Submission

House of Representatives
Standing Committee on Agriculture, Resources, Fisheries and Forestry
Inquiry into the Australian forestry industry

1. Overview

The signatories of this submission each have significant roles in the conduct and delivery of forestry research and professional forestry education in Australia.

Our submission first situates Australian forests and forestry in a global context, and notes major trends in or impacting on the Australian forestry sector. We then describe key elements of an aspirational future for the Australian forestry sector. We conclude with observations and comment on the associated research and development, and education and training, imperatives.

We note that Australian forestry is facing unprecedented change, and a series of paradoxes. There is growing global and local demand for forest products, but local supply is limited, and rising Australian input costs and currency value are favouring imported products. There is growing demand for forests to be managed to provide a wider range of ecosystem services and social values, but our management capacity has diminished. Climate change is placing a range of new and uncertain pressures on the capacity of forests to provide goods and services, but mitigation strategies offer the prospect of greatly expanding tree planting. Australia is facing some stark choices about the ways in which native, plantation and farm forests, and the landscapes of which they are part, are managed to meet future needs. But national policy leadership has been limited; and our professional capacity in forest sector research, and in managing forests for multiple values, services and products, are declining.

Our key points are that to successfully face this challenging future, and meet the aspirations and needs of the Australian community, renewed investment in forest sector research and development, and in professional and scientific education, is needed. This investment will build national capacity to realise most benefits from the management of Australia's forested landscapes, and our capacity to contribute to forest-related challenges and opportunities globally.

2. Australian forests and forestry in a global context

Both Australian forests and Australian forestry are significant in a global context.

Australian forests are significant because of their extent (7th-ranked globally), their ecological distinctiveness, and the genetic resources they have provided (and may provide in the future) for planted forests elsewhere. For example, *Grevillia robusta* is an important component of farming systems in parts of Africa and South Asia; and Australian eucalypt germplasm is the basis of most of the world's 12+ million ha of eucalypt plantations, on which both many smallholders' livelihoods and some of the world's largest forestry businesses are based. This use of Australian forest genetic resources, which has frequently been enabled by Australian development assistance and forest sciences expertise, has delivered significant livelihood benefits to poor people and underpinned significant forest sector economic contributions in four other continents[1].

[1] See, eg, FAO 2011 *Global forest resource assessment 2010*. www.fao.org/forestry/fra/fra2010/en/; FAO 2006 *Global planted forests thematic study: results & analysis*.

Reciprocally, Australia is an attractive destination for international investment in commercial forest growing, given our political stability, secure property rights, and geographic proximity to growing Asian markets. Conversely, a (currently) high-value currency, competition for productive land and for water resources, and social conflict over native forest management and plantation expansion militate against such investment[2].

Australian forestry is significant in a global context because of Australia's history of innovation in both native and plantation forest policy and management, including bushfire management, and in forest products processing; and because of the quality of our forest research and science, and those of our professional forestry education and practice. Much of this capacity in research and education has been driven by investment from the public sector. Australian forestry is also significant because of the history, approach and standing of Australia's international development assistance in forestry; and because of Australia's constructive engagement with many international forest processes and institutions. These features represent a significant comparative advantage in a world in which forests are seen as a central component of climate change mitigation strategies[3], and in which intensifying pressures for food and energy security have the potential to impact adversely on forests, and their values and services[4], unless land use and forest policies and management regimes anticipate and address these pressures.

3. Major trends in Australian forestry

We note that a number of major national trends are evident in Australian forestry, each of which has implications for the future prospects of Australian forestry and the research and development, and education and training, needs that underpin them.

In terms of forest management, these include[5]:

- limited policy leadership of forestry at the federal level (the National Forest Policy Statement is now almost 20 years old), and a decline in the standing of forest policy in most states;
- continuing changes in tenure and management of public native forests, with the majority of these forests now managed for conservation;
- a continuing shift away from harvesting mature forests, and the implementation of silvicultural systems that give more account to non-wood forest values;
- the progressive privatisation, since the 1980s, of State-owned plantation forests, and reliance on private sector investment – most recently through Managed Investment Schemes – for plantation expansion;
- cessation or substantial curtailment of the conversion of native to plantation forests, and corresponding expansion of plantation forests on farmland;
- implementation of policy measures regulating water use by planted forests in some regions and potentially nationally;

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www.fao.org/forestry/site/10368/en; Kanowski & Murray 2008 *TFD review: intensively managed planted forests*. www.theforestsdialogue.org

[2] See, eg, *New Forests Timberland Investment Outlook 2011-2015*. www.newforests.com.au

[3] See, eg UNFCC 2011 Conference of the Parties - Sixteenth Session. Decision 1/CP.16. unfccc.int/documentation/decisions

[4] See, eg UNEP/FAO/UNFF 2009 *Vital forest graphics*. www.unep.org

[5] See, eg: DAFF 2008 *The changing face of Australia's forests*. www.daff.gov.au/forestry/publications; Garnaut 2011 Transforming rural land use. www.garnautreview.org.au; McDermott et al 2010 *Global environmental forest policies*, Ch 8. Earthscan; Wentworth Group 2009 *Optimising carbon in the Australian landscape.* www.wenthworthgroup.org.

- greater recognition of the importance of non-corporate private and Indigenous forests and forestry, but little effective national policy development or implementation to advance those interests;
- recognition of the importance of existing and potential forests, of all forms, in climate change mitigation and adaptation strategies.

In terms of forest resources, wood production, and forest products, these include[5]:
- a progressive shift since the 1950s in solid-wood production from native forest hardwoods to plantation forest softwoods, and a corresponding shift in domestic solid wood consumption;
- a substantial and continuing decline in the availability of wood resources from public native forests;
- stagnation of the 'long rotation' plantation softwood resource at c 1M ha, largely reflecting the extent realised by prior public sector investment;
- increasing imports of softwoods and durable hardwoods due to surplus production in Europe and North America, unsustainably high levels of production in Asia, the increased value of the Australian dollar, and a decline in domestic production of hardwoods;
- a dramatic MIS-driven increase in 'short rotation' pulpwood plantation resources since 1995, to c 1M ha, and evidence that the scale of this resource may contract by up to 50% after the first harvest cycle due to shifts in rainfall patterns in key regions and some planting on sites with low growth potential;
- the failure of policy instruments to stimulate significant investment in 'longer rotation' softwoods or hardwoods, or to deliver significant environmental co-benefits from the MIS-driven expansion of plantations;
- limited adoption by farming enterprises of commercial tree planting or integrated farm forestry systems, despite considerable investment over more than a decade in Landcare and farm forestry;
- continuing technological developments in wood products processing and design, particularly associated with the production and use of engineered wood products;
- the emergence of international markets for bioenergy;
- limited recognition, in carbon accounting policy or mechanisms, of the residence time of carbon in wood products, or in codes such as those for 'green buildings' of the embedded energy in wood versus substitute products.

In terms of research and development capacity, and of forestry education[6]:
- there is good evidence that investment in R&D has underpinned productivity growth in the farm sector, with the likelihood that this is also the case for production forestry;
- continuing declines in R&D investment and capacity associated with privatisation or corporatisation of production forestry, and a reduced investment in R&D by state governments;
- relatively low levels of investment by the industry in education and training in comparison to other sectors;
- in an increasingly market-driven higher education system, and a general decline in interest in rurally-based careers, there has been a contraction of enrolments in undergraduate professional forestry degrees, in many cases to below the levels necessary to sustain comprehensive degree programs;

[6] See: Duff 2010 *Australian Forest Grower* 33(1) Special Liftout 91; Keenan 2010 *Australian Forestry* 73: 1-2; Pratley et al 2010 *Australian Forestry* 73: 227-233; Turner & Lambert 2009 *Evaluation of research expenditure and capacity in forestry and forest products in Australia 2007-2008 and development of research*. www.fwpa.com.au

- current and predicted skills shortages at each of advanced, professional and sub-professional levels, in both the forest management and forest products processing sub-sectors;
- responses to these issues which include the development of a Forest Sector RD&E Strategy, and of an education investment plan by FWPA[7]; the establishment of ForestWorks as the sector's Industry Skills Council[8]; and the establishment of the National Forestry Masters Program as a collaborative initiative between universities to address the decline in undergraduate forestry completions[9].

These trends are amongst those that shape the future prospects of the Australian forestry sector, elements of which we discuss below.

4. Future prospects for the Australian forestry sector

We look to a future Australian forestry sector in which management of forested landscapes, and of trees within in agricultural systems and urban landscapes, is based on sound science and continued strong investment in research and education. Strong policy leadership can lead to more integrated management approaches and the development of more vibrant, innovative, resilient and internationally competitive forest products and services industries, that will allow Australia to fully capitalise on the potential of forests and trees to contribute to both national and international social, economic and environmental objectives.

Realising such an aspiration requires that:

- a higher level of policy leadership and engagement in forest policy development at national and state levels;
- mechanisms are fostered to increase the breadth and quality of public engagement in the development of forest policy;
- the significance of all forests – public and private, native and plantation, farm and urban – in climate change mitigation and adaptation strategies be recognised and reflected in both policy and management;
- there is little value in pursuing timber production in 'frontier' native forests or large intact areas of old-growth forests;
- that we embrace the potential for wood supply from managed natural regeneration or planted forests of native species managed in ways that deliver a wider range of environmental services;
- the potential of diverse forms of planted forests to deliver significant co-benefits, including as part of the farm enterprise and to rural communities and environments, be addressed in forest and land use policy, and realised both in the management of existing forests and the establishment of new forests;
- the complex relations between forests and water yield, and associated risk factors such as fire, is better understood and considered in policy and management for all forms of forests;
- bushfires in forested landscapes are more effectively managed to reduce risk to life and property, and the risk of loss of the products, services and values provided by forests;
- forest and land management strategies and practices continue to evolve to incorporate new knowledge, and apply that adaptively across forested, rural and urban landscapes;
- the forest products sector continues to invest in innovation, new technologies and systems that maximise the value recovery of forest products;

[7] FWPA 2010a. *RD&E strategy for the forest and wood products sector*; FWPA 2010b. *Education investment plan*, in *Annual operational plan 2010-2011*; both at www.fwpa.com.au

[8] www.forestworks.com.au

[9] www.forestry.org.au/masters

- the high embedded energy and greenhouse gases of alternative building products to timber, such as steel and carbon, be reflected in a price on carbon for these materials;
- the Australian forestry sector, in all its aspects, is characterised by the high levels of investment in the innovation, education and skills necessary to adapt and and prosper in dynamic market, social, environmental and institutional contexts.

4. Addressing innovation and capacity constraints to realising these prospects

As stated at the outset, we believe that declining investments in Australian forestry sector research and development, and declining professional and scientific capacity in the sector, are undermining the capacity of the sector to respond and adapt to emerging challenges and opportunities; and that this, in turn, prejudices national capacity to capture most benefit from the management of Australia's landscapes and land uses, and Australia's capacity to contribute to forest-related challenges and opportunities globally.

Future capacity requirements include those in land management more generally, such as those related to bushfire science and management and the integration of forestry and food production systems, and in new products and services such as climate change mitigation, as well as those in the more established areas of forest management and forest products. Elsewhere, the suite of values, products and services delivered by forest and trees across the landscape has usefully been characterised as "Working Green Infrastructure"[10]; this characterisation, and the priorities that emerge from it, may also be useful in the Australian context.

Five attached papers[11] summarise the current situation in, and suggest future options for, Australian forest sector innovation and capacity development. In summary, they outline:

- how institutional changes in the forestry sector, in the national research and development system, and in tertiary education have diminished both current and future capacity across the forestry sector;
- the case for reversing the trend of declining investment and diminishing capacity in forest-sector research and development, and in professional and advanced education relevant to the forest sector;
- some institutional options for making best use of forest sector R&D and education investments.

We suggest three core commitments by key forestry sector actors - including the Australian and state and territory governments, forestry sector businesses, and the principal research and education providers - are necessary to build future capacity for forestry sector innovation, and to enable forest management that delivers the suite of forest values, products and services that meets the aspirations and needs of the Australian community:

- commitment to collaborative modes of research and development and education, and to new institutional models that build and sustain critical mass in these activities;
- commitment to reversing the declines in real funding for forest sector research and development, and to strategies to improve the coordination and prioritisation of research and development in the sector;
- commitment to supporting both undergraduate and graduate professional forestry education, and related specialist and continuing education, through enabling partnerships built around complementary and differentiated activities such as those outlined by Bull and Kanowski (2009, Table 1).

[10] See: Hull 2011 *J Forestry* January/ February 2011: 50-56

[11] Bull and Kanowski 2009; Duff 2010 ibid; Fairman *et al* 2010, Keenan 2010 ibid; Pratley et al 2010 ibid; see also de Fegley 2010 and FWPA 2010a; all annexed.

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List of annexed papers

1. Bull, L and Kanowski, P. 2009. The National Forestry Masters Program: a new era of collaboration in professional forestry education. Paper presented at: *The Institute of Foresters of Australia 2009 Conference*, 6 – 10 September 2009, Caloundra, Qld. 10 p.
2. Duff, G. 2010. Making ends meet: pathways to innovation in Australian forestry. *Australian Forest Grower* **33**(1) Special Liftout 91. 8 p.
3. Fairman, T., Keenan, R., Loxton, E. and Leslie, E. 2010. Conference communiqué. *The future of forestry and forest science conference*, University of Melbourne, 30 September – 1 October 2010. 2 p.
4. Keenan, R. 2010. Guest editorial. Education, research and innovation: transforming forest management in the 21st century. *Australian Forestry* **73**: 1-2
5. Pratley, J, Kanowski, P and Bull, L. 2010. Education and training challenges for the Australian forestry sector: an analysis based on recent trends in university and VET completions. *Australian Forestry* **73**: 227-233**.**
6. de Fegley, R. 2010. *Review of Australian forestry and wood products education and training needs*. FWPA. 41 p. www.fwpa.com.au
7. FWPA. 2010. *RD&E strategy for the forest and wood products sector*. FWPA. 55 p. www.fwpa.com.au