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It is the paper published as:

Author: H. T. L. Stewart, D. H. Race and A. L. Curtis
Title: Demographic change and the implications for commercial forestry: Lessons from south-east Australia
Year: 2011
Editor: G. W. Luck, D. Race and R. Black
Book Title: Demographic change in Australia’s rural landscapes: Implications for society and the environment
Place: Collingwood
Publisher: CSIRO Publishing and Springer
Pages: 207-231
Edition: 1
ISBN: 9789048196524


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CRO Identification Number: 24615
9 Demographic change and the implications for commercial forestry: Lessons from south-east Australia

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Abstract

Plantation forestry policy in Australia is driven by a strategy with a notional target of trebling plantations from one million hectares to three million hectares between 1997–2020. Development of new plantations is focused on agricultural land in the high rainfall regions of Australia – the most densely populated part of the country, with rural landscapes undergoing profound change in demographics, employment, land tenure and management, and evidence of the decoupling of land prices and agricultural returns from the land as new settlers enter the rural property market. Results of plantation expansion were compared in two case study regions – the Murray Valley and the Green Triangle – in south east Australia known to be undergoing differential rates of socio-economic change. In the Murray Valley region, a multifunctional landscape in that socio-economic change was bringing about more diversity and complexity in the way that rural landscapes were operated and used, plantation forestry had experienced difficulty in meeting expansion targets because of the high price of land driven primarily by buyers from Melbourne, and the generally low social acceptability of forestry. Further, the management of existing plantations was becoming more complex as a consequence of new neighbours with different values to long-term farmers. In contrast, in the Green Triangle, which was comprised of agricultural production and transitional landscapes, plantation expansion was occurring at a rate broadly expected by the forestry industry. Key strategies to increase the social acceptability of forestry in multifunctional landscapes, including integrated forestry development, are discussed.

9.1 Introduction

In Australia, plantation forestry policy is driven by ‘Plantations for Australia: The 2020 Vision’ (‘Plantations 2020’) launched in 1997 by government and the plantation industries, with a national target of trebling the area of plantations from one million hectares to three million hectares during 1997 to 2020 (PVIC 1997). This expansion is occurring on agricultural land in the high rainfall regions of southern
and eastern Australia. These rural landscapes are the most densely populated regions of Australia outside major cities (Haberkorn et al. 2004), and are undergoing profound change in demographics, employment, land tenure and management (Gray and Lawrence 2001, Alston 2004, Barr et al. 2005).

While some of these landscapes may outwardly appear to be an ‘agricultural production’ landscape in that agriculture is the dominant land-use, the role of agriculture is diminishing in rural areas where there are new settlers with employment in other sectors, who may bring different approaches to the use of rural land. Where farming is undergoing social and economic transition, debate has centred on the extent to which this phenomenon signifies ‘new’ or ‘post-productivist’ landscapes (e.g., Argent 2002, p. 98; Barr and Wilkinson 2005, p. 1497; Mather et al. 2006, p. 442), and whether ‘post-productivist’ is better expressed as ‘multi-functionality’ (Holmes 2002, Bjørkhaug and Richards 2008) in that agriculture produces multiple benefits that sustain rural landscapes (Potter and Burney 2002).

In another construct specific to the State of Victoria, the main rural landscapes were broadly classified as ‘agricultural production’, ‘rural amenity’ and ‘transitional’ (Barr 2005, p. 1). This typology has informed to a large extent the State Government’s perspective on socio-economic changes in rural areas (e.g., DPI 2008), and is problematic for the forestry industry as there are substantial areas of agricultural land with capability for plantation development in the so-called rural amenity landscapes.

Our research addressed the extent to which socio-economic changes in rural landscapes influenced the achievement of the government and industry strategy to expand plantation forestry, and the management of existing plantation forests. The research was grounded in the experiences of a range of stakeholders in two plantation regions in south east Australia known to be undergoing differential rates of socio-economic change and plantation expansion.

9.2 Research methods

The research approach involved the use of multiple methods to collect data in plantation regions selected as case studies. Research methods were semi-structured interviews with a purposeful sample of informants from stakeholder groups, and analysis of longitudinal quantitative information to understand socio-economic trends in the case study regions. The interviews were framed by themes that emerged from an extensive literature review, and content analysis was applied to the qualitative data.

1 Regions that receive, on average, at least 600 mm of annual rainfall.
9.2.1 Selection of case studies

The primary case studies were two regions of the National Plantation Inventory (‘NPI’), the Murray Valley region (NPI region 11, Fig. 9.1) and the Green Triangle region (NPI region 4, Fig. 9.1). These were selected because of their national recognition as plantation regions with established plantation forestry industries, their different socio-economic characteristics, and their different levels of success in achieving plantation expansion.

The NPI regions, identified by government and industry, represent zones of economic wood supply (NFI 1997). Because such zones are not constrained by political borders the two case study regions spanned three States, but Victoria was common to both (Fig. 9.1).

In regard to the part of the case study regions in the State of Victoria, a perspective of the Victorian Government (the Department of Primary Industries), informed by the research of Barr (2005, p. 1), was that most of the Murray Valley was an amenity landscape whereas the Green Triangle comprised agricultural production and transitional landscapes (DPI 2008). In an amenity landscape, the population would be expected to be rising and this was a key factor in the choice of the Murray Valley region for inclusion in the study. The Victorian Government’s population forecasts of population growth for Local Government Areas (‘LGA’) within this region up to the year 2020 (DSE 2004) were used to confirm this choice.

Both regions had substantial plantation forestry industries, and were earmarked by the forest industry for plantation expansion, but had achieved different levels of success. Plantation expansion in the Green Triangle was occurring at a rate broadly expected by industry, but in the Murray Valley it was low save for some recent expansion in southern New South Wales. While recognising that the regions had different market dynamics, other potential factors underlying the differences in forestry activity were not readily apparent as both regions had substantial areas of agricultural land with capability for plantations and both regions operated under a supportive national plantations policy.

In order to share the same State policy environment relating to forestry and to be informed by the landscape typology of Barr (2005), the research in the two NPI regions was grounded in Victoria.

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2 There are 15 National Plantation Inventory regions in Australia that form the basis for regional reporting of plantation statistics (Wood et al. 2001).
3 An LGA is a spatial unit in the Australian Standard Geographical Classification that is commonly used by the Australian Bureau of Statistics to disseminate demographic statistics (ABS 2001).
4 The rate of expansion in the Murray Valley region during 2001 to 2007 was 14 960 hectares compared with 97 936 hectares for the Green Triangle region (Gavran and Parsons 2008, p. 4; Wood et al. 2001, p. 19).
9.2.2 Sources of data and methods of collection

Longitudinal statistical data were sourced from the Australian Bureau of Statistics (‘ABS’) for the Australian Censuses of Population and Housing during 1991 to 2001. Rural property sales data for the State of Victoria for 1995 to 2006 were accessed through the Office of the Valuer-General and customised for research purposes for the exclusive use of Charles Sturt University.

These data were collected at the spatial level of LGAs. This ABS statistical boundary is a common geographic unit used to define regions because the local government authorities that administer LGAs control development. However, the two NPI regions used as case studies are not part of the Australian Standard Geo-
The Green Triangle plantation region spreads from the south east corner of South Australia to the south west corner of Victoria in south east Australia, and its commercial centre is the city of Mount Gambier (population 22,750 in 2001) located approximately 440 km south east of Adelaide and 550 km west of Melbourne. The Murray Valley plantation region spreads from Melbourne to just short of Yass in south east New South Wales, with Albury–Wodonga its commercial centre (population 73,468 in 2001) (ABS 2003).
9.3 Characteristics of socio-economic changes and factors influencing the changes

The main trends in population and employment in primary industries are presented as background to the information provided by stakeholders about the extent to which there were changing landscapes and the drivers of those changes.

Time series statistics on population, agriculture and rural property value were the main sources of quantitative data used to make informed judgements of the extent to which particular regions were agricultural productivist landscapes, or were uncoupling from their dependence on primary production and emerging as new or multifunctional landscapes.

9.3.1 Population changes

The population of a region is a fundamental indicator of human capital, and the rate and direction of population change is an indication of the ability of a region to attract and retain residents (Webb and Curtis 2002). There is substantial population variation within regional Australia (Hugo 2002), and an understanding of population change is important to understanding socio-economic outcomes in rural areas (Baum 2006). The main characteristics of regions likely to lose population were dependence on farming (Johnson and Beale 1994, Argent 2002), remoteness from metropolitan areas, low population density, and a low level of natural amenity (McGranahan and Beale 2002). Results from the case studies were consistent with these findings, as evidenced by the different trajectories of population change for the Murray Valley and the Green Triangle regions.

Specifically, the total population of the Murray Valley region increased by 4.7% during the 10-year period of 1991 to 2001, while the total population in the Green Triangle region declined by 5.6% over the same period. The regions had different population densities (4.5 people per square km in the Murray Valley in 2001 compared with 1.9 people per square km in the Green Triangle) (ABS 2003), different levels of amenity, with large areas of the Murray Valley characterised as amenity landscapes (Barr 2005), and different levels of proximity to urban centres, with the Green Triangle more remote from metropolitan areas.

However, there was substantial variation in the geographic distribution of population change: in the Murray Valley, the change in total population among the LGAs ranged from an increase of 17% to a decline of 11%, and in the Green Triangle it ranged from an increase of 16% to a decline of 15% (ABS 2003). In the Murray Valley, for example, the highest population growth occurred in LGAs

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5 Population statistics are based on analysis of enumerated population excluding overseas visitors.
closest to Melbourne and the provincial centre of Albury–Wodonga. Such spatial selectivity of population growth has been a common phenomenon in rural Australia (Tonts and McManus 2000).

An important population cohort is the ‘youth’ component (people aged 15 to 24 years) (Haberkorn et al. 2004, p. 8). Youth migration is a factor in the decline of rural areas, indicative of a lack of education services and employment opportunities (Gabriel 2002). In the Murray Valley region, the youth cohort of the population fell in each census year from 1991 to 2001, and over that period there was a decline by 7.7% in the size of the youth population, but there was a larger decline in this cohort in the Green Triangle region (19.6%) (ABS 2003). The loss of rural youth skews populations to an older demographic (Webb and Curtis 2002).

9.3.2 Employment dynamics

Employment in primary industry

The role of primary industry (agriculture, forestry and fishing) in the Australian economy, measured by its contribution to total employment, has decreased substantially in the past 40 years. Primary industry’s share of employment has more than halved since the mid-1960s, when it accounted for 10% of the workforce compared to 3.8% of the workforce in 2004–2005. However, primary industry remains an important employer in rural and regional Australia, and in 2001 accounted for almost 14% of non-metropolitan employment (PC 2005, ABARE 2006).

The proportion of people employed in the agriculture, forestry and fishing sector in the Murray Valley is similar to that in non-metropolitan Victoria, but less than half the proportion in the Green Triangle region. During 1991 to 2001, the trend in the Murray Valley and non-metropolitan Victoria was decreasing dependence on agriculture, forestry and fishing for employment whereas in the Green Triangle region the level of dependence was similar (Table 9.1).

Table 9.1. Employment in the rural industries in the Murray Valley region, the Green Triangle region and non-metropolitan Victoria, 1991 to 2001 (ABS 2003)

<table>
<thead>
<tr>
<th>Region</th>
<th>1991</th>
<th>1996</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Murray Valley region*</td>
<td>10.9%</td>
<td>10.4%</td>
<td>10.1%</td>
</tr>
<tr>
<td>Green Triangle region†</td>
<td>27.6%</td>
<td>28.7%</td>
<td>28.1%</td>
</tr>
<tr>
<td>Non-metropolitan Victoria‡</td>
<td>12.5%</td>
<td>12.4%</td>
<td>11.2%</td>
</tr>
</tbody>
</table>

* Region as defined in the National Plantation Inventory (Wood et al. 2001, p. 84) and represented by 17 Local Government Areas (‘LGAs’) for the Murray Valley and 10 LGAs for the Green Triangle.
Persons employed in agriculture, forestry and fishing as a proportion of total persons employed.

All Victoria outside the Melbourne Statistical Division.

Off-farm employment

A dimension of the concept of post-productivist agriculture is increased off-farm employment, or an increase in pluriactivity (Evans et al. 2002). Statistical data were not available to examine trends in off-farm income in the case study regions, so this was explored through interviews, which revealed that off-farm income was an important part of the livelihood of farmers, and came from diverse sources of employment and business.

Two-thirds of the farmers, and three-quarters of the farmers with farm forestry that were interviewed had off-farm income. This was an important part of their household income (“… in good years the farm only just breaks even, without paying me a wage”). Another commented: “… most of the farmers are dependent on off-farm income to survive”. Off-farm sources of income were diverse, and included contracting businesses, employment in regional centres and surrounding districts, government superannuation, pensions, and residential property investment.

An informant from a financial institution had a client base of more than 200 farm businesses in the Murray Valley (north east Victoria and southern New South Wales) that were mainly beef and dairy enterprises. About 70 to 80% of these clients had off-farm income, and many would earn more off-farm than on-farm. A senior staff member of another financial institution operating in the same general area reported that off-farm income was increasing – it was important for cash flow and nearly every young farmer had a job in town to maintain the lifestyle of their family with that of their peers.

9.3.3 Purchase of rural property

The value of land for agriculture

Data on sale price of rural properties were used to examine trends in the market value of land in relation to its underlying value for agriculture. The idea of constructing a measure of the affordability of land for agriculture as an indicator of changing social landscapes was used by Barr (2005) in Victoria, and Race et al. (2005) found evidence of the ‘uncoupling’ of land prices from the agricultural value of land from interviews with rural landowners in southern New South Wales.
Data were obtained for all sales of rural properties that were 10 hectares or more in area from 1995 to 2005 in Victorian LGAs in the case study regions. Results are presented as the ratio of the median property sale price to the estimated value of the land for broadacre agriculture. The latter was estimated from net farm income, which was taken as the expected value of future income from agriculture, using capital asset price theory. That is, the value of land today can be represented as the discounted sum, or present value, of the expected value of future income or rents, with the opportunity cost of investing in the land being the discount rate (Alston 1986, Clark et al. 1993). The annual level of net income achieved from farming was estimated using the data from the Farm Monitor Project operated in Victoria, where net farm income was gross income minus enterprise and overhead costs (DPI 2005, pp. 59 & 63). A real discount rate of 5% was applied to the estimated net farm income, on the basis that the nominal cost of finance for a farm business was about 8% (Holmes Sackett 2006) and recent and expected inflation was in the order of 2.6 to 3.0% (Reserve Bank of Australia 2006). A three-year moving average of the ratio was calculated to better illustrate trends, and results for three LGAs are shown at Fig. 9.2.

The results suggested that the largest differential between the rural property price and the agricultural land value occurred during 1997 and 2001 and again in 2005 in the LGAs of Mitchell and Murrindindi, to the extent that land prices on average appeared not to be affordable for a viable agricultural enterprise. In such areas, it was likely that an increased area of rural land was being purchased by people who did not identify themselves as farmers, some deriving their income from employment in towns or major cities within commuting distance.

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6 Nominal money value is the dollar value over time, in terms of the actual face value at each particular point in time. Real money value is the dollar value over time, with the effect of changes in purchasing power removed (Makeham and Malcolm 1988, p. 148).
The results for the LGA of Towong in the Murray Valley region (Fig. 9.2) suggested that agriculture was a competitive mainstream land-use, and that land was being purchased primarily for its agricultural value – Towong would therefore be considered to be an agricultural productivist landscape on the basis of this indicator. The results for the LGAs of Glenelg, Moyne and the Southern Grampians in
the Green Triangle were similar to that of Towong, thus indicating agricultural productivist landscapes.

For both the Murray Valley and Green Triangle regions, there was no reduction in agricultural production during 1997 to 2001\(^7\), which was contrary to one of the central ideas of a shift to post-productivist agriculture. That is, the level of agricultural activity was maintained in the Murray Valley region despite profound socio-economic change.

**Spatial distribution of persons who purchased rural property**

Given the regional differences in the affordability of rural properties for agriculture, the spatial distribution of persons who purchased rural property was examined to explore the relationship between location of purchaser and the level of purchase activity. This idea was used by Barr et al. (2005) as an indicator of rural amenity landscapes – they presented the ratio of ‘local’ to ‘non local’ purchasers of rural land in Victoria aggregated over the period 1991 to 2001, on the premise that migrants from provincial centres or Melbourne were bidding land away from farmers for non-farming uses.

The data for rural property sales for each LGA were analysed by coding the geographic location of each purchaser as follows: ‘Local’ – from the same LGA; ‘Albury–Wodonga’ – from these two LGAs (i.e., from the main provincial centre in the Murray Valley); ‘Melbourne’ – from the Melbourne Statistical Division and the Greater Geelong Statistical Subdivision; ‘Rural Victoria’ – from the balance of Victoria; and ‘Other State’ – from other States and overseas.

The results for the LGAs of Towong, Mansfield and Mitchell (Fig. 9.3) illustrate the different proportions of purchasers for the most distant LGA from Melbourne in the study (Towong, about 400 km distant), an LGA about 200 km or two hours travel time from Melbourne (Mansfield), and an LGA close to Melbourne (Mitchell, about 100 km distant or one hour travel time).

Across north east Victoria in the 3 years of 1995, 2000 and 2005, Melbourne buyers purchased nearly 500 properties with a total area of 27 000 hectares.

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\(^7\) As measured by the change in the total estimated value of agricultural operations for 1997 and 2001, expressed in 2001 dollars, with data at the level of LGA aggregated for each of the case study regions (ABS 2007).
Fig 9.3 Locality of purchasers of rural property in three Local Government Areas in the Murray Valley – Towong shire (about 400 km from Melbourne), Mansfield shire (about 200 km from Melbourne) and Mitchell shire (about 100 km from Melbourne)
Overall, provincial city buyers (i.e., from Albury–Wodonga) were only active for a distance of 100 km. On the other hand, Melbourne buyers were active in all LGAs and were the dominant group of buyers in four LGAs within 200 km of the city, with a range of 50 to 65% of properties purchased. In two of these LGAs – Mitchell and Murrindindi – land was least affordable for farming of all LGAs studied (Fig. 9.2).

On the other hand, in the Green Triangle region, local purchasers were the dominant group across the three LGAs of Glenelg, Moyne and the Southern Grampians (all at least 300 km from Melbourne) for 1995, 2000, and 2005, buying 35 to 66% of properties within an LGA.

**Patterns of property purchase in north east Victoria**

Views about the patterns of rural property purchase were obtained from government agency staff and agribusiness people operating in the wider north east region of Victoria. One informant was selling rural property from a Melbourne base to Melbourne residents. The informant said that clients were buying rural property for reasons of balancing their portfolio of investments and satisfying personal goals. Such people typically had reached a high level of achievement in their professional and commercial life and wanted to do something different (“… never had a farm before and always wanted one”); such people fitted the ‘baby boomer’ group (born 1946 to 1961, an era of prosperity (Salt 2006, p. 2)). The sharp rise in the value of Melbourne residential property had allowed people to increase the mortgage on their home to finance a lifestyle property.

This had been a driver of Melbourne residents buying rural property in the ‘magnetic field’ – broadly defined as being within two hours travel from Melbourne (“… Benalla is generally the outer edge of tolerance in north east Victoria”). That is, access was considered important for lifestyle properties – people wanted to be able to get out of the city at the end of the week and have no more than two hours driving before they could settle down, relax and enjoy the weekend. Thus, upgrades of roads had opened up new rural areas to Melbourne people. Further, rail infrastructure was important for Melbourne people who were shifting to rural areas to commute to work in the city, for example, to Seymour and its surrounding district (in the Mitchell shire).

The informant said that the ideal property had good ambience – land that was undulating rather than flat, with a creek running through it and hills in the background. The informant commented: “… Melbourne clients like good rainfall and beef cattle”. Barr (2005) observed that beef enterprises were attractive to lifestyle landowners. As explained by an informant from a Victorian Government agency: “… for lifestyle farmers, sheep are more difficult than cattle because of more intensive animal husbandry – crutching, shearing, dipping, fly strike, drenching, lamb marking, etc”.

Clients buying farm land commonly did not have roots in the country or farming experience, but were not daunted by this (“… I know nothing about it, but that’s not a concern, there are services to help me out”). Another informant, from one of Australia’s four major banks commented: “… affluent investors who live in the city are having a significant impact on rural land prices, this affluence has enhanced their capacity and desire to take on semi-commercial and fully commercial farms rather than hobby farms”. This had created demand for services from the local community. For example, an informant from the Department of Primary Industries said that an increasing number of new farm owners were Melbourne and Sydney investors who had employed local people as farm managers.

Another informant, who was a long-term farmer in the Benalla region, part of the ‘magnetic field’, said there was a wave of ‘lifestyle’ farmers, which was quite different to hobby farmers – new landowners, particularly from Melbourne, had bought large-scale properties (some more than 1000 hectares), and had spent considerable money on capital improvements (fences, water supply, roads, buildings) and pasture improvement (“… they are doing good things, things I could not afford to do … these people have made a lot of money in their careers or businesses … they take pride in what they do”).

The informant who was selling rural property from a Melbourne base to Melbourne residents also had a small number of clients who were ‘land banking’ – they purchased high quality rural land and planned to hold it for up to 10 years, primarily to achieve capital gains. The informant expressed the view that the high rainfall parts of Victoria would become increasingly sought after (“… the new era buyer will hold water in very high esteem – its availability and reliability will be paramount”).

9.4 Impacts of socio-economic changes in rural landscapes for plantation expansion

9.4.1 Introduction

The dynamics of markets for wood products, land suitability (i.e., the fitness of land for forestry, as expressed by such criteria as land price), and the social acceptability of forestry (e.g., as expressed through planning controls for forestry as a land-use) are key factors that shape the way in which plantation expansion occurs at a regional level. There is an interplay of these factors that vary temporarily and spatially, and land suitability for forestry and the social acceptability of forestry are influenced by socio-economic changes with implications for plantation expansion.
9.4.2 Market dynamics and regional expansion targets

Regional markets

Domestic and export markets shape the Radiata Pine and Blue Gum industries in the Murray Valley and Green Triangle regions. Informants from processors of softwood logs in the Murray Valley indicated that there was strong demand for Radiata Pine logs across the region. These views were consistent with those expressed by informants from the largest producer of softwood plantation logs in Victoria, which was supplying wood to processors in Victoria, South Australia and New South Wales (“… all of our major customers want more wood and have aggressive expansion aspirations”). They said that this was driven by an optimistic outlook for domestic demand and export opportunities, and the need for increased throughput to increase the efficiency of processing to remain competitive in a trade-exposed international market.

On the other hand, the potential for expansion of short-rotation Blue Gum plantations was generally confined to the southern part of the Murray Valley region within economic road haulage (about 170 to 200 km) of export facilities at either Geelong or Melbourne.

Regional targets for plantation expansion

Plantations 2020 recognised that each region would make different contributions to achieving the national expansion target, depending on prevailing markets and the availability of suitable land (PA 2002). Plantations North East, the private forestry development committee for the north east region of Victoria, supported plantation expansion towards a goal of 25 000 additional hectares in north east Victoria from 2006 to 2020, to bring new investment in sustainable land-use for the region (PNE 2005). An informant from a state agency, with a role of developing community relationships in the changing landscapes of north east Victoria, expressed the view that such a target would not have a big impact (“… 25 000 hectares is not a big issue in the region”). Independent from this plan, individual forestry companies had specific expansion targets, as discussed later in this chapter.

9.4.3 The supply of land for plantations

Studies of land for plantation forestry in the Murray Valley
Given existing markets and strong demand for plantation products, and a regional target for plantation expansion in the Murray Valley, the supply of land is a key determinant of the rate and extent of plantation development.

In the Murray Valley region, 1.8 million hectares of land was assessed as having the capability to grow commercial Radiata Pine plantations (Burns et al. 1999, p. 128). Another assessment reported that there was about 810,000 hectares in north east Victoria that had the capability for Radiata Pine plantations (Borschmann 1998, p. 17); thus, the expansion target of PNE (25,000 hectares) was about 3% of this land. Within this land base, the greatest concentration of land with the highest capability for plantations was in the LGAs of Murrindindi and Mansfield (combined area of approximately 260,000 hectares) (NFI 2007), both indicated to be new landscapes. However, the supply of land for new plantations is ultimately dependent on the willingness of landowners to sell or lease suitable land to forestry companies, or enter joint ventures.

9.4.4 Recent experiences of companies seeking to expand plantations

The rate of plantation expansion in the Murray Valley region during 2001 to 2007 was low (14,960 hectares) compared with the Green Triangle (97,936 hectares) (Wood et al. 2001, p. 19; Gavran and Parsons 2008, p. 4), and most of the expansion in the Murray Valley occurred in the southern New South Wales part of the region.

A project to develop hardwood plantations within 200 km of Melbourne

A new plantation forestry project was announced in 1999, in which a Japanese consortium planned to establish Blue Gum plantations in north east Victoria to produce woodchips for export to Japan, preferably through the port of Melbourne (Hopkins 1999). The company operating the project, East Victoria Plantation Forest Company of Australia (‘EPFL’), operated from the regional city of Benalla and planned to establish 10,000 hectares over 10 years on land leased from farmers within 200 km of Melbourne. The focus was the LGAs of Delatite (since split into

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8 ‘Land capability’ is the identification of land where the biophysical growth requirements of a particular tree species are satisfied for a given management regime, whereas ‘land suitability’ involves the integration of biophysical factors and social and economic factors affecting the fitness of land for plantations (Stephens et al. 1998, pp. 5-6). Existing land-use, land price and distance to existing or notional markets are common attributes used to assess the suitability of land for forestry.

9 In comparison, in the Green Triangle region, 1.4 million hectares of land was assessed as having the capability for Radiata Pine plantations (Burns et al. 1999, pp. 95-96).
Mansfield and Benalla), Alpine and Murrindindi (Hopkins 1999) – LGAs indicted to be new landscapes and assessed to have substantial areas of agricultural land with capability for commercial plantations (as discussed earlier in this chapter).

An informant from the company said that the project did not meet its target, only achieving 3100 hectares. Land was only leased from farmers in LGAs in north east Victoria in 1999 and 2000, and the project ceased expansion in 2003. In practice, most plantations in north east Victoria were established in the LGAs of Mitchell, Murrindindi, Benalla and Wangaratta. The informant said that the company could not afford to pay the lease rates of at least $300 per hectare per annum that were typically sought by landholders. Land purchase was considered, but land was not affordable for the company within the wood supply zone.

The issue of leasing or attempting to purchase land for the EPFL project would have been compounded by the sharp increase in land prices in the LGAs within 200 km of Melbourne from about year 2000. In the LGAs originally targeted by the project, the annual rate of price increase in rural properties 10 hectares or more in size during 2000 to 2005 ranged from 20 to 26%, up from an annual rate of 7 to 12% during 1995 to 1999. In the period 2000 to 2005, land prices also went up faster than in more distant LGAs such as Wangaratta and Towong (both at 10% per annum) where there was less influence of Melbourne buyers.

Under the EPFL project, properties were leased for 20 years plus or minus 4 years, or until the completion of two harvests. The informant from the company was concerned about the impact of increasing land prices on the project in the long-term (“… beyond the second crop, we may not be able to compete in this land market”). That is, rising land prices were a threat to the sustainability of the resource.

In 2002, another company started a new project, acting as the forestry manager for a forestry managed investment scheme10 to grow hardwood plantations to produce woodchips for export from Geelong or Portland. The maximum road haulage distance to market (Geelong or Portland) was set at 180 km. The Murray Valley was considered as a land base, but the high price of land made the project unviable within the wood supply zone delineated by the maximum transport distance (“… land was not available at an affordable price”).

Projects to develop Radiata Pine plantations

Three major growers of Radiata Pine had recently expanded their plantation estate in the Murray Valley. The LGAs most approximate to processing industries were Towong, Tumbarumba and Tumut, but the focus of expansion had been in the latter two LGAs in southern New South Wales, because the planning requirements

10 Since 1998, privately-funded forestry managed investment schemes have been the main source of capital for expansion of plantations in Australia (Cummine 2009).
for plantations in the Towong shire had been more onerous – a dimension of the social acceptability of forestry discussed later in this chapter.

The expansion plans of two of the companies provided insight to the scale and rate of land acquisition and other factors affecting land suitability. Willmott Forests Ltd (‘Willmott’) and Gunns Plantations Limited (‘Gunns’) were operating managed investment schemes for the development of softwood plantations in the Murray Valley. Informants from both these companies were interviewed. Gunns had an annual expansion target of 1000 hectares of softwood plantations in southern New South Wales, with the aim of developing a minimum of 10 000 hectares in the region. The business model provided for leasing or purchase of land (‘…we would prefer to lease, less cash required upfront’), but land had been purchased in order to quickly assemble the land required for the early stages of the project.

Similarly to Gunns, Willmott selected southern New South Wales in the Murray Valley as a focal point for development of softwood plantations. Reasons included the established forestry infrastructure (e.g., forestry roads), the strong forestry contractor base in the region, and the strong and expanding processing capacity for plantation logs. Agricultural land was purchased by way of direct negotiation with the landowner or at auction, and about 5000 hectares was bought during 2001 to 2005. The informant commented that land for plantation expansion was becoming more difficult to acquire, reporting that their regional forester was the losing bidder at auction on five properties in 2006 – the winning bidders were local buyers and buyers from outside the region, including dairy farmers from New Zealand.

The largest grower of industrial plantations in the southern New South Wales part of the Murray Valley was Forests NSW, a state agency. A staff member with management responsibilities across the region, including land purchase, said that Forests NSW had not purchased land for their own plantation expansion for 7 years because land had not been affordable under the agency’s investment model (‘…cannot meet the hurdle rate set’). Forests NSW was only involved in plantation expansion by providing forestry services to other investors, including purchase of agricultural land on behalf of investors, mostly for forestry projects operated under managed investment schemes. The informant said that in the Tumut shire, there was suitable land but little was available for purchase because most was tightly held by farming families. The Tumbarumba shire was the main priority for plantation expansion based on the availability of land.

9.4.5 The affordability of land for forestry

The price paid for plantation forestry land was explored to understand how affordability varied across the case study regions under the influence of socio-economic changes. Data were obtained from two sources: property sales records
provided by the Valuer-General of Victoria were analysed, and typical prices paid for forestry land were obtained from informants from forestry and agribusiness companies.

In north east Victoria, there were only 31 property sales to forestry companies during 1995 to 2006, with a median sale price of $3254 per hectare. This low level of land transactions involving forestry companies was in stark contrast to the high level of activity in the Green Triangle. There, forestry companies operating managed investment schemes purchased 378 rural properties during 1995 to 2006 with a total area of 65,377 hectares and a median price of $3256 per hectare, with the median price peaking at $5000 in 2004. The level of land purchases by the forestry sector was strongly associated with the level of funds raised by managed investment schemes.

An informant who had been purchasing farm land for plantations in the Murray Valley for more than 10 years provided information indicating that the highest prices paid for farm land for development of Radiata Pine had been about $5000 per plantable (i.e., net) hectare of plantation. Other informants said that similar prices had been paid for farm land purchased in other regions for Radiata Pine plantations.

Higher prices had been paid for farm land for Blue Gum plantations. An informant who specialised in research on forestry managed investment schemes, said that in 2005, forestry land for managed investment scheme projects (mostly Blue Gum) typically cost $5000 per net hectare, but was bought at up to $7000 per net hectare. The informant’s opinion was that this was the maximum that managed investment schemes could afford to pay for farm land for plantation development in real terms in the future. An informant from a forestry company operating a managed investment for Blue Gum in the Green Triangle region had a similar view (“… $6000 to $7000 per plantable hectare is the ceiling for forestry”), and an informant from a private forestry development committee added: “… the cap for managed investment scheme forestry land, anecdotally, is about $7500 per plantable hectare”.

These results indicated that in substantial parts of the Murray Valley, land with capability for commercial plantations was not affordable for forestry, as evidenced by the median prices for rural property sales in such LGAs as Mansfield, Mitchell and Murrindindi where prices were more than $10,000 per hectare in 2005, mainly under the influence of buyers from Melbourne.

9.5 The social acceptability of plantation forestry

In addition to market dynamics and land suitability, the expansion of plantations and the management of existing plantations are influenced by the social acceptability of forestry. This centres on the comparative judgements of the use of the land for plantations versus alternative uses – mainly agricultural, but also includ-
Dimensions of social acceptability include planning controls related to forestry because it is argued that these are a derivative of the social acceptability of forestry as a land-use, and wider perceptions and specific issues related to plantation forestry as a land-use and industry.

9.5.1 Forestry land-use determination under the planning system

In Victoria, the planning system allows local government authorities to require that a permit be obtained for development of a timber plantation if the area is 40 hectares or more (Cameron et al. 2004). In 2008, 60% of the local government authorities in the Victorian part of the Murray Valley had such a permit provision for plantation development in their planning scheme (Alpine, Indigo, Mansfield, Strathbogie, Towong, and Wodonga), yet only one (Southern Grampians) of the four local government authorities in the Victorian part of the Green Triangle controlled forestry in this way (DPCD 2008). An implication of the permit system is that when an application for a permit is lodged, anyone can object. An informant from a forestry company with widespread operations in Victoria summarised the situation: “… local government is so variable across the State, from supportive to openly hostile. Its approach is very ambiguous and arbitrary”.

Recent plantation expansion in north east Victoria, which had only occurred at a small scale, had not been impacted by objections from lifestyle landowners. However, experience in the adjacent Central Victoria region showed this could be a factor in landscapes undergoing socio-economic change, where land was affordable for forestry, but the region was attracting new landowners. An informant from a company with operations in the Colac-Otway shire said that in recent years, there had been four appeals to the Victorian and Civil Administrative Tribunal by people who objected to the shire approving plantation projects presented by the company (“… objections have come from non-farming landowners, mainly on the issue of the use of chemicals for plantation establishment”). This came at a cost to the business of the company (“… in our case, expansion has been at considerable expense, frustration and difficulty because of a hostile planning environment”). The informant added that this issue had been a failure of Plantations 2020 (“… the key for us with the Plantations 2020 Vision was to get forestry treated the same way as agriculture. Forestry has gone backwards regarding its planning and regulation”).

Where there had been recent expansion of plantations in the Murray Valley, most had occurred in southern New South Wales. Although there were substantial areas of agricultural land affordable for plantations in the Towong shire in north east Victoria, informants from forestry companies reported that a significant impediment in Victoria was the difficulty in dealing with Statewide controls applied though planning schemes related to removal of native vegetation on agricultural properties purchased for plantation development. In contrast, the planning system
for plantation development in New South Wales was straightforward and predictable. An informant who had first-hand experience in dealing with a plantation development application to the Towong shire explained: “… I am not that keen about doing anything in Victoria, it was painful enough last time, it is not a streamlined process by any stretch of the imagination”.

In the Towong shire, this planning issue was compounded by the generally low social acceptability of plantation forestry that was reflected in land-use controls in the planning scheme (e.g., forestry discouraged in the Farming Zone, permits required in certain areas) and expressed by council and an entrenched farming community in concerns about impacts of forestry on communities and environmental issues (“… council views expansion of forestry with trepidation … pines have their place as long as they do not interfere with agriculture”). While there was a perception among plantation companies that plantation forestry was not a preferred land-use in the Towong shire, the forest industry was likely to focus its expansion activities in other regions where the planning environment was relatively supportive of their activities.

9.5.2 Impacts of new landowners on the management of existing plantations

Informants from forestry companies were asked about the impacts of socio-economic changes on their business. An issue that emerged was the impact of new landowners not traditionally involved in farming (i.e., lifestyle property owners) who became neighbours to forestry or owned property within the immediate locality of plantations. According to an informant from HVP Plantations, the impact of lifestyle landowners on plantation management was variable across the State (“… we have experienced issues with lifestyle landowners in north east Victoria and in the Ballarat region, but not in the south west”). Complaints were lodged with local government authorities or the company directly. The informant said that most problems in dealing with issues occurred in north east Victoria (“… people have moved there without understanding what rural living is about … their lifestyle is in conflict with plantation forestry”). The informant said that this compromised forestry as an existing land-use, and that the issues often related to harvesting operations, though their experience was that when consulted, residents were usually willing to find a solution with the company.

An informant was employed part-time as a forest officer with the Murrindindi shire, and dealt with plantation issues on a case-by-case basis. The informant said most issues were concerns by neighbours about log truck traffic (e.g., noise from early morning truck movements from the plantation to meet mill opening times, and safety of residents using local roads used by log trucks). One such complaint resulted in a protocol agreed by all parties for haulage of logs. According to the informant, no long-term farmers made complaints, because they understood the
practicalities and constraints of operating an agricultural enterprise ("… always came from new settlers who moved in after the plantation had been established").

A lesson from the experiences of Forests NSW was that apart from adding cost to operations, new neighbours could result in a reduction of the plantation area. An informant operating in the Murray Valley, but with statewide experience in the business said that hobby farmers and lifestyle farmers as plantation neighbours were a concern around Bathurst, located about 200 km from Sydney, explaining that the company had increased setbacks from private property boundaries for silvicultural works (e.g., helicopter spraying for weed control) and harvesting. A consequence was that when the plantation was re-established, plantation boundaries were adjusted, resulting in a reduction in the net area ("… the impact of new people is that they are encroaching on our forestry footprint").

An informant from a forestry company described another dimension of the issue of new neighbours in relation to Radiata Pine plantations in north east Victoria ("… treechange\textsuperscript{11} properties alongside a plantation can turnover two to three times in the life of the plantation"). As a consequence, the company had to spend more time and resources in building relationships with the community.

However, forestry companies had not been adverse to creating opportunities for lifestyle property owners to become new neighbours to their plantations. An informant managing forestry properties in southern New South Wales in the Murray Valley region explained: "… where we buy agricultural land for plantation development, we sell off the non-plantable land to hobby farmers", and added: "… in our experience, nuisance neighbours can be managed". An informant from a forestry company operating a managed investment scheme in the Murray Valley said that the company recently purchased a group of properties (total area 1200 hectares) in the Tumbarumba shire, and some of the land that had houses was subdivided to create four lifestyle properties for sale ("… very strong interest by the local community in purchasing these properties"). An informant from another forestry company operating a managed investment scheme in the Murray Valley had a similar approach ("… we do not bulldoze houses … we prefer to subdivide the land and sell the house; if local government will not allow this, we try to rent houses").

9.6 Discussion and conclusion

There was rapid plantation expansion in the Green Triangle region during the past decade because of the dominance of managed investment schemes in providing capital for new plantations and the focus of these schemes on short rotation hardwood projects, whose location was driven by the supply of suitable land within economic haulage of export facilities. In contrast, the relative isolation of most of

\textsuperscript{11} Rural properties purchased by urban people for lifestyle purposes.
the Murray Valley region from export markets had precluded investment in short rotation hardwood projects by forestry companies operating managed investment schemes. Where there was land with capability for commercial forestry within economic haulage distance of export markets, land had become unaffordable for forestry mainly because of the influence of urban people purchasing rural properties for lifestyle purposes.

With management of existing Radiata Pine plantations, there was evidence of declining affinity with forestry in north east Victoria as expressed by new neighbours to plantations in new landscapes – unlike in the Green Triangle.

Results from this research suggested that to describe north east Victoria as an amenity landscape was a simplification of the socio-economic changes occurring. It is argued that north east Victoria is better described as a multifunctional landscape. That is, a rural landscape built on traditional agriculture, but experiencing change in socio-economic structure that was bringing about more diversity and complexity in the way that rural landscapes were operated and used. In this interpretation of multifunctionality, while there was a shift to less dependence on agriculture at a regional level, land-use remained dominated by agriculture while profound socio-economic changes were occurring, particularly in LGAs within 200 km of Melbourne under the influence of metropolitan buyers of rural property.

In the broadacre agricultural industries in the Murray Valley, beef cattle farming was the dominant enterprise in 1997, 2001 and 2005 (ABS 2007). This industry was generally not profitable in Victoria during the past decade12, illustrating the tenuous viability of farming in the high rainfall zone targeted by forestry. However, despite a sustained period of poor economic returns, there was no trend for a reduction in land-use by agriculture.

As such, forestry will still need to negotiate a shared space with agriculture in these changing landscapes. Maintaining, and enhancing, the social acceptability of forestry will therefore be an important aspect of the future of planted forests. Key strategies to increase the social acceptability of forestry in multifunctional landscapes include the following: integrated forestry development13 designed to maintain diversity in landscapes, achieved through more detailed planning at a property level and engagement with resource-management agencies at a regional level; continuing dialogue with stakeholders affected by forestry expansion, formalised through certification of sustainable forest management by such schemes that have

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12 Across Victoria during the decade 1996–1997 to 2005–2006, farm business profit was negative for every year (ABARE 2007).

13 The term ‘integrated forestry’ as used here is consistent with the terminology of Robins and Marcar (2007, p. 8) in that it describes the establishment and management of trees on agricultural land for profit (both direct and indirect benefits), as compared to ‘environmental plantings’ established primarily for non-commercial purposes. Integrated forestry includes larger blocks of plantations managed by forestry companies on owned or leased land, smaller blocks of farm forestry managed by forestry companies and/or landowners, and agroforestry in which commercial trees are incorporated with pastures, for example configured as timberbelts (Robins and Marcar 2007). A vision of this latter land-use was presented by Reid (2008).
a focus on community engagement (e.g., the scheme offered by the Forest Stewardship Council); enhancement of the biodiversity of properties undergoing plantation development by using well-established principles (e.g., Salt et al. 2004) and by engaging partners with expertise in the discipline; and commercial forestry partnerships between landholders and corporate partners.

Forestry partnerships have operated for many years, with varying levels of success. New approaches to partnerships may appeal to the changing demographic of landowners in south east Australia, that is, partnerships that emphasise integration of forestry in multifunctional landscapes, and seek to capture emerging markets for environmental services, should be more acceptable to landowners and their surrounding communities. This approach may provide greater access for forestry to the substantial areas of land in high rainfall zones occupied by small farms with beef and/ or sheep enterprises operated by long-term farmers with off-farm income or by lifestyle property owners – characteristics of changing communities in new landscapes.

Acknowledgments
This work was supported financially by an Australian Postgraduate Award (2005–2008), by Plantations North East Inc., and by a Writing Up Award (2009) provided by the Centre for Research and Graduate Training, Charles Sturt University (‘CSU’). Our thanks to the people who were interviewed for the research; to Jack Dunham, Valuer-General, Victoria, who provided rural property sales data for analysis; and to Simon McDonald from the Spatial Data Analysis Network, CSU, for assistance in acquiring demographic data.

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<table>
<thead>
<tr>
<th>Index</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td></td>
</tr>
<tr>
<td>Agricultural production landscape, 3</td>
<td></td>
</tr>
<tr>
<td>Amenity landscape, 3</td>
<td></td>
</tr>
<tr>
<td><strong>E</strong></td>
<td></td>
</tr>
<tr>
<td>Employment primary industry, 7</td>
<td></td>
</tr>
<tr>
<td>Income off-farm, 7</td>
<td></td>
</tr>
<tr>
<td>Interviews, 2</td>
<td></td>
</tr>
<tr>
<td>semi-structured, 4</td>
<td></td>
</tr>
<tr>
<td><strong>L</strong></td>
<td></td>
</tr>
<tr>
<td>Land prices, 8</td>
<td></td>
</tr>
<tr>
<td>Landscapes, 2</td>
<td></td>
</tr>
<tr>
<td><strong>M</strong></td>
<td></td>
</tr>
<tr>
<td>Markets, 12</td>
<td></td>
</tr>
<tr>
<td><strong>P</strong></td>
<td></td>
</tr>
<tr>
<td>Plantations, 2</td>
<td></td>
</tr>
<tr>
<td>Population, 5</td>
<td></td>
</tr>
<tr>
<td>Price forestry land, 16</td>
<td></td>
</tr>
<tr>
<td>Purchaser rural property, 9</td>
<td></td>
</tr>
<tr>
<td><strong>R</strong></td>
<td></td>
</tr>
<tr>
<td>Regions case studies, 4</td>
<td></td>
</tr>
<tr>
<td><strong>S</strong></td>
<td></td>
</tr>
<tr>
<td>Social acceptability forestry, 12, 17</td>
<td></td>
</tr>
<tr>
<td>Socio-economic changes, 19</td>
<td></td>
</tr>
</tbody>
</table>