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Abstract Understanding the changes occurring within the forestry sector is complicated by socio-economic and demographic changes within rural communities ' sometimes in areas where commercial forestry has a long tradition. These changes in some rural communities, particularly coastal New South Wales, appear significant for forestry as land ownership and management is increasingly disconnected from the traditional agricultural land use. There is an increasing population of landowners in 'lifestyle' landscapes who do not appear primarily driven by maximising the profitability of farming. The shift from 'production' to 'lifestyle' landscapes also reflects a transition in community expectations for forestry ' a profound change that is likely to require quite different approaches to management. Landholders may be more likely to be interested in forestry with multiple values ' both products and environmental services. Furthermore, well-managed native forests that are integrated into individual properties and wider landscapes, may increase the market value of the property ' representing a prudent business investment. In this article, the authors present a method for analysing the relationship between rural land values and the estimated agronomic value of typical farms in a number of districts, as a means of interpreting the underlying social values of landholders. The authors suggest that such analysis can be helpful in identifying changes in community values as a signal that approaches to private native forestry may also need to be adapted to accommodate an increasing number of landholders in 'lifestyle' landscapes.

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Private native forestry in new landscapes: Challenges and opportunities in New South Wales

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ABSTRACT

Understanding the changes occurring within the forestry sector is complicated by socio-economic and demographic changes within rural communities – sometimes in areas where commercial forestry has a long tradition. These changes in some rural communities, particularly coastal New South Wales, appear significant for forestry as land ownership and management is increasingly disconnected from the traditional agricultural land use. There is an increasing population of landowners in ‘lifestyle’ landscapes who do not appear primarily driven by maximising the profitability of farming. The shift from ‘production’ to ‘lifestyle’ landscapes also reflects a transition in community expectations for forestry – a profound change that is likely to require quite different approaches to management. Landholders may be more likely to be interested in forestry with multiple values – both products and environmental services. Furthermore, well-managed native forests that are integrated into individual properties and wider landscapes, may increase the market value of the property – representing a prudent business investment. In this article, the authors present a method for analysing the relationship between rural land values and the estimated agronomic value of typical farms in a number of districts, as a means of interpreting the underlying social values of landholders. The authors suggest that such analysis can be helpful in identifying changes in community values as a signal that approaches to private native forestry may also

need to be adapted to accommodate an increasing number of landholders in 'lifestyle' landscapes.

Key words

Private native forestry, New South Wales, change in rural communities, rural land value, lifestyle landscapes.

New approaches to forestry

Forestry is being redefined to meet a broad range of economic, environmental and social expectations in many countries (Beckley 2003, Sands 2005), including Australia (Florence 2005, Gerrand *et al.* 2003). A feature of this redefinition is the increasing importance of ensuring commercial forestry is consistent with wider community expectations.

Natural and planted forests in Australia have long been recognised as providing benefits other than timber production (e.g. CSIRO 1970), as encapsulated in the National Forest Policy Statement (Commonwealth of Australia 1992). These benefits include protection of water catchments, control of salinisation of rural lands, especially in the Murray-Darling Basin (Kile 2000, Marcar and Crawford 2004, Gerrand *et al.* 2003), a positive contribution to greenhouse gas amelioration (CSIRO 2004), and maintenance of biodiversity (e.g. Lindenmayer and Hobbs 2004, Race and Freudenberger 2003). These and other benefits feature prominently in such policy instruments developed by the Commonwealth and State Governments as Regional Forest Agreements (that aim to create balance between the environmental, social, economic and heritage values that forests provide), and the Australian Forestry Standard developed in 2002 (Department of Agriculture, Fisheries and Forestry 2003).

The challenge for commercial forestry is to design and manage a suite of forestry segments in an integrated way – that reflects the community’s expectation for forestry to provide multiple benefits. This isn’t always easy, as often markets do not recognise or reward forest owners for the range of environmental services generated by forests that are beneficial to society, as noted above. Also, commercial forestry may not be the most profitable land-use – adding to pressure for native forests on private land to be cleared for other uses. However, not all landholders, including those with native forests, are attempting to maximise the profitability of land use.

In NSW, there are nearly 27 million hectares of native forests, with 8.5 million hectares on private land (National Forest Inventory 2003, p.37). Private native forestry supports a significant industry. Annual statistics on log output were provided for the period 1992-93 to 1997-98, which showed that the annual harvest of sawlogs and veneer logs from private native forests ranged from 111,000–441,000 cubic metres per year, representing 14–47 per cent of the harvest of sawlogs and veneer logs from public multiple-use forests (National Forest Inventory 2003). In 2005, it was estimated that 43 per cent of hardwood sawlogs in New South Wales (NSW) were harvested from private forests, and private native forests on the north coast of NSW supplied 268,370 cubic metres of hardwood sawlogs, injecting about \$100 million in to the regional economy through stumpage payments to landholders which, when flow-on effects were included, supplied around \$210 million of gross output value and more than 2,300 jobs to the NSW north coast economy (The Southern Cross Group 2006).

Even with such activity, the forestry sector is undergoing considerable change, as noted by the State Catchment Management Coordinating Committee (2003; p.8) which reported:

‘Private native forests on farms represent a substantial and under-utilised resource for farm forestry in NSW. In many areas of NSW, where timber buyers and processors are experiencing contraction in their usual supply, there may be significant opportunities for private native forestry. Private native forestry provides an immediate entry point for farmers to gain skills and knowledge of farm forestry and financial return from forest products’.

The changing paradigm of forestry in Australia is coupled with profound changes in the socio-economic and demographic characteristics of rural and regional communities – most notably in south-east Australia. The eastern zone of NSW – the tablelands to the coast, contains a large majority of the State’s five million people. It is also where most of the State’s commercial forestry occurs, both native forests and plantations (ABARE and BRS 2001).

Socio-economic and demographic change is underway in many rural and regional areas of Australia, as an increasing number of people move to these areas for lifestyle and other values, but most not to be employed in agriculture or forestry. Because a growing proportion of landholders living in the rural eastern zone of NSW do not derive their income from the traditional primary industries, yet may have properties with considerable native forests – there is uncertainty about what motivates their land use and how to foster sustainable forest management. Also, these ‘new’ landholders are also influencing the practices of the primary production industries that surround them. In some areas, such as the north coast of NSW, it appears that the prevailing community expectations of what is acceptable primary production is changing.

Challenges for farmers and rural communities

Understanding the social dimension of rural land use – the history, enterprises, challenges, and aspirations of landholders – would seem important when developing policies to ensure SFM of private native forests. Since Europeans began clearing the bush and ploughing the soil in the 1800s, Australian agriculture and its people have continued to change (Pollard 2002). Not only are we changing the way we farm, but also who is doing the farming. Much has been written in recent years about the structural change in agriculture and the associated difficulties for rural communities (Lawrence 1987, Alston 1991, Barr and Cary

1992, Vanclay and Lawrence 1995, Lawrence 1996, Pritchard and McManus 2000, Gray and Lawrence 2001, Cary *et al.* 2002, Vanclay 2003, Alston 2004, Barr *et al.* 2005).

Although there is a steady decline in the number of farmers, approximately 1-2% per annum over the past 20 years (ANRA 2001), Australian agriculture is still dominated by farm families (Alston 2004). Others have reported a growing divide between wealthy and poor farmers in Australia, with the top 20% of farm business generating incomes over \$100,000 per annum (Gray and Lawrence 2001), yet the bottom 20% of farms generate less than \$10,000 per annum (Garnaut *et al.* 1997, cited in Alston 2004). There has been a general decline in the terms of trade (profitability) for Australian farming since the mid-1970s, although the viability of specific farm sectors, regions and producers varies markedly (ANRA 2001).

While several analysts have predicted increasing pressure for Australian farmers (Lawrence 1996), there is uncertainty about the most effective role and means for government to assist farm families and rural communities cope with increased pressure – even if choosing to exit the agricultural sector. For example, Botterill (2002) reported that the Australian government has made available financial assistance for those exiting farming for more than 30 years, viewed by some as an incentive to free up farmland for more efficient and productive landholders. Yet such incentives have not necessarily been effective, using economic incentives for a segment of farmers who are largely motivated by non-economic factors (Botterill 2002). That is, despite poor economic returns from agriculture, families may choose to remain on their farm for the lifestyle, or because they have opportunities to supplement their household income from off-farm sources (Vanclay 2003 and 2004).

Diversification and innovation is often cited as a strategy for farmers to prosper, however others are more circumspect arguing that major technological shifts in agriculture create winners and losers as the frontiers of agriculture shift (industry standards, market expectations, consumer demands) (cited in ANRA 2001). Not all farm families have the same capacity to exploit the opportunities in agriculture, with major changes in agriculture

sometimes bringing benefits to some and creating costs for others (Vanclay and Lawrence 1995). Barr (2001) reported that the increasing median age of farmers reflects the decline in the number of younger farmers and the delayed exit by older farmers – the median age of farmers increased from 48 to 50 years during the years 1996 to 2001 (Barr 2005), yet this trend is more pronounced in some industries and landscapes. In contrast to the common scenario of rural decline, recent research by Barr *et al.* (2005) identified parts of rural Victoria where there is increasing demand for farmland for its amenity values, rather than agronomic potential. In an ironic twist, some small country towns originally established due to the agronomic potential of the district are now in ‘amenity’ landscapes, which may have a more secure future because of the prospects for tourism (Barr *et al.* 2005).

In much of rural Australia, agriculture has an integral relationship with surrounding rural communities – with the prosperity of both closely tied. A decline in farm families often correlates to a decline in a small rural community’s population. However, changes in population of rural communities is not always a simple linear relationship with farming numbers, as 60% of Australian rural towns, especially coastal towns with more than 5,000 people, are expanding (Tonts 2000, cited in Alston 2004), as people move to closer to health and educational services, improved employment opportunities and for enhanced lifestyles.

Not only have some rural towns increased in population, but they have also changed in composition – with new residents sometimes having quite different values and expectations to that of the original farming community (Bryant 1999, cited in ANRA 2001, Barr *et al.* 2005). Passfield *et al.* (1996) speak of these changes creating a post-modern rurality in which newcomers may even demand farmers change their practices so as not to impinge upon their ideals of rural life, perhaps denying the activities of production that may have occurred for the previous century or more. Some rural towns and landscapes have seen a resurgence in population in the past decade, particularly towns and farmland with high aesthetic qualities, and in proximity to capital cities (2 hours drive) and regional centres (1 hour drive). Yet the changes in composition to rural communities and landscapes can be complex (Pannell *et al.* 2006). The social and economic restructuring that occurs in rural

areas to suit the lifestyles and values of newcomers can lead to 'over development', a process which has the capacity to undermine the very attributes which made the countryside attractive (Tonts and Greive 2002).

The changing composition of rural communities and the way new landholders manage farmland and forests presents a challenge for agencies, particularly those developing policies and programs to foster the sustainable management of farmland and forests. Understanding the willingness and capacity of landholders to adopt recommended silviculture for the management of native forests can be complex, with research across other disciplines indicating many factors likely to be involved (Vanclay 2004, Pannell *et al.* 2006) [refer to Box 1].

Box 1: Factors linked to the adoption of new practices by landholders

- Links landholders have with others (e.g. engagement in local networks and organisations, proximity to other adopters and the source of information, trusted relationship between landholder and promoter of innovation);
- Demographic attributes of landholders (e.g. reliance on off-farm income, age);
- Relative advantage of new practices (e.g. improved viability of business/system, impact on other aspects of farm business and lifestyle, consistency with lifestyles, beliefs and values); and
- Trialability of new practices (e.g. complexity of innovation, costs and risks of innovation, familiarity of innovation).

Source: Adapted from Pannell *et al.* 2006.

Emergence of 'lifestyle' landscapes

During the past 150 years, the rural landscape in much of NSW has largely been defined by primary production, namely a mix of cereal cropping, livestock and dairy farming, and commercial forestry in native and plantation forests – a landscape of primary production. Until the late-1980s, most of the small towns and regional cities remained highly dependent on the primary production industries for their prosperity.

Some emerging research indicates that in recent years, many of these same towns and regional cities are uncoupling from their dependence on primary production (ie. post-production landscapes). Pannell *et al.* (2006, p.1417) reported:

‘Regions within comfortable driving distance of major cities and regional centres in some Australian states (particularly New South Wales and Victoria) have seen social and demographic changes resulting from city dwellers purchasing what was formerly extensive farming land and pursuing their rural dreams. In these regions, traditional commercial agriculture has become a less important land-use than it once was, occupying a declining proportion of the land, and the trend in this direction will continue’.

The analysis of this socio-economic and demographic change is complex. There is some evidence that part of the aesthetic appeal of the rural landscape is the presence of viable production industries (agriculture and forestry), yet there is also a growing demand for small ‘lifestyle’ properties and to improve the environmental qualities of the region for residents and tourism – a demand for primary production to be modified to meet changing community expectations.

Social landscapes

The Australian environment is often characterised by its native vegetation, land form and water bodies – creating the distinctive qualities for which Australia’s natural environment is world-renowned. In addition, the appearance of most catchments is strongly shaped by human activity (eg. farming, urban development) – that is, the landscape is as much defined

by the people and their activities (ie. social landscapes), as it is by the natural environment. It is increasingly accepted that optimising NRM requires an understanding of the social qualities of the landscape (eg. people's historical and current activities; their values, capacities and aspirations), as well as understanding the biophysical characteristics of the landscape (eg. vegetation types, soils). Most forestry and NRM-related agencies have a strong knowledge base of the biophysical qualities of catchments, yet comparatively little knowledge of the social dimension that underpins private land use including private native forestry – although this situation is changing.

Social values are ethical ideals and central beliefs of an individual or society, formed out of a social process of dialogue and debate and shaped by the social, cultural, historical and geographical relationships between society and its individuals. A 'value judgement' is a statement of opinion or belief which cannot be falsified by comparison with fact; thus it is, in essence, a normative rather than a positive statement. Values play an important role in shaping an individual's behaviour. However, it is widely recognised that an adherence to prevailing beliefs and values is often expedient or pragmatic rather than deeply held, and human values can change over time as they are contested or people are influenced by others or new experiences (Bannock *et al.* 1972; Jary and Jary 2000; O'Brien 2003; Maybery *et al.* 2005).

Values may be intrinsic (i.e. an entity has value in its own right), functional (i.e. the technical contribution of soil nutrients, for example, on plant growth), or instrumental (the means of achieving a purpose related to an end value, usually related to human needs and wants) (Lockwood 1997, Winter 2005). In a simplified but similar approach, two categories of forest values held by people have been identified: biocentric values (i.e. intrinsic values), and anthropocentric values (i.e. instrumental values). The anthropocentric is primarily concerned about the effect that environmental damage will have on people whereas the biocentric (or ecocentric) is concerned about the effect of environmental damage on all living things (McFarlane and Boxall 2000; Schultz *et al.* 2000). Lockwood (1999) further distinguishes the values 'held' by people, which are such principles or ideas important to

people as justice or responsibility, from 'assigned' values, the values that people attach to things, whether they be goods, activities, or services. He also distinguishes between 'beliefs', which are the set of values held by a person, and 'cognitions', which are the understandings that people have of functional values, and the impacts of decisions on these values.

Values are important in relation to decisions about the use and conservation of natural resources, because they underpin specific beliefs and attitudes, influence such social concepts as norms and behavioural intentions, and motivate action and behaviour (Stein *et al.* 1999; Winter 2005). Economists conventionally assess people's expression of value based on their behaviours in the market – people reveal the value they place on a good or service through the transactions they make in the market. For goods for which no market exists (e.g. recreation in natural areas), such techniques as revealed preference analysis or stated preference methods, particularly contingent valuation, are used in economic assessments of the value of these goods (Lockwood 1999).

Values in changing landscapes

A common component of landscape change is the movement of urban people as permanent or seasonal residents into rural areas, with subsequent influence on the management of nearby public and private lands, including increased emphasis on the restoration of human-impacted natural areas (Dwyer and Childs 2004). Landscape change is particularly evident in the rural amenity areas in the United States, where 'hotspots' of change are often associated with the development of residential and recreational enclaves, particularly when seasonal residences are converted to permanent status as the owners retire or move their employment to the area (Stynes *et al.* 1997 cited in Dwyer and Childs 2004).

New settlers in rural areas causes interaction between actors from different social spaces. For example, the proportion of hobby and part-time farmers is increasing in many European countries, and for many of these people, agricultural production is of lesser importance than other landscape functions (Busck 2002). This means that the value of livelihood resources must be negotiated in order to achieve a shared understanding of their use, which involves social construction and reconstruction of socio-environmental spaces (Woodgate and Redclift 1998). Stated preferences for development and conservation trade-offs in rural communities differ according to length of residency, for example, there is some evidence that recently arrived residents (ie. new settlers) have a higher willingness to pay for the preservation of rural scenic values (Johnston *et al.* 2003).

Many forested landscapes in the United States have undergone landscape change and have complex patterns of land ownership, in which there is a mix of individual private land owners, commercial owners of industrial forestlands, and multiple-use orientated managers of public forestlands. These groups have wide ranging values, beliefs, motivations, and management capabilities, which contribute to a diverse physical and social environment (Bergman and Bliss 2004; Stanfield *et al.* 2002). For example, surveys of non-industrial private forest owners in north east states of the United States revealed that most respondents bought their land rather than inheriting it, and the main reasons for acquisition were privacy, residence, and conservation to prevent development (Belin *et al.* 2005). Entry of new owners into these landscapes changes the risk profiles of landowners, as public and private land managers differ in their ability to accept risk of certain land management practices (e.g. use of managed fire for hazard reduction), a differential that is partly attributed to differences in geographic scale (Bergman and Bliss 2004).

Farmers' values

Farmers cannot be conceived as a homogenous group with the same set of values and practices, as they can place different emphases on the production and conservation aspects

of agricultural land management (Vanclay and Lawrence 1995, Vanclay *et al.* 1998, Beedell and Rehman 1999, Busck 2002, Mesiti and Lawrence 2006). This heterogeneity has led to a classification of the values of individual farmers into three distinct groups of economic, conservation and lifestyle landholder values (Maybery *et al.* 2005). Their research of farmers in southern New South Wales indicated that landholder economic and lifestyle values for their farms could be considered to be mostly independent of other objectives that they hold. Despite this heterogeneity, evidence from a case study in Western Australia suggests that there has been a shift in the values of farmers over the past few decades, leading to a greater responsiveness to management solutions that include environmental considerations (Ridley 2004). However, results of a survey of preferences for management of natural areas between the general public, environmentalists, and farmers showed a polarization of views between environmentalists and farmers (Winter 2005).

Barr *et al.* (2005) drew on a wide range of variables (eg. change in demographics, level of agricultural production, number of farmers exiting agriculture) collected and analysed using the Statistical Local Area (SLA) boundaries to develop a stylized map of Victoria. While acknowledging the flaws of representing a single SLA as a homogeneous entity, Barr *et al.* (2005) identified 'production', rural amenity', 'transitional' and 'irrigation' landscapes and argue it provides a useful tool for understanding the broad social trends in rural Victoria.

The shift from 'production' to 'lifestyle' landscapes reflects a transition in forestry from a production industry to a service industry – a profound change that is likely to require quite different forests. For example, people moving into lifestyle landscapes are likely to appreciate native forest for the environmental services and aesthetic values they provide. Given the long-term production cycle of native forests, where decisions about silviculture can take many decades before the desired outcomes are achieved, a method for predicting the socio-economic and demographic change in landscapes would be valuable for forest and other resource managers to ensure private native forestry reflects community expectations.

Differential between agronomic and land values: A method for identifying new landscapes

Landholders own and manage rural land for a wide range of economic, socio-cultural and historical reasons, and have considerable variation in their behaviour, capacity and aspirations. It is difficult to clearly understand the underlying motivations of thousands of landholders with native forests in the eastern zone of NSW, even more so when considering that the rate of change in property ownership can be 5% per year in rural areas (Curtis *et al.* 2005). The commercial value of rural properties is a transparent indicator in the market of the underlying potential of the land and of aspirations of landholders in regard to its use. In NSW, the estimated value of a typical property in a large number of districts is presented by the Valuer General's Office (updated yearly), and is a useful guide to trends in the rural land market.

We argue that by calculating the differential between the estimated land value, and the expected value of the land for agricultural use, an indication of whether landholders reside in a 'production' or a 'lifestyle' landscape is provided. That is, where there is a large differential between the estimated land and primary production values, then it is likely that landholders live within a 'lifestyle' landscape in which farmland is being purchased for both farming and non-farming purposes, or for non-agricultural uses.

Research that has sought to explain fluctuations in farmland prices in recent decades has centred on capital asset pricing theory, which examines the extent to which the prices for financial assets (e.g. farmland) can be explained in terms of a rational evaluation of current and expected income from the asset. In its simplest terms, this theory assumes that buyers of farmland are risk neutral, discount the future at a constant rate, act competitively, and value land only for its economic return or rent. If these relationships hold, 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. Under this model, if the profitability of one type of agricultural use

decreases, then the value of land for this use declines (Alston 1986; Burt 1986; Clark *et al.* 1993; Huang *et al.* 2006).

An estimate of the level of income expected from farming was obtained by using the figures for property size, land-use and carrying capacity of the 'typical' farming property in a district (as determined by professional independent property valuers for NSW Lands, refer to www.lands.nsw.gov.au/valuation/nsw_land_values), and applying the gross margin returns of 'best practice' operations for the main farm enterprise of a district (as determined by experienced staff of NSW DPI, refer to www.agric.nsw.gov.au/reader/livebud). These data were then adjusted by deducting farm overhead costs derived for a comprehensive survey of farm enterprises in south west Victoria (DPI 2005), to estimate net farm income from a single enterprise operation. This index does not include an allowance for owner/operator labour, interest, tax, and principal repayments, but is believed to be useful for illustrating the relative agricultural performance of typical farms in different agricultural regions. Calculations of indicative net farm incomes in eight rural districts of the eastern zone of NSW where beef cattle (4 districts) and wool-lamb (4 districts) are common enterprises are presented in Table 1 (below). The districts selected are also noted for the existing or potential commercial forestry enterprises (ABARE and BRS 2001).

The calculated 'enterprise income' is derived from the gross margins for beef cattle of \$200.39 per steer for 'young cattle' (bought at 160 kg, grown for 12 months, sold at 340 kg to feedlots, including pasture costs) and for wool-lamb production of \$21.44 per DSE (including fodder costs) – considered common agricultural enterprises in the districts analysed (NSW DPI 2006). This enterprise income was then multiplied by a factor of 0.7, the average ratio of net farm income to gross margin income for the period 2000/01 to 2004/05 for farm enterprises in south west Victoria (DPI 2005), to estimate the 'net farm income in 2005' for the typical farm in the eight districts. 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 is around 8 per cent (Holmes Sackett and Associates 2006) and recent and

expected inflation is in the order of 2.6-3.0 per cent (Reserve Bank of Australia 2006). The present value of the estimated net farm income was thus determined, to represent an index of the relative value of agricultural land.

... insert Table 1 about here ...

Caution needs to be applied when interpreting these results, as the index of agricultural land value as represents a theoretical construct of relative farm economics at one point in time, and is not necessarily related to land market price. Also, lower yields (due to drier than average conditions), increasing production costs, and lower prices can combine to significantly erode farm incomes.

Using the assumptions outlined above, the figures presented in Table 1 suggest a large differential between the estimated land value and the index of agricultural land value in the districts of Nowra and Bega, to the extent that land values appear to be beyond reach of a viable agricultural enterprise. On the other hand, results for the district of Kempsey suggest that the estimated land value is a true reflection of its value for agricultural use. The implication is that many farm families in the Kempsey district could be reasonably expected to derive a substantial proportion of their household income from agriculture, so are likely to be motivated to invest in land use options that that enhance farm incomes.

Bearing in mind that estimating farm incomes based on 'typical' costs and returns can be problematic as farm incomes are inherently volatile from year to year (DPI 2005, Martin *et al.* 2006), the results for the other districts suggest that agriculture is a competitive mainstream land use. However, it is noteworthy that the estimated land values as provided by NSW DPI for typical farms in 2005 are \$3,400 per hectare for Tumut (up 35% from 2004), \$4,020 per hectare for Oberon (up 20% from 2004), and \$5,670 per hectare for Orange (up 50% from 2004), in line with sharp increases in the prices of broadacre farms across Australia over the same period (Martin *et al.* 2006). The general increase in land values has resulted from a number of factors including higher farm incomes, historically low interest rates, a positive outlook for future industry returns, and a steady increase in demand for land by urban people seeking a rural lifestyle and investment (Martin *et al.* 2006).

For a household with two adults and two dependents, it is unlikely that a net farm income below around \$40,000 could sustain a family in the longer term. Where net farm incomes are appreciably below this level, sources of off-farm income are likely to be important to the overall household. Where net farm incomes are well below \$15,000 per annum (e.g. for typical farm in the Lismore district), then income from agriculture may well be a minor source of household income – indicating a lifestyle landscape.

In some districts in the eastern zone of NSW, such as Bega and Nowra, the value of rural land has risen well beyond its estimated agronomic value. In such districts, it is likely that an increased area of rural land is being purchased by people who want small properties and don't identify themselves as farmers, some deriving their income from employment in towns or major cities within commuting distance. Although these landholders may not be dependent on agriculture for their livelihoods and nor identify themselves as farmers, it appears they value highly the 'agricultural' landscape and cohesive rural community. For such people, arguably their livelihoods are not dependent on agriculture, but their quality of life requires a vibrant rural setting.

Conclusion: Forestry in ‘lifestyle’ landscapes

There needs to be caution when interpreting peoples’ attitudes and values as a means of understanding their behaviour, as a complex range of socio-economic, cultural and personal factors can constrain a shift in behaviour (Vanclay and Lawrence 1995; Cary et al. 2002; Vanclay 2004, Pannell et al. 2006). For example, a positive stewardship ethic may not be evident if a forest owner is constrained by the high cost of implementing the recommended silviculture, even if they agree with the advice. Also, while the values of forest owners may be consistent with long-term sustainable forest management, the prevailing market conditions may encourage an alternate approach to forestry, such as opportunistic large-scale harvesting.

In many respects, there is a wealth of information to assist landholders to design and manage forestry that is integrated within landscapes and farming businesses. However, the theoretical design of integrated farm forests or well-managed native forests may not be consistent with market signals. As such, the recommended silviculture for private native forests needs to bridge the social values with market realities in the context of changing demographics amongst the population of landholders in the eastern zone of NSW.

In ‘production’ landscapes, focus on a uniform silviculture, and economies of scale remain powerful drivers of private forestry designed to be financially profitable for the grower. In contrast, these market signals may be inconsistent with the aspirations of the landholders with native forests in ‘lifestyle’ landscapes. Indeed, in ‘lifestyle’ landscapes, bank advisors can issue lower financial assessments for properties with uniform large-scale plantations, due to the perception that plantations restrict alternate land-use and offer benefits to a smaller number of buyers.

Given that land values indicate that people in some districts are purchasing rural properties largely for non-production reasons, landholders may be more likely to be interested in

forestry with multiple values – both products and environmental services. Furthermore, well-managed native forests that are integrated into individual properties and the wider landscape may increase the market value of properties – representing a prudent business investment.

Recognising that ‘lifestyle’ landscapes are emerging, forest policies and programs to acknowledge that a new generation of landholders may wish to pursue private native forestry for objectives outside the historical commercial norm. Coupled with this, the contribution of private native forest to the hardwood forestry sector remains important to regional economies. An approach for predicting the shift in community values, as outlined above, would seem beneficial to long-term planning and management of private native forests – to ensure private owners of these resources contribute to a viable regional industry.

Table 1: Indicative farm sizes, carrying capacity, estimated farm income and land values in selected rural districts, New South Wales.

District	Farm area (ha)	Farm carrying capacity ¹	Estimated net farm income in 2005 (\$/farm) ²	Index of agricultural land value (\$/farm) ³	Land value in 2005 (\$/farm)	Agricultural land value as a proportion of property land value (%)
Nowra	58	60 cattle	\$8,412	\$168,236	\$1,220,000	14%
Bega	379	200 cattle	\$28,039	\$560,786	\$1,050,000	53%
Orange	238	3,000 DSE ⁴	\$44,999	\$899,989	\$1,350,000	67%
Crookwell	325	2,400 DSE	\$36,000	\$719,991	\$1,000,000	72%
Tumut	606	5,000 DSE	\$74,999	\$1,499,982	\$2,060,000	73%
Lismore	69	75 cattle	\$10,515	\$210,295	\$255,000	82%
Oberon	191	2,400 DSE	\$36,000	\$719,991	\$768,000	94%
Kempsey	472	320 cattle	\$44,863	\$897,258	\$492,000	182%

Notes:

Farm statistics and land value in 2005 sourced from NSW DPI (2006) and NSW Lands (2006).

1 = Farm carrying capacity expressed the unit for a district's common enterprise (i.e. either beef cattle or wool-lamb sheep).

2 = Estimated farm income is enterprise gross margin multiplied by 0.7.

3 = Index of agricultural land value derived as the present value of estimated net farm income in perpetuity using a real discount rate of 5%.

4 = DSE equates to Dry Sheep Equivalent, defined as the number of 50-kilogram wether sheep that can be maintained at a constant weight over 12 months on a given area (sometimes used to indicate the number of sheep maintained on one hectare).

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