an important feature of successful small-scale harvesting systems; technology to allow measurement of log volumes by the harvesting machines has meant that haulage trucks do not need to be weighed for logs from each site, meaning that trucks can cart different log types, allowing maximum loads at all times, thus reducing costs.

Kevin (2005) studied farm forestry extension and education programs in countries (e.g. Denmark, Sweden, United Kingdom) undergoing rapid changes to rural land use and populations. The main findings were: farm forestry can play a key role in rural development; farm forestry can temper community angst created by industrial forestry expansion; and farm forestry can play a role in bridging the rural–urban divide. An example was given in central United Kingdom where farm forestry planned at a regional scale is driving rural development: reforestation by farmers and private landowners using public funds obtained under competitive tender has increased the amenity of the area, causing tourism to prosper, attracting new settlers and service industries, and strengthening the social capital within the rural community. Thus, by integrating farm forestry with other rural development activities, much wider benefits can be gained. An important caveat was that planning of such programs needs to include community aspirations as well as economic and environmental considerations.
What do we need to know?

Farm forestry is a sector that has been widely promoted as having an increasingly important place in the development of integrated forestry in multifunctional landscapes (e.g. Nuberg, George & Reid 2009). However, as found and reported in Output one of this study, there are serious gaps in the knowledge of the farm forestry sector in Victoria which is a significant impediment to understanding the future role of farm forestry (does it have a future?), how it might develop and what is required to stimulate the sector.

The knowledge gaps include:

- Lack of reliable and current information on the extent, quality and, importantly, the planned timing and likely market destination of the farm forestry resource;
- the capacity of the farm forestry sector to produce hardwood sawlogs, a looming resource deficiency at state and national levels given (1) declining supplies from public native forests, (2) the vast majority of the existing hardwood plantation estate will not produce logs suitable for a profitable solid wood products industry (Nolan et al. 2005), and (3) that Australia lacks a coordinated strategy to develop hardwood sawlog plantations (Kile 2005);
- the impact of fires and prolonged drought during the past decade on the growth and health of the farm forestry resource;
- an understanding of the harvesting and replanting intentions of the range of private non-industrial forest growers;
- an understanding of the commercial values of private native forests, and of the intentions of the owners of these forests; and
- knowledge of the factors that impact on decisions of private landowners related to farm forestry in all regions where farm forestry is currently practised.

How would the information be used?

Knowledge on the nature and extent of the farm forestry sector and the expected woodflows from this resource in terms of quantity, product type and timing is information required for policy development, regional planning, industry development and reporting on natural resource management, by such agencies and organisations as the Department of Agriculture, Fisheries and Forestry, the Victorian Department of Primary Industries, Catchment Management Authorities, Local Government Authorities, the National Plantation Inventory and the forestry industry.

Detailed inventory information provides the opportunity to conduct studies of the volumes of wood in farm forests on a regional basis (e.g. GPF 2009b). Such information conveys to existing and prospective markets the potential product yields that the farm forestry resource is capable of supplying on an ongoing basis, allowing markets to better factor this potential resource into their wood supply planning, and providing opportunities for better coordination of wood flows from this dispersed resource (GPF 2009b). That is, promoting the uptake of farm forestry requires development of adequate markets for the products of farm forestry and development of links between the growers and those markets (Schirmer, Kanowski & Race 2000).
In its ‘Action Plan for Private Forestry in the Central Victorian Farm Plantation Region (2006–2011)’, CVFP identified the need to undertake regional surveys for private forestry assets and to maintain a comprehensive private forestry database (Action 5.1.3) as a high priority (CVFP 2006, p. 33). The reason for this Action was:

‘The region requires up to date, accurate information on the location and extent of plantations and the growers involved in private forestry activity. Existing databases such as Vic Farm Tree need to be maintained and enhanced to ensure this information is available for appropriate purposes, including information dissemination, reporting to investor bodies and marketing.’ (CVFP 2006, p. 28).

Such information is especially important for regional planning. For example, spatial thematic mapping showing the anticipated level of production of wood from plantations in each local government area over each five-year period identifies potential haulage routes to processing centres across the region (CVFP 2009), which is an important consideration for local government and the community.

Knowledge of the harvesting and replanting intentions of the range of private non-industrial forest growers provides the private and public investors in the forest industry with important information, particularly in terms of estimating the timing, volume and product classes of timber likely to be harvested, and what further investment in forestry growers might make in the future.

In relation to private native forests, the financial and other benefits of actively managing these forests are not widely accepted as providing adequate incentives for investment (AFG 2008). It is AFG policy that there are reliable and accurate inventories of the extent, types, uses and values of private native forests to assist in the formulation of public policies and programs related to private resources.

Spatial information on all segments of the forestry resource is an important attribute for use in biosecurity planning and intervention should there be a major incursion or other biosecurity threat to the forestry sector.

Finally, qualitative data is a potentially a powerful source of information for informing development of policy and programs by governments at various levels. As explained by Race and Curtis (2007):

‘… those seeking to achieve the optimistic vision for farm forestry expressed in federal and state policies need to tailor policies and programs to match the social, economic and environmental context of different catchments, and address the realities of farm forestry as landholders perceive them’ (p. 176).

Given this background and context of farm forestry in Victoria, the following Sections provide a description of a project to gain a comprehensive understanding of the sector in order to better understand the future role of farm forestry and to inform development of policy and programs for the sector.
4.3 Project objectives

The proposed project aims to collect comprehensive and reliable information (quantitative and qualitative) on the nature and extent of the farm forestry sector in Victoria. The project has two main components as follows:

**Mapping and inventory project of the farm forestry resource**

The purpose of this component of the project would be to collect and consolidate spatially-referenced quantitative information on the statewide farm forestry sector, and to present this information in an electronic dataset. The information would allow analysis of the nature of the farm forestry resource including the area of farm forestry, species and age classes and likely production of commercial wood products.

The project would also provide recommendations for data storage and accessibility, and updating of data together with estimates of ongoing costs for data capture and maintenance.

**Qualitative survey of the farm forestry sector**

The purpose of this component of the project would be to collect qualitative information about the farm forestry sector in Victoria, to understand:

- the demographics of the Victorian farm forestry community, for example age, income, reliance on farm or off-farm income, property size;
- the factors which drive involvement by landholders in farm forestry and conversely those factors which deter involvement in farm forestry;
- identification of information and support requirements which might positively impact on the factors identified above and underpin successful involvement in farm forestry;
- potential mechanisms for communicating such knowledge and providing support to the Victorian farm forestry sector; and
- an estimation of the potential for farm forestry to expand and where this is most likely to occur in Victoria and its nature (species, products, size, type of grower).

4.4 Scope of the project

The scope of the project is described in terms of the categories of private forests to include, and the spatial coverage of the project.

**Category of forest**

The scope of the project should include:

- farm forestry plantations; and
- private native forests.

The category of ‘woody perennial fodder crops’ requires further consideration and discussion with stakeholders. This was used as a category in a recent survey of farm
forestry resources in Australia, and referred to such crops in drier regions as Tagasaste (Chamaecytisus palmensis) and Old Man Saltbush (Atriplex nummularia). Victoria was estimated to have 2000 to 5000 hectares of woody perennial fodder crops (URS Forestry 2008, p. 5).

‘Farm forestry plantations’ should adopt as its primary definition the definition of ‘farm forestry’ in the Farm Forestry National Action Statement:

‘… the combination of forestry activity with cropping and or livestock production. The focus of the forestry activity is primarily commercial, although there may also be other objectives including shade and shelter for stock or crops, natural resource management including soil and water protection, habitat conservation, landscape and amenity values. Farm forestry can take many forms, including plantations on farms, woodlots, timber belts, alleys, wide-spaced tree plantings and sustainably managed private native forests. Farm forestry plantations are predominantly of a smaller scale than industrial plantations and may have less emphasis on timber or fibre production as primary outputs.

Importantly, farm forestry is practiced by farmers and other landholders, using the resources and knowledge available to them. The farmer or landholder makes the critical decisions, from establishment and management to marketing of products and services. ’ (DAFF 2005, p. 1).

To provide guidance on the problem of quantifying scale for farm forestry, any private plantations that were not ‘industrial’ would be included as farm forestry, where ‘industrial’ is considered to be a corporate forestry enterprise that operates a plantation estate that has, or intends to have, a long-term wood supply contract.

Areas of managed investment schemes (‘MIS’) plantations where they were on farmer-owned leased land which formed part of a land holding on which farming practices were still undertaken, would be included as a category of farm forestry. While this is not consistent with the primary definition of farm forestry, in that the farmer or landholder does not make the critical decisions, from establishment and management to marketing of products and services, the rationale for including this category is that an understanding of this resource is important because at the end of the contract with the MIS, a farmer who had leased land for Blue Gum, for instance, may choose to manage the stumps to grow a farm forest from coppice.

Spatial coverage

The project would have a statewide perspective but would have regional elements. The regions would be based on the NPI regions (Figure 4, p. 63), to provide spatial concordance of the farm forestry information with the plantation forestry information collected and reported annually by the NPI. However, the NPI does not collect information for northern Victoria or north west Victoria (collectively ‘North west Victoria’), thus, for the project, the six regions would be:

The five NPI regions that are either wholly or partly in Victoria:

- Green Triangle (the south west Victoria part of the region);
• Central Victoria (wholly in Victoria);
• Murray Valley (the north east Victoria part of the region);
• Central Gippsland (wholly in Victoria); and
• East Gippsland / Bombala (the east Gippsland part of the region).

plus:
• North west Victoria.

4.5 Methods available for undertaking the project

The Consultant discussed methods available for undertaking the two components of the project with informants from service providers with demonstrated expertise in the field. The available methods include:

Mapping and inventory project of the farm forestry resource

The mapping and inventory project could be achieved by:

• creating maps of farm forestry plantations together with industrial plantations (designated softwood or hardwood);
• creating a database of nominated stand attributes for areas mapped as plantation;
• validating, by ground truthing, the collated plantation mapping and attribute data according to a nominated data source and verification schedule; and
• creating maps and spatially-referenced database information on stand attributes by region in a format that allowed analysis and compilation of the data at a statewide level.

This is similar to the methodology used successfully by the Plantations Victoria Inventory Project completed in 2004 (Appendix C). However, it is recommended that the project be conducted in two stages, with the first stage of the project being discovery of spatial datasets to be used in the mapping and inventory project, and recommendations about datasets to acquire and methods to generate the spatial layers and maps to be used in ‘ground truthing’ the farm forestry resource.

Qualitative survey of the farm forestry sector

There are two main methods for collecting qualitative information on the farm forestry sector: a mailed survey, or interviews with purposefully-selected informants.

For this project, the latter is recommended because it is technically feasible, has considerably lower risk and potentially could provide more in-depth understanding of factors affecting decisions of landowners and other investors about participation in farm forestry.

The difficulty with a mailed survey is constructing a mailing list that is up-to-date and reliable. The databases reviewed by the Consultant in this study are grossly inadequate for
the purpose of a mailed survey of farm forestry growers. If they were used as the basis of a mailed survey, there would be great difficulty in achieving an adequate response rate (at least 50 per cent) required for statistical analysis of information. Further, there would be even greater difficulty in identifying potential new participants in farm forestry to include in a mailed survey.

On the other hand, drawing on existing networks and the output from a new mapping and inventory project of the farm forestry sector, it would be relatively straightforward to identify farm forestry growers who could be formally approached via networks about participating in an interview to capture qualitative information. The method could include:

- identification of segments of the farm forestry sector for interview (e.g. based on region, size of farm forestry area, species, proximity to markets);
- obtaining from a person with farm forestry who was interviewed, a personal introduction to neighbours who had not participated in farm forestry, but would be suitable people to interview about factors affecting their decision not to participate – such people would be in the same economic wood supply zone, would have land with broadly the same agronomic potential, would have seen their neighbours with forestry, and would have been exposed to the same general media. That is, this approach removes many of the variables that differentiate participants and non-participants in farm forestry;
- interview, for example, six people with farm forestry and three without farm forestry in each of the six regions (N = 54). This provides the opportunity to spatially reference the information;
- conduct face-to-face interviews (telephone interviews are shallower; ‘cold’ calls are problematic), and conduct interviews region by region to allow the researcher to become immersed in a region; and
- conduct focus group workshops to verify findings.

Specific groups of farm foresters also provide an opportunity to understand the demographics of such participants. For example, it might be possible to collaborate with the Master TreeGrower organisation and analyse the demographics of its participants – arguably a committed, engaged and informed sector of the farm forestry community.

4.6 Project outputs

Mapping and inventory project of the farm forestry resource

The main outputs of the project would be similar to those produced by the ‘Plantations Victoria Inventory Project’ completed in 2004 (Appendix C). Specifically, the outputs would be a consolidated electronic dataset that comprised:

1. A file on CD containing the digital polygon coverage of all the farm forestry plantation areas in each region identified via the project methodology. The file would be in ArcInfo compatible format (or other suitable format as determined by the project), and would be coupled with an attributes database also in ArcInfo compatible format containing, for each plantation stand, the following information: local
government area (‘LGA’), species, year planted, unique stand identification number, area planted (hectares), owner/manager (where readily available), contact for owner/manager (where readily available), data source, owner type, previous land-use, AMG grid reference, 1:50 000 map sheet number. This data (polygons and attributes) would be presented in a manner that could be viewed, analysed and edited by the client using ArcView software.

2. A file on CD containing the above polygon coverage, in conjunction with 1:25 000 digital topographic data for roads, road names, hydrology and locality names, plus LGA boundaries and AMG gridlines, presented in Adobe Acrobat PDF format; together with the above attributes data converted to Microsoft Excel format, also presented in PDF format. This version of the data would subsequently be provided by the client to appropriate stakeholders in read-only format, and would have some ownership details masked as determined by the client.

3. One set of hardcopy maps (at 1:50 000 scale) showing the polygon and topographic coverage specified in point two above for the entire area of each region, along with a hardcopy version of the attributes data presented in Microsoft Excel format.

4. All data compiled via this project would belong to the clients.

**Qualitative survey of the farm forestry sector**

The project output would be hardcopy versions (and an electronic version) of the final report that would outline and discuss:

- the background and objectives of the study, and methods used;
- the key findings by theme for different segments of the farm forestry sector;
- the views and values expressed by a range of farm forestry growers, potential farm forestry participants, and focus groups;
- implications of the findings for support mechanism that might underpin successful participation in farm forestry;
- implications of the findings for potential mechanisms for communicating knowledge to support the farm forestry sector;
- discussion of relevant lessons from research in other regions; and
- other matters that may be appropriate to consider.
4.7 Project timelines

Indicative timelines for the project are provided in the following table:

<table>
<thead>
<tr>
<th>Project</th>
<th>Months from project commencement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21</td>
</tr>
<tr>
<td>Mapping &amp; inventory</td>
<td></td>
</tr>
<tr>
<td>Stage one</td>
<td></td>
</tr>
<tr>
<td>Stage two</td>
<td></td>
</tr>
<tr>
<td>Qualitative survey</td>
<td></td>
</tr>
</tbody>
</table>

Practically, this timeline would span the financial years 2009–2010 to 2010–2011.

4.8 Indicative budget

An indicative budget for the project, spread over the two financial years (2009–2010 to 2010–2011) is $250 000. The costs of the two main components of the project are: a mapping and inventory project of the farm forestry resource ($150 000), and a qualitative survey of the farm forestry sector ($100 000).

**Mapping and inventory project of the farm forestry resource**

Stage one of this project is discovery of spatial datasets to be used in the mapping and inventory project, and recommendations about datasets to acquire and methods to generate the spatial layers and maps to be used in ‘ground truthing’ the farm forestry resource. Estimated cost $25 000.

Stage two of the project is to prepare the spatial layers and maps for six regions, to cross-reference spatial information against existing information, and to prepare attribute tables for the farm forestry resource using existing information supplemented by ground truthing as required. Estimated cost $125 000.

**Qualitative survey of the farm forestry sector**

A qualitative survey of existing farm forestry growers and potential participants in farm forestry would be undertaken in strategically selected segments of the farm forestry sector, and would follow the mapping and inventory project. Estimated cost $100 000.

4.9 Structure for project management and potential collaborators

The project should be managed by an organisation that provided a statewide perspective on farm forestry.

A project Steering Committee would be established to manage the project. Potential members of the Steering Committee would be: Australian Forest Growers, Department of Primary Industries, Farm Forest Growers Victoria, National Plantation Inventory, Timber Towns Victoria.
There is a range of organisations who could be potential collaborators in the project, including service providers, research organisations, farm forestry groups, industrial plantation companies and organisations, and government agencies. These include CSIRO, Catchment Management Authorities (e.g. access to aerial photography), and Local Government Authorities.

4.10 Linkage to the National Plantation Inventory

The National Farm Forest Inventory (‘NFFI’) was established in November 1998 to work with regional, State and other stakeholders to facilitate the collection and interpretation of farm forest data. The NFFI collated the first, and so far only, comprehensive national inventory of farm forests in Australia, that was published in 2001 (see Wood et al. 2001).

Although there is no longer a separate farm forestry inventory at a national level, the National Plantation Inventory (‘NPI’) includes available data on farm forests which is combined with other data for plantations (Parsons, Gavran & Davidson 2006).

The NPI has prepared a NFFI template that can be used by farm foresters who wish to include basic data about their forests in the national inventory of plantations.8

Basic information collected in a Victorian farm forestry inventory would obviously be contributed to the NPI. Furthermore, the NPI remains a logical central repository for such information and should be fully engaged in a Victorian farm forestry inventory project.

4.11 Conclusion

The project described in Output two is technically feasible because it draws on methods that have been successfully applied in the Victorian context. There are service providers with the necessary skills and capability to undertake the project, and there are organisations with the capability of managing the project.

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References

AFG – see Australian Forest Growers.


BRS – see Bureau of Rural Sciences.


COAG – see Council of Australian Governments.


CVFP – see Central Victorian Farm Plantations.

DAFF – see Department of Agriculture, Fisheries and Forestry.


DNRE – see Department of Natural Resources and Environment.

DPI – see Department of Primary Industries.

DSE – see Department of Sustainability and Environment.

FAO – see Food and Agriculture Organisation of the United Nations.


GPF – see Gippsland Private Forestry.


Lambert, J. (2003). *Investigation of economically viable systems that have been specifically developed for the harvest of small plantation resources (Fellow’s Report)*. Canberra: The Winston Churchill Memorial Trust.


MPIGA – see Montreal Process Implementation Group for Australia.


PA – see Plantations for Australia: The 2020 Vision.


PVIC – see Plantations 2020 Vision Implementation Committee.


VAFI – see Victorian Association of Forest Industries.


Appendices

Appendix A: Sources of information

The following organisations were contacted by the Consultant and provided information for the study during May and June 2009. Their assistance is gratefully acknowledged.

- Australian Forest Growers (‘AFG’) (National office)
- Ballarat Region Treegrowers (AFG branch)
- Box Ironbark Farm Forestry Network
- Central Victorian Farm Plantations
- Corangamite Farm Forestry Network
- Department of Primary Industries, Victoria
- Ecosystems Management Pty Ltd
- Farm Forest Growers Victoria
- FFORNE Hardwood Cooperative Ltd
- Forestry SA
- Gippsland Agroforestry Network (AFG branch)
- Gippsland Private Forestry Inc.
- Green Triangle branch of the AFG
- Green Triangle Regional Plantation Committee
- Melbourne branch of the AFG
- National Plantation Inventory, Bureau of Rural Sciences
- Northern United Forestry Group
- Otway Agroforestry Network
- Plantations North East Inc.
- Shepparton Irrigation Region Farm Forestry Network
- SMARTimbers (a central Victorian landholder cooperative)
- SERIC (South East Resource Information Centre)
- South West Agroforestry Network
- Wimmera Agroforestry Network
## Appendix B: Summary of information on farm forestry in Victoria held in databases

<table>
<thead>
<tr>
<th>Organisation / Group</th>
<th>Information held in database</th>
<th>Comment about information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian Forest Growers (National office)</td>
<td>Contact details for members in branches. Area of members’ forests.</td>
<td>Area of forests only captured when members join AFG. Information is dated.</td>
</tr>
<tr>
<td>Green Triangle branch of the AFG</td>
<td>Contact details for members.</td>
<td>No information held on members apart from mailing contacts.</td>
</tr>
<tr>
<td>Ballarat Region Treegrowers (AFG branch)</td>
<td>Contact details for members.</td>
<td>No information held on members apart from mailing contacts.</td>
</tr>
<tr>
<td>Gippsland Agroforestry Network (AFG branch)</td>
<td>Contact details for members.</td>
<td>No information held on members apart from mailing contacts.</td>
</tr>
<tr>
<td>Green Triangle Regional Plantation Committee (PFDC)</td>
<td>No database.</td>
<td>Has access to electronic data on spatial distribution of plantations and plantation woodflows developed by SERIC.</td>
</tr>
<tr>
<td>South West Agroforestry Network</td>
<td>Contact details for members. Plantation area x species.</td>
<td>Database incomplete and out-of-date.</td>
</tr>
<tr>
<td>Wimmera Agroforestry Network</td>
<td>Contact details for members.</td>
<td>Another database (location unknown) with plantation area x species was maintained until 2008 by DPI person.</td>
</tr>
<tr>
<td>Northern United Forestry Group</td>
<td>Contact details for members.</td>
<td>Currently collating information on plantation area x species for farm forests owned by members.</td>
</tr>
<tr>
<td>Corangamite Farm Forestry Network</td>
<td>Contact details for members.</td>
<td>Previously had a database (started in 1994) of farm forests in region, set up in Treedat software. Database is now a mailing list.</td>
</tr>
<tr>
<td>Name</td>
<td>Contact details for members</td>
<td>Have started a project to prepare a GIS layer showing point locations of members’ farm forests (Manifold® System).</td>
</tr>
<tr>
<td>----------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Otway Agroforestry Network</td>
<td>Contact details for members.</td>
<td>For Farm Forestry Networks, the most comprehensive and up-to-date database viewed. Has been set up using the NFFI template.</td>
</tr>
<tr>
<td>Shepparton Irrigation Region</td>
<td>Contact details for members, plus stand attributes (plantation area x species x age x LGA, etc).</td>
<td>Database on stand attributes has not been updated for several years.</td>
</tr>
<tr>
<td>Farm Forestry Network</td>
<td>Contact details for members, plus stand attributes (plantation area x species x age, etc).</td>
<td></td>
</tr>
<tr>
<td>FFORNE Hardwood Cooperative Ltd</td>
<td>Contact details for members.</td>
<td></td>
</tr>
<tr>
<td>SMARTimbers (a central Victorian landholder cooperative)</td>
<td>Contact details for members.</td>
<td></td>
</tr>
<tr>
<td>Farm Forest Growers Victoria</td>
<td>Contact details for members.</td>
<td></td>
</tr>
<tr>
<td>National Plantation Inventory, Bureau of Rural Sciences</td>
<td>Captures some farm forestry information each year as provided using the NFFI template by various groups.</td>
<td>Farm forestry information is incomplete and is aggregated with industrial plantation data and reported annually by NPI region.</td>
</tr>
<tr>
<td>Primary Industries and Resources, South Australia</td>
<td>Use ArcView as GIS platform for mapping and maintaining database. Provides data to SERIC as a layer of hardwood and softwood plus age.</td>
<td>Information is current. Includes some information for the Victoria part of the Green Triangle.</td>
</tr>
<tr>
<td>SERIC (South East Resource Information Centre)</td>
<td>Collates industrial plantation data and some farm forestry information, aggregated for the Green Triangle.</td>
<td></td>
</tr>
</tbody>
</table>

Contacts for Australian Forest Growers branches can be found at the AFG website (http://www.afg.asn.au/branches/afg_branches.html).

Contacts for farm forestry networks can be found at the website of Australian Agroforestry (http://www.mtg.unimelb.edu.au/AgroNews/subscribe.htm).
Appendix C: Plantations Victoria Inventory Project

Project description

The Department of Sustainability and Environment (‘DSE’) and the Private Forestry Development Committees (‘PFDC’) operating in Victoria jointly sponsored the project. Through the Forests Service, DSE provided technical support to the project, and access to appropriate DSE corporate datasets (including roads, streams and some plantation boundaries) and recent satellite imagery. Project tasks were carried out by Ecosystems Management (Aust) Pty Ltd.

The plantation mapping data was compiled to provide a regional aggregate overview of the regions' plantation resources. It was produced using a range of data sources (e.g. Plantations 100, FFORNE digital data, satellite imagery 2004, HVP Plantations digital data, DPI), each with differing degrees of accuracy and reliability. It should only be used to gain a strategic regional perspective of the nature and distribution of the plantation resource, and it was not intended to depict individual stand boundaries or areas at a high level of accuracy.

North east Victoria was originally mapped in 2001 and revised in 2004. Plantations that were established between 2000 and 2004 were mapped where data was available at the time of data collection. Plantation mapping was completed for Central Victoria in 2004. Plantations that were established between 2000 and 2004 were mapped where data was available at the time of data collection.

Project output

The data contained on the CD represented the culmination of the project. For each of the three PFDC areas, the CD had 1:50 000 map sheets that covered the entire area, and an associated table showing data on each plantation on each map sheet. Each plantation had an ID number unique to the 1:50 000 map and table.

Specifically, the output was:

- A file on CD containing the digital polygon coverage of all the plantation areas in the region identified via the Project methodology. The file was to be in ArcInfo compatible format, and was coupled with an Attributes database also in ArcInfo compatible format containing the information for each plantation stand. This data (polygons and attributes) was to be presented in a manner that could be viewed, analysed and edited by the client using ArcView software.

- A file on CD containing the above polygon coverage, in conjunction with 1:25 000 digital topographic data for roads, road names, hydrology and locality names, plus Local government area boundaries and AMG gridlines, presented in Adobe Acrobat PDF format; together with the above attributes data converted to Microsoft Excel format, also presented in PDF format. This version of the data was subsequently provided by the client to appropriate stakeholders in read-only format, and had some ownership details masked by the client.
• One set of hardcopy maps (at 1:50 000 scale) showing the polygon and topographic coverage for each region, along with a hardcopy version of the attributes data presented in Microsoft Excel format.

Attributes data supplied for each stand mapped in the project:
The minimum set of attributes recorded for each stand was:

• Municipality
• Species (see below)
• Year planted (recorded as actual year of planting or Age-class where appropriate) (see below)
• Unique stand identification number
• Area planted (ha)
• Owner/manager (where readily available)
• Contact name and telephone number (where readily available)
• Data source
• Data reliability (see below)
• Owner type (see below)
• Previous land use (see below)
• AMG grid reference
• 1:50 000 map sheet number

Attribute codes used in the data table

Plantation year
As specified or: 0 Unproductive Plantation; 1 Productive Plantation - not planted; 1960 Planted pre 1970; 9999 Planted but year planted unknown.

Species
As specified or 9999 Unknown.

Previous land-use
1 Cleared agricultural land; 2 Plantation forest; 3 Native grassland; 4 Native forest; 5 Other; 11 Unknown.

Ownership category
1 Landowner trees on landowner land
2 Joint venture between landowner and private investor
3 Joint venture between landowner and Crown investor
4 Private company trees on private company land
5 Private company trees on Crown land
6 Crown owned trees on Crown land
7 Crown owned trees on leased private land
8 Annuity or lease arrangement between landowner and private investor
9 Annuity or lease arrangement between landowner and Crown investor
10 Other
11 Unknown

Dealing with clusters of plantations
Due to the relatively broad scale of this mapping, clusters of small plantations were difficult to display legibly on the 1:50 000 maps. As a result, these small polygons were aggregated with similar larger polygons in the North East 2001 project, leading to an over-estimation of area. The North East 2004 plantation review project did not aggregate polygons, rather a process of blocking similar polygons occurred, and the plantation data was subtotaled in the tables. This ensures the area statements are accurate and also ensures the corresponding tables are not excessively long.

Data reliability / accuracy

1 Digital
Attribute information provided by plantation owner / manager in digital or hardcopy format. Plantation may or may not have been sighted during field inspection process.

2 Inspection
Plantation inspected as part of audit process. Species identification, area statements and age class information derived from existing attribute information and validated or amended as result of inspection.

3 Stakeholder information, validated
Data from indicated data source and validated by reliable stakeholder source with evidence of supporting documentation. Plantations not field inspected.

4 Stakeholder information, validated
Data from indicated data source. Validation information provided by stakeholders with general knowledge of the resource. Plantations not field inspected.

5 Status Quo
No change to attributes from existing plantation coverage and attributes.

Data custody
The data is copyright to the State of Victoria, Department of Sustainability and Environment, 2004, but DSE and the respective regional committees (Central Victorian Farm Plantations Inc., Plantations North East Inc. and Gippsland Private Forestry Inc. are joint custodians of the final dataset.

Data for Central Victoria can be viewed at the website of Central Victorian Farm Plantations (http://www.cvfp.org.au/cvpri2004/VICIndex.htm).
Appendix D: Schematic of farm forestry in Victoria

Victoria’s farm forestry networks and related entities

**National**

- **DAFF** (Department of Agriculture, Fisheries and Forestry)
- **ASFI** (Australian Sustainable Forestry Initiative)
- **AFG** (Australian Forestry Group)
- **IFSA** (International Forestry Science Alliance)
- **DAFF / DEWHA** (Department of Environment, Water, Heritage & Arts)

**Victoria**

- **Department of Primary Industries**
  - **Future Farming Strategy 2008**
  - **Department of Sustainability & Environment**
  - **Trees Victoria**
  - **Private Forestry Development Committee**
  - **Private Forestry**
  - **Private Forestry Development Committee**
  - **Department of Primary Industries**
  - **Timber Towns Victoria (TTV)**
  - **Municipal Association of Victoria (MAV)**

**Regional**

- **Regional Catchment Management Councils**
  - **79 LGA's in Victoria**
  - **CMA Regional Catchment Strategies**
  - **SMARTimbers**
  - **FFORNE**
  - **Timber Industry**
  - **TVP**

Note: The diagram aims to show the main entities and linkages related to farm forestry in Victoria. There are many other linkages not shown. Many people representing these entities have multiple interests in natural resource management and/or farm forestry.

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Appendix E: Brief for Victorian Farm Forestry Inventory Scoping Project

Output one

The purpose of Output one is to provide an understanding of the farm forestry sector drawing on existing data and knowledge from farm forestry networks. This would inform the development of a fully scoped proposal to undertake a detailed inventory of farm forestry in Victoria.

The method proposed to conduct Output one is to review existing databases together with literature in conducting the study. This would provide the quantitative data for the study. To supplement this data, qualitative information would be collected from selected people representing farm forestry networks to assist in identifying gaps in knowledge of the extent of the farm forestry resource. Methods for collecting new quantitative and qualitative data would be part of the project proposal prepared under Output two.

Accordingly, we propose that the detailed information for Output one comprises the following six Tasks:

5. Describe the size and location of Victoria's farm forestry estate (hectares) based on existing databases and literature, supplemented by qualitative information from selected participants from farm forestry networks.

6. Estimate the number of growers actively involved in farm forestry based on information collated under Task one. This will include some breakdown of their demographics, farming systems and occupations as available from the literature.

7. Describe the predominant tree species that make up the farm forestry estate based on information collated under Task one.

8. Estimate the volumes of wood that the known farm forestry estate could supply on an annual basis over the next 20 years based on information collated under Task one combined with regional estimates of farm forestry growth rates inferred from data on industrial plantation productivity.

9. Describe key markets that are currently supplied with farm forestry timber and potential future markets based on qualitative information from selected participants from farm forestry networks.

10. Prepare a detailed list (schematic diagram) of Victoria's farm forestry networks/grower organisations (such as Trees Victoria – if formed) and links to FFGV or other non-affiliated umbrella groups.

Output two

We propose that Output two – a fully scoped project proposal to undertake a detailed inventory of farm forestry in Victoria – comprises the following eight Tasks:

1. Drawing on the findings from Output one; prepare a rationale for a detailed inventory of farm forestry in Victoria, including the state-wide context for the project, the stakeholders and its relevance to Government policies and strategies.
2. Describe the scope of the project, including a workable definition of ‘farm forestry’, project objectives, methods, outputs, timelines, indicative budget, potential collaborators.

3. Describe the range of methods available for undertaking the project including their technical feasibility and risks and recommend a methodology for the project.

4. Project outputs may include but not be limited to:
   a. the nature of the farm forestry resource including the area of farm forestry, species and age classes and likely production of commercial wood products;
   b. recommendations for data storage and accessibility, and updating of data together with estimates of ongoing costs for data capture and maintenance;
   c. the demographics of the Victorian farm forestry community, for example age, income, reliance on farm or off-farm income, property size;
   d. the factors which drive involvement by landholders in tree growing and conversely those factors which deter involvement in tree growing;
   e. identification of information and support requirements which might positively impact on the factors identified above and underpin successful involvement in farm forestry;
   f. potential mechanisms for communicating such knowledge and providing support to the Victorian farm forestry sector; and
   g. an estimation of the potential for farm forestry to expand and where this is most likely to occur in Victoria and its nature (species, products, size, type of grower).

5. Give consideration to the linkage and compatibility of farm forestry inventory data with data collected by the National Plantation Inventory.

6. Recommend a structure for managing the project including reporting and monitoring.

7. Prepare a timeline charting activities, milestones and key outputs for the project.

8. Prepare a budget schedule for the project.

**Report and payment milestones**

1. Signing of the contract – 50% payment.

2. Supply draft report to DPI (due 12 June 2009) – 40% payment.

Figure 1 National Plantation Inventory regions

Figure 2 Private Forestry Development Committee Areas

Figure 3 Farm Forestry Networks

Source: DNRE (2001, p. 3).
Figure 4  **Plantation forestry resources in Victoria, shown by National Plantation Inventory region, at 2005**

*Source: Plantation Information Network, Bureau of Rural Sciences*
Figure 5  Overview of regional typologies related to farm forestry resources