

## In the Living Forest An Exploration of Australia's Forest Community

Articles reviewed by teachers from, James Ruse Agricultural High School, Fairfield High School and Glendale Technology High School

Section name:	HISTORY				Page No:	14-15
Title:	Protecting our ancient treasures			Author:	Ian Abbott	
Article Summary						
<a href="#">Click here to download a copy of the article.</a>						
Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes	X				
Stage 6 Industrial Technology	Yes			X		

Section name:	HISTORY				Page No:	16-19
Title:	A land changed forever			Author:	Eric Rolls	
Article Summary						
<a href="#">Click here to download a copy of the article.</a>						
Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes			X		
Stage 6 Industrial Technology	Yes			X		

Section name:	HISTORY				Page No:	p20-21
Title:	The push for plantations			Author:	Gary Bacon	
Article Summary						
<p>This section provides an invaluable insight into how Australia has undergone three distinct booms in plantation management. Early plantations were established by fledgling state forest services with South Australia passing the first enabling legislation in 1875. As Australia developed, there was an insatiable demand for imported softwood which resulted in plantations being widely established. The second boom was driven by access to Commonwealth funding through the Softwood Forestry Agreement Act (1967-1978) which was established to facilitate self sufficiency for domestic consumption of forest products. The third flush of expansion came about as a result of "Vision 2020" which was launched in 1997. The goal was to enhance regional wealth creation and international competitiveness through a sustainable increase in Australia's plantation resources by trebling the area of commercial tree crops by 2020. As a result, the last decade has seen the largest expansion in plantation cover with the increase being accompanied by profound changes in the ownership, funding and species composition of the plantations.</p>						
Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes		X			
Stage 6 Industrial Technology	Yes			X		

Section name:	SCIENCE				Page No:	24-25
Title:	Following his animal instincts			Author:	Howard Spencer	
Article Summary						
<a href="#">Click here to download a copy of the article.</a>						
Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes	X				
Stage 6 Industrial Technology	Yes					X

Section name:	SCIENCE				Page No:	26- 29
Title:	Trees of knowledge			Author:	Chris Beadle & Sadanandan Nambair	
Article Summary						

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The principles of silviculture are discussed in reference to both native and plantation forests. The significance of native forests and plantation timbers are acknowledged as valuable resources. Science-based silviculture is recognised and discussed in terms of ensuring the sustainable management of these forestry resources. In particular the issues of site and species selection as well as site preparation and the selection of suitable planting stock are discussed as underlying issues of silviculture. In addition soil nutrients, pruning and thinning of forests are individually considered as factors which ensure the best-practice management of sustainable and profitable forests.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes					X
Stage 6 Industrial Technology	Yes				X	

Section name:	SCIENCE	Page No:	p30-31
Title:	It's all part of the process	Author:	Russell Washusen

### Article Summary

In his article, Russell Washusen, gives a profound description of the science of timber production from both native forest and plantation eucalypts and how they are inextricably linked with the economics of growing and processing. A critical aspect of this economic process is maximisation of wood production through genetic selection or silvicultural intervention. For greatest versatility, the wood must be suited to production of sawn timber and veneer for structural and appearance applications. Wood quality is a critical factor and, for greatest returns to both growers and processors, quality must allow the high yields of products that meet market demand. There are many challenges to developing resources suitable for sawn timber, including improving mechanical strength properties, reducing or eliminating timber defects such as knots and increasing resistance of sapwood to borers and other insect species. The article concludes by emphasising the inextricable link between the sciences of silviculture, genetics and wood processing. Fortunately, this link is well recognised in Australia.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes		X			
Stage 6 Industrial Technology	Yes			X		

Section name:	SCIENCE	Page No:	32-33
Title:	The good oil on farm forestry	Author:	Bob Beale

### Article Summary

This is a case study of the use of companion planting of native blue mallee in degraded wheat producing areas to repair damage from over clearing that has caused widespread salinity and water supply problems. Outlined are the economic, environmental and social benefits to the local community this has provided in the form of oil, energy, charcoal and carbon credits that result from the blue mallee that is harvested. Also described is the work being done on the genetic modification of suitable trees used for paper pulp to reduce the amount of lignin. This results in less energy being used to break down lignin in the production of paper.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes		x			
Stage 6 Industrial Technology	Yes					x

Section name:	SCIENCE	Page No:	34-35
Title:	Native forests under fire	Author:	Paul de Mar & Phil Cheney

### Article Summary

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Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes	X				
Stage 6 Industrial Technology	No					

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Section name:	SCIENCE				Page No:	p36-37		
Title:	Protecting plantations from fire			Author:	Paul de Mar			
<b>Article Summary</b>								
<p>Losing a timber plantation to fire is devastating. Paul de Mar's article stresses the need for an effective management plan being well in place before summer arrives. Timber plantations make up an important component of rural economies in south-eastern and south-western Australia having a total standing timber value of around \$6 billion as well as generating significant employment and multiple-use benefits such as grazing, honey production, recreation and ecotourism. History recounts how a plantation forest will need to survive several bad fire seasons and at least one catastrophic fire season during its life. These fires, which cause major plantation losses, are more often the result of fires burning into the plantation from outside rather than from within. High level suppression and containment planning is essential to ensure losses are minimised. Risk management horizons need to be set well beyond plantation boundaries and the quick response of a well organised and well practised large fire management organisation is imperative if the plantation is to be protected and preserved.</p>								
<b>Applicability</b>				<b>Usability scale</b>				
				1 <small>low usability</small>	2	3	4	5 <small>very usable</small>
Stage 5 Industrial Technology		Yes			X			
Stage 6 Industrial Technology		Yes				X		

Section name:	SCIENCE				Page No:	38-40		
Title:	Where there's smoke			Author:	Phil Cheney			
<b>Article Summary</b>								
<p>This article describes the conditions and behaviour of forest fires and the knowledge needed to control and fight them. The materials which fuel forest fires and the mechanisms that can spread fires many kilometres from their starting points are outlined. Also explained are the effects of convection currents and wind speeds on the intensity and rate of spread of forest fires. The author concludes that land managers need to manipulate fire behaviour to contain large fires by utilising dry firefighting techniques such as back burning and burning out operations. These techniques employed by highly skilled, disciplined and experienced operators also help prepare and train forest fire fighting crews.</p>								
<b>Applicability</b>				<b>Usability scale</b>				
				1 <small>low usability</small>	2	3	4	5 <small>very usable</small>
Stage 5 Industrial Technology		No						
Stage 6 Industrial Technology		No						

Section name:	SCIENCE				Page No:	41		
Title:	The latest in Genes			Author:	Katrina Lobley			
<b>Article Summary</b>								
<p>This is an outline of the work undertaken at the Grafton Forest Technology Centre. This centre is dedicated to research in the genetic improvement of trees. A history of tree improvement research has existed at Grafton and currently there is an emphasis on increasing the range over which Blackbutt can be grown, as well as research into improving other species including radiata, southern pine and eucalypts. The unique environment of the New South Wales north coast is recognised as a challenge for the centre in developing forestry resources. The need to work with cutting-edge science and technology is recognised as essential if the state's forestry industries are to be internationally competitive.</p>								
<b>Applicability</b>				<b>Usability scale</b>				
				1 <small>low usability</small>	2	3	4	5 <small>very usable</small>
Stage 5 Industrial Technology		No						
Stage 6 Industrial Technology		Yes		X				

Section name:	SCIENCE				Page No:	p42-43	
Title:	From little things big things grow			Author:	Glen Kile		
<b>Article Summary</b>							
<p>This article deals with the innovation and adaptation used in targeted and systematic programs of research and development in the forestry industry in recent decades. Advancement has come through improved sawing, drying and use of hardwoods and other indigenous species, the development of</p>							

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native forest silviculture, fire management policies and practices, the development of softwood plantations from the 1880s onwards the development of the plywood industry and the introduction of wood preservation technologies. Particularly important was the pioneering research on how to make paper from eucalypts, as well as the significant advances which have been made in resource expansion, processing and manufacturing. Another major innovation was the microwave treatment of wood which improves the processing of wood products by increasing the permeability of wood. The Australian research system is pluralistic and competitive and there is now increased emphasis on partnerships. Closer collaboration among research providers and industry will continue to develop in the face of ongoing pressure to do more with less.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes		X			
Stage 6 Industrial Technology	Yes				X	

Section name:	SCIENCE	Page No:	44-47
Title:	Salt of the earth	Author:	John Williams

### Article Summary

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Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes			x		
Stage 6 Industrial Technology	Yes				x	

Section name:	SCIENCE	Page No:	48-51
Title:	Sowing the seeds of change	Author:	Peter Farnum & Bill Carlson

### Article Summary

A discussion on the increased potential of timber resources if it were possible to populate forests with seedlings produced from known individual trees. In order to achieve such a goal, scientists from around the world are attempting to develop multitudes of genetically identical conifer species through the process of somatic embryogenesis. This laboratory technique amplifies the process of forming multiple embryos in a seed. Trees developed by this process do not rely on any genetic modification. Other technologies associated with the creation of cost effective seed production for forestry purposes are also discussed. The potential benefits for using these technologies on a commercial basis in the establishment of forestry resources are acknowledged.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	No					
Stage 6 Industrial Technology	Yes	X				

Section name:	SCIENCE	Page No:	P52-53
Title:	Measure for measure	Author:	Jerry Vanclay

### Article Summary

Measuring trees may not seem particularly exciting but this section relates just how important it really is as it is a crucial tool in the management of forests. Knowing how big trees are and how fast they are growing is like knowing your bank balance and financial situation. The practice of measuring trees, logs and forests is known as "mensuration". While relatively simple geometrical calculations can be used on logs, it is much more challenging to estimate the volume of wood or the mass of carbon in a forest. Modern tree harvesters use load cells (normally used for oil pressure measurement), data loggers and Global Positioning Satellite technology. Other more traditional measurement tools include large outside callipers, telescopic height sticks and clinometers. Also a hypsometer, which is a forestry instrument that combines an electronic clinometer with a laser or sonar device to measure distances. Once a known area of a forest is measured then that figure can be extrapolated over a large area to give a reasonably accurate judgement of the volume of timber which is available. Modern tools such as GPS and GIS (Geographic Information System) have made the foresters' jobs much easier.

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Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes				X	
Stage 6 Industrial Technology	Yes				X	

Section name:	EDUCATION AND TOURISM			Page No:	56-57
Title:	Rewriting the textbooks		Author:	Peter Kanowski	
Article Summary					
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Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	No					
Stage 6 Industrial Technology	Yes			x		

Section name:	EDUCATION AND TOURISM			Page No:	58-59
Title:	A man and his mountain The best and worst of times		Author:	Andy Padgett & Kerry Pidcock	
Article Summary					
<p>Andy Padgett is a conservationist who lives in the Mount barrow area of Tasmania. Three generations of his family have lived in this area and have been involved in the forestry industry. Andy Padgett was instrumental in developing the Mount Barrow Discovery Trail in 2004. The trail was established to illustrate to visitors that with the careful selection of trees for harvesting the landscape can successfully regenerate. By comparison, Kerry Pidcock's family have lived on the north coast of NSW and have developed a range of successful business ventures in the area. The business commenced with a number of timber mills followed by fibrous plaster and rotary veneer factories. Despite changes in social attitudes to the use of timber products and economic conditions the family has managed to maintain a viable business by moving to the production of Formply.</p>					

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	No					
Stage 6 Industrial Technology	Yes		X			

Section name:	EDUCATION AND TOURISM			Page No:	P60-63
Title:	Going troppo in the north		Author:	Julian Cribb	
Article Summary					
<p>Today Australian forests not only provide income from their products, the northern rainforest, for example, sustains a \$2 billion tourism industry and a rapidly growing plantation and agroforestry industry. These forests play a vital role in protecting water quality for the entire region including the Great Barrier Reef and support new industries in indigenous cultural heritage, bush foods and biodiscovery, and an expanding industry in sustainable technologies. This is a far cry from 1988 when logging of Australia's wet-tropics rainforests ceased and revenue had fallen below \$20 million and the lowlands were devoid of harvestable kauri pines and cedars. However, the rainforest is starting to make a comeback in a host of new guises and roles. Revegetation and reforestation by farmers and the development of an elite timber industry based on the beautiful rainforest hardwoods is leading the way in this revitalisation process. Being the developed country with the largest area of tropical rainforest in the world, Australia's scientific capabilities, accumulated data and practical advice to everyone from farmers and shire councils to foresters, indigenous communities and the federal government enable it to play a lead role in helping to save the rainforests of the world, and the people who depend on them, from the consequences of overuse of natural resources.</p>					

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	No					
Stage 6 Industrial Technology	Yes		X			

Section name:	EDUCATION AND TOURISM			Page No:	64-65
Title:	Carving out a career		Author:	Matthew Harding	

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The shaping of a firefighter		Phil Koperberg			
<b>Article Summary</b>					
<p>These are two short biographies of Matthew Harding, an artist/furniture maker and Phil Koperberg, fire-fighting co-ordinator. Each biography outlines each man's history, upbringing, training, inspirations and events that have led them along their respective paths in life. For Matthew Harding his love of sculpture, painting and carpentry and his father's influence has seen him develop his artistic and artisan skills and has won him numerous awards and scholarships both in Australia and overseas. Phil Koperberg's experience took him from the Netherlands as a child to the Indonesian jungle and finally, settling in Australia he became involved in his local volunteer fire brigade where he witnessed the death and destruction resulting from bush fires. These are excellent accounts of two experiences that students will find inspirational and teachers could use when discussing school to work transitions.</p>					
<b>Applicability</b>		<b>Usability scale</b>			
		1 <small>low usability</small>	2	3	4
Stage 5 Industrial Technology	Yes			X	
Stage 6 Industrial Technology	Yes			X	

Section name:	EDUCATION AND TOURISM			Page No:	66-69
Title:	New adventures in eco-tourism		Author:	Meaghan Newson	
<b>Article Summary</b>					
<p>An examination of the concept of multiple use forest management in Tasmania. The concept that forests should simply be considered as sources of timber is questioned. In particular, the use of forests as resources as the foundation for tourism development is recognised. A description and brief analysis of the major tourism attractions that Forestry Tasmania has developed to date is undertaken. Specifically the Tahune AirWalk, Dismal Swamp and the forest EcoCentre which have received multiple awards for innovation and excellence in tourism are sighted. The benefits to the communities in terms of environmental and financial gains in which these developments have been undertaken are outlined. The success of these ventures suggests a strong future for similar developments.</p>					
<b>Applicability</b>		<b>Usability scale</b>			
		1 <small>low usability</small>	2	3	4
Stage 5 Industrial Technology	Yes		X		
Stage 6 Industrial Technology	Yes	X			

Section name:	ECONOMIC GROWTH			Page No:	P72-73
Title:	Crunching the numbers		Author:	Phil Ruthven	
<b>Article Summary</b>					
<p>This article relates how the economic impact of forestry extends beyond the value of logs to include a host of related industries. Once seen as a somewhat unlimited source of firewood and construction materials, forests are now being seen in an entirely different light. The downstream use of our forests has broadened and is dominated by paper and paperboard as well as furniture and decorative timber applications. Plantation forests, which used to be dominated by softwoods, are now expanding to include hardwoods. Ecology is also making more of an impact with both federal and state governments increasing restrictions on logging (and other rural uses), so that remediation and reforestation is being taken more seriously. Interestingly, forestry in the 21<sup>st</sup> century is assuming quite a different dimension to the past two centuries. Its applications are moving away from the firewood and construction roles of yesteryear to be replaced by paper and paperboard, engineered timber products and decorative applications.</p>					
<b>Applicability</b>		<b>Usability scale</b>			
		1 <small>low usability</small>	2	3	4
Stage 5 Industrial Technology	Yes			X	
Stage 6 Industrial Technology	Yes			X	

Section name:	ECONOMIC			Page No:	74-75
Title:	Pioneers from wayback The story of three families		Author:	Cullity family Swan Le Messurier	
<b>Article Summary</b>					
<p>This article is a good industry case study outlining the history and development of two family based timber businesses. Cullity Timbers of Western Australia, established over 90 years ago, started by</p>					

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importing timber and plywood. Shortages during the Depression led them to developing a local plywood manufacturing business that later diversified to forestry in Sarawak and producing the glue they needed in their own factory in Perth. Cullity Timbers have pioneered the production of plywood, particleboard, MDF and laminated beams in Australia. Swan Le Messurier chronicles the partnerships, structures, takeovers and expansion of a family timber business from its beginnings in Adelaide in 1927 to the establishment of a distribution yard in Smithfield, Sydney in 1990.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	No					
Stage 6 Industrial Technology	Yes				X	

Section name:	ECONOMIC GROWTH	Page No:	76-79
Title:	Investment in the planet's future	Author:	David Brand

### Article Summary

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Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes			X		
Stage 6 Industrial Technology	Yes					X

Section name:	ECONOMIC GROWTH	Page No:	P80-81
Title:	The changing face of forestry investment	Author:	Tony O'Hara

### Article Summary

This section focuses on how investment in forests should never be done without asking some important questions. Some background is given to the establishment of plantations from 1994 to 2003 when 452,000 hectares of new plantations were established in Australia. Of this area, 78% was planted with short-rotation hardwood, 12% with long-rotation hardwood and 10% with long-rotation softwood. Sixty three percent of the funds used to establish these plantations were sourced from managed investment schemes (MISs), 17% from industrial investors and 18% from government. In sharp contrast to the period prior to 1990, in which government funded the vast majority of plantation establishment, more than 80% of funds now come from non-government sources. The drivers of plantation investment have fundamentally changed as governments make it clear that investment in new plantations should be done by business while health, education, law and order are the government priorities. The role of MISs should not be overlooked as they provide several benefits although do have some limitations. However, investment in timber plantations via MISs should be assessed by the same criteria as any other investment that has taxation benefits.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	No					
Stage 6 Industrial Technology	Yes				X	

Section name:	INDUSTRY	Page No:	84-87
Title:	Nailing it in one	Author:	Greg Nolan

### Article Summary

This article gives a comprehensive history of the use of timber for building applications in Australia since colonisation. Nolan outlines the specific properties of timber that led to its widespread use in early colonial buildings for frames, floors and roof structures. He describes timber's application as an engineering material in large span roof trusses for churches and other public buildings. Expansion across the Great Dividing Range as a result of the 1850 gold rush resulted in numerous timber truss bridges of varying designs from the Howe to the Allan truss. Also described is the development of various manufactured timber building products such as glue laminated beams and plywood-stressed skin beams. Nolan highlights the use of timber both structurally and aesthetically by various architects for buildings such as the Royal Exhibition Building in Melbourne, the Sydney Opera House and the glue laminated dome at Homebush Bay for example. The article also explains timber's unique properties related to its structure and the environmental advantages of using timber in terms of its low energy use and life cycle impacts.

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Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes			X		
Stage 6 Industrial Technology	Yes					X

Section name:	INDUSTRY			Page No:	88
Title:	The tangled issue of ownership		Author:	David Wilkie & Nomi Shannon	

### Article Summary

This article considers the issue of increased private ownership of forestry resources and in particular the ownership of timber plantations. Trends in Victoria and New Zealand in particular have seen a significantly shift to privatised ownership. The situation in Tasmania where the government has entered into joint ventures with the private sector is discussed. Recognition is given to the main arguments both in favour and against the trend of increased private participation in the forestry industry. Arguments in favour of increased private participation that are sighted are largely based on the ideals of economic rationalisation. The arguments against privatisation include environmental damage, loss of employment and potential conflict over resource management.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes	X				
Stage 6 Industrial Technology	Yes			X		

Section name:	INDUSTRY			Page No:	P89
Title:	A perennial dilemma		Author:	Russ Ainley	

### Article Summary

This article begins by noting that the problem of use versus reservation of our forests continues to divide industry, community and government. Historically, the development of the timber industry in Australia has been linked with land settlement. As forests were opened up, settlement spread. In NSW the first regulations to control tree-felling came into effect in 1873 with no provision for enforcement. The first forest inspectors were appointed in 1882 and carried the self-importance of tax collectors. The NSW forest industry has been the subject of inquiry and assessment since the holding of a royal commission in 1907. The dilemma of use versus reservation has been the most important issue of forest management facing all levels of government in Australia and the reservation of forests was a major issue on the agenda of all political parties. Australia relies on imports for 15 per cent of its solid wood products, 80 per cent of manufactured timber products and 85 per cent of pulp and paper products. The resource is restricted but demand continues to grow. The Australian timber industry, and particularly the native timber sector, has been unable to resolve the dilemma between forest use and reservation. While community attitudes to forest management will continue to remain divided, the industry must find a means of influencing community and government attitudes if it is to continue supplying, developing and returning value for the forest resource it uses.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes		X			
Stage 6 Industrial Technology	Yes		X			

Section name:	INDUSTRY			Page No:	90-93
Title:	Painting a different landscape		Author:	Michael Bullen	

### Article Summary

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Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes		X			
Stage 6 Industrial Technology	Yes					X

Section name:	INDUSTRY			Page No:	94-97
Title:	The time to act is now		Author:	David Butcher	

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Article Summary					
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Applicability		Usability scale			
		1 <small>low usability</small>	2	3	4
Stage 5 Industrial Technology	Yes	X			

Section name:	INDUSTRY			Page No:	P98-99
Title:	The great divide over certification		Author:	Peter Fuller	
Article Summary					
<p>It is widely recognised that there is unanimous agreement in Australian forestry that certification has brought substantial benefits to the industry over the past two decades. Independent third party auditing – the critical element in every internationally recognised certification system – has improved forestry management practices, lifted environmental performance, enhanced market access and given buyers greater certainty about the provenance of the timber they buy. Yet certification remains a contentious issue with proponents of the two systems used in Australia – the Forest Stewardship Council Standard and the Australian Forest Standard – sometimes sharply divided over the respective merits of their approaches. Yet the situation is not as polarised as it might appear. There is a widespread view that a re-establishment of more harmonious relations of some kind is inevitable. Even if Australia's forests are never covered by a single standard, industry people see huge benefits in mutual recognition of common areas in the standards.</p>					
Applicability		Usability scale			
		1 <small>low usability</small>	2	3	4
Stage 5 Industrial Technology	Yes		X		
Stage 6 Industrial Technology	Yes		X		

Section name:	MANAGED INVESTMENT			Page No:	102-105
Title:	Sowing a sound investment		Author:	Gayle Bryant	
Article Summary					
<p>This article outlines the financing strategy used by Australian Forestry Management (AFM), a Rothchild subsidiary, to enable the expansion of forest plantations. AFM have teamed up with Forests NSW to attract investment and develop plantations. Since 2002 tens of millions of dollars have been raised to establish new plantations in areas such as the NSW mid-north coast, Tumut, Tumbarumba and Oberon. Forests NSW provides the expertise that ensures areas are chosen for optimum rate of growth and low risk to investors who must commit for a term of between 10 and 26 years – it has been marketed as a superannuation option in a balanced portfolio. Bryant highlights that development of forestry and other agribusiness ventures will depend on attracting long term investors in this way.</p>					
Applicability		Usability scale			
		1 <small>low usability</small>	2	3	4
Stage 5 Industrial Technology	No				
Stage 6 Industrial Technology	Yes		X		

Section name:	MANAGED INVESTMENT			Page No:	106-107
Title:	Future of wood looks good		Author:	Simonne Ventouras	
Article Summary					
<p>The significance of the Integrated Tree Cropping (ITC) group is identified and explained in relation to the supply of hardwood plantation products that are used in the production of paper and board products. The ITC plantations division has grown significantly since 1992 as a consequence of significant investment in research and development in the areas of genetics and silviculture. The plantations are largely based on Tasmanian blue gum as a result of the superior wood chip properties of this tree. The company has established blue gum plantations in a number of states. Other interests that have been developed by ITC across a wide range of geographical regions are also described. These include rose gum and sandal wood plantations. ICT's strong commitments to responsible</p>					

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environmental practices are supported by their certification by the Forestry Stewardship Council. This is an example of an organisation that is both economically viable and economically sustainable.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes	X				
Stage 6 Industrial Technology	Yes			X		

Section name:	MANAGED INVESTMENT	Page No:	P108
Title:	A forest man from way back	Author:	Peter Crowe

### Article Summary

Peter Crowe, also known as "Crowie", is Forest NSW's director of planted forests operations. His career in forestry dates back to 1959 when he started work as a junior at the then Forestry Commission of NSW's radiata pine nursery in Batlow. Crowe graduated from Sydney University and the Australian Forestry school in 1964 and spent the next five years in Bateman's Bay where he carried out forest surveys and fought rampant timber theft from the forests. In 1968 he was involved in fighting huge bushfires on the NSW south coast and came to be aware of how regional communities can be crippled when valuable plantations are lost to fire. After 12 years in Coffs Harbour, Crowe was appointed to the Albury headquarters of Forests NSW's softwood plantation operations where he is now based. Since 1984, Crowe has overseen commercial development of the planted forest group in Oberon, Tumut, Tumberumba and Albury. Crowe has a passion for tree improvement programs and has travelled throughout the world to bring the best international forestry knowledge to NSW. After surviving a life-threatening melanoma in 1994, Crowe continues his devotion to improving forestry development in southern NSW.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	No					
Stage 6 Industrial Technology	Yes			X		

Section name:	MANAGED INVESTMENT	Page No:	109
Title:	Credit where credit is due	Author:	Gayle Bryant

### Article Summary

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Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes	X				
Stage 6 Industrial Technology	Yes			X		

Section name:	MANAGED INVESTMENT	Page No:	110 - 111
Title:	Carrying out a grand vision	Author:	Mark Kestigian

### Article Summary

An outline of the history and the activities of Willmont Forests. This organisation manages softwood forests in the Bombala and Murray valley regions in conjunction with near-by sawmilling operations. The milling operations allow the conversion of the timber resources to a range of products. Willont Forests' significant financial investment in the forestry industry together with a practice of ensuring that all activities are well managed has ensured the maximum value of timber resource is obtained. Reasons for the use of radiata pine to develop their plantation operations are discussed. Descriptions of the types of technologies used to optimise the development of plantation resources are outlined. Well managed practices for timber resources are identified as significant factors in the increasing interest of developing investment in timber resources as valuable assets that are capable of producing sound long term financial returns.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes		X			
Stage 6 Industrial Technology	Yes				X	

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Section name:	RESEARCH AND DEVELOPMENT				Page No:	P114-115
Title:	Hardwood hybrid hope	Author:	Toni Lucke			
<b>Article Summary</b>						
<p>This article provides an overview of Queensland's hybrid breeding program which could hold the key to securing the future of the hardwood industry in Northern Australia. While the program is still in its infancy, scientists at Queensland's Department of Primary Industries and Fisheries (DPI&amp;F) believe hybrids of <i>Corymbia</i> species (eucalypts) being bred in the department's hardwood tree-improvement program could address the industry's need to expand in to the more challenging environments of sub-tropical Australia. The DPI&amp;F is working with universities, local and interstate government agencies such as Forests NSW, private forestry companies, property owners and community groups to secure the industry's future. Hybrids are seen as integral to this because of their substantially high growth rates, their disease tolerance and their suitability for propagation from cuttings. As young plantations are seen as a reliable source of jobs and value-added timber, confidence in the long term viability of hardwood plantations and associated timber processing industries will grow. The new <i>Corymbia</i> hybrids will reduce risks for investors and play a key part in expanding Australia's subtropical hardwood plantation industry.</p>						
<b>Applicability</b>		<b>Usability scale</b>				
		1 <small>low usability</small>	2	3	4	5 <small>very usable</small>
Stage 5 Industrial Technology	Yes		X			
Stage 6 Industrial Technology	Yes			X		

Section name:	RESEARCH AND DEVELOPMENT				Page No:	116
Title:	Making paper work	Author:	Rod Urquhart			
<b>Article Summary</b>						
<p>An outline of the continuing research into paper, its structure and interaction with various fluids such as ink. Previous beliefs that ink flowed into 'holes in the structure' of paper have been changed through the use of scanning electron microscopy by an Australian National University (Canberra) team which has discovered that ink flows along paper fibres and not between them. This is having implications for the development of paper surfaces to facilitate new printing technologies (laser and inkjet) as well as recycling techniques to reduce the amount of chemicals used to remove ink prior to paper reuse. The packaging industry is also applying this knowledge to enable the application of thin chemical films to the surface of cardboard so it resists moisture.</p>						
<b>Applicability</b>		<b>Usability scale</b>				
		1 <small>low usability</small>	2	3	4	5 <small>very usable</small>
Stage 5 Industrial Technology	No					
Stage 6 Industrial Technology	Yes		X			

Section name:	RESEARCH AND DEVELOPMENT				Page No:	117
Title:	An answer to those burning questions	Author:	Kevin Tolhurst			
<b>Article Summary</b>						
<p>The article details the relatively small knowledge base that has existed on the ecological impacts of fire on forests. Until the mid 1980's there had been no comprehensive experiments undertaken to determine the ecological impacts on repeated fuel reduction burning on forests. A description of a study that took place in five areas of the Wombat State Forest, north-west of Melbourne is provided. The conclusions from the study are outlined and it is reported that this study has provided a better insight into the dynamics of forest ecosystems than was previously available.</p>						
<b>Applicability</b>		<b>Usability scale</b>				
		1 <small>low usability</small>	2	3	4	5 <small>very usable</small>
Stage 5 Industrial Technology	No					
Stage 6 Industrial Technology	No					

Section 7:	RESEARCH AND DEVELOPMENT				Page No:	118
Title:	The science of staying on top	Author:	Ian Grayson			
<b>Article Summary</b>						

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Australia's forest industry is a world leader, but ensuring it stays that way is a challenging and complex task. Increasing global competition, rising demand for timber and environmental pressures call for first-class growing and processing techniques. Sustained but focused research on technologies and industry practices is spearheaded in Australia by the Cooperative Research Centre for Forestry based in Hobart, Tasmania. It works with partners around the country to directly improve Australia's forestry industry. Since its founding by the federal government in 1990, it has focused on the innovative application of emerging technologies, value adding, production efficiency, sustainability issues and community engagement. Recently research has focused on managing the threat of damage to forests from diseases, pests and vertebrate browsers. CRC researchers have developed effective pest management strategies based on an in-depth understanding of insect biology and ecology.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes	X				
Stage 6 Industrial Technology	Yes		X			

Section name:	RESEARCH AND DEVELOPMENT			Page No:	119
Title:	Tree crops hold the key		Author:	Mark Mentiplay	

### Article Summary

Mark Mentiplay outlines the role of new forestry in developing economic solutions to combat salinity problems in farming areas. Shallow rooted commercial crops allow rainfall to leak below root systems which mobilises salts from the subsoil to the surface and overland to waterways. The commercial viability of deep rooted natives and other cash crops are being investigated for their ability to 'soak up' and use this 'waste rainfall'. As well as this ability, the species being introduced will also provide a range of commercial products such as small-dimension wood for paper and panels and from mallee, activated carbon, eucalyptus oil and electricity (bioenergy) using twigs, bark and leaves. So solutions to reduce salinity will also provide viable economic outcomes for farmers which should encourage them to adopt these mixed farming methods.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes	X				
Stage 6 Industrial Technology	Yes			X		

Section name:	RESEARCH AND DEVELOPMENT			Page No:	120
Title:	Part of the new breed		Author:	Mark Kestigan	

### Article Summary

A description of the work undertaken by Ensis. Ensis is a joint venture between the CSIRO Forestry and Forest Products division and New Zealand's SCION. The work of this organisation is largely focussed on genetics research that is designed to support tree improvement projects in both countries. Developments in the tree breeding program are based on breeding for superior timber quality. It is stated that the program being undertaken by Ensis should result in important contributions to the development of Australian and New Zealand timber resources, as well as global timber plantations.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	No					
Stage 6 Industrial Technology	Yes	X				

Section 7:	RESEARCH AND DEVELOPMENT			Page No:	121
Title:	Weaving trees into farms		Author:	Rosemary Lott	

### Article Summary

A great deal of research has gone into finding the best ways to develop agroforestry and farm forestry in Australia. Trees and other woody perennials produce a range of products and services as well as ecosystem services. Some of the commercial benefits include shelter for stock, on-farm use or the sale of tree products. Resource management benefits include reduced soil erosion, interception of pesticide drift, provision of corridors and habitats for wildlife, carbon sequestration and water management. Trees provide benefits at the farm, catchment and landscape level. When carefully planned and integrated, they improve overall farm profitability, sustainability and aesthetics. The Joint Venture Agroforestry Program (JVAP) was initiated in 1993 as a partnership between three

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government agencies that fund research and recognises the dual roles of agroforestry and farm forestry. That is, to develop an industry and to integrate trees within farms and catchment areas in order to improve natural resource management. JVAP research has encompassed tree breeding, wood products, whole-farm economics, farm and landscape design, tree-water-salt interactions and valuation of ecosystem services. The goal is to build knowledge to underpin profitable, sustainable and resilient agroforestry within Australian farming systems and landscapes.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes				X	
Stage 6 Industrial Technology	Yes				X	

Section name:	ECO-EFFICIENCY	Page No:	124-127
Title:	A profound transformation	Author:	Peter Fuller

### Article Summary

This article chronicles the changes to sustainable forest management in Australia over the past 20 years. The main contribution to this change being the 'continuous improvement' requirement for companies seeking certification of their forestry practices. Since 1983 the Commonwealth government set out a National Conservation Strategy and a National Forest Strategy for Australia followed that in 1986. IN 1992 the National Forest Policy Statement (NFPS) was signed by the Prime Minister and state and territory leaders. This has ensured national goals for conservation, water-catchment management, wood production and public education leading to increases in total areas under trees; ecologically sustainable and expanding forest based industries and greater research and development. Further initiatives include the Plantations 2020 vision designed to treble plantation areas by 2020. Through these measures Australia hopes to strengthen sustainable forest management by becoming a world leader as well as reversing timber export trade imbalances.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes	X				
Stage 6 Industrial Technology	Yes					X

Section name:	ECO-EFFICIENCY	Page No:	128-129
Title:	Striking a balance	Author:	Mark Kestigian

### Article Summary

VicForests is an autonomous commercial entity whose board is responsible to the Victorian state government, commenced operation in 2004. The progress that VicForests have made in relation to the management of native eucalypt forests is outlined. The programs that have been implemented by the organisation which are designed to ensure the long term viability of the industry are outlined. VicForests sells almost 660000cubic meters of sawlogs and almost 1.3 million cubic meters of residue logs for chipping and paper production each year. A description of an auction system that has been implemented to sell timber is provided. It is noted that that the volume and diversity of special timber products have steadily increased over time. The varieties of operations implemented by VicForests are aimed at building a business that generates the optimum community value from harvesting the timber in the state's forests.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes	X				
Stage 6 Industrial Technology	Yes			X		

Section 8:	ECO-EFFICIENCY	Page No:	130-133
Title:	Rising from the ashes	Author:	Peter Fuller

### Article Summary

Devastating bushfires ravaged the Australian Capital Territory in 1993 but the forests are being restored and now people are looking to the future as the hills around Canberra become vibrant with

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life again. Hundreds of hectares of newly planted seedlings in the hills around the nation's capital are rapidly growing although it will be a decade or more before the landscape regains its old character. The fires had caused grievous losses – 10,500 hectares of maturing trees had been fire damaged with only one plantation able to continue as viable commercial operation. Intense debate occurred after the fires about how best to revitalise and use the fire ravaged landscape. Ideas mooted included planting vineyards and olive groves while others thought existing graziers should be allowed to expand; even alpaca farming was suggested. However, the ACT government sought balanced advice from a number of stakeholders to ensure informed decisions were made about land use. The outcome has been the development of a restoration program and the formation of expert groups to guide its implementation so that re-establishment of the forests does not take away any flexibility from future custodians of the land.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes			X		
Stage 6 Industrial Technology	Yes				X	

Section name:	ECO-EFFICIENCY		Page No:	134-135
Title:	A voluntary reflex action	Author:	Ian Grayson	

### Article Summary

Ian Grayson describes the operations of the 16,500 strong, South Australian volunteer Country Fire Service. Apart from fire fighting, volunteers undertake activities such as educating people on how to prepare for fires, hazard reduction burns and development of emergency plans. This service works with other emergency services and power and water companies for a co-ordinated strategy as well as working within the Australian Inter-Service Incident Management System (AIIMS) framework which ensures common procedures and command structures across states – useful when large incidents occur and assistance is needed in other states. Constant evaluation of equipment and systems has led to improvements in safety and procedures and future utilisation of technology to improve information and communication about fires is being investigated. Global warming could see a rise in the number of bush fire outbreaks.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	No					
Stage 6 Industrial Technology	No					

Section name:	ECO-EFFICIENCY		Page No:	136-137
Title:	A fiery friend and foe	Author:	Mark Kestigian	

### Article Summary

An explanation and description of the bush fire management activities undertaken by the Department of Sustainability and Environment (DSE) in Victoria. The work that is undertaken by DSE in conjunction with Forestry Victoria, Parks Victoria and the Department of Primary Industries in the field of bush fire management is internationally acknowledged. The thermal fire detection and mapping system that has been developed is outlined. Together with their partners, the DSE has developed a holistic and scientific approach to fire management. The affects of fire on various environments are outlined. It is recognised that Australians need to appreciate the importance of fire in shaping the landscape and that the impact of fire will not be able to be eliminated. Fire should be considered a powerful tool in managing and maintaining a range of Australian ecosystems.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	No					
Stage 6 Industrial Technology	No					

Section 8:	ECO-EFFICIENCY		Page No:	138
Title:	Making a perfect match	Author:	Tim Treadgold	

### Article Summary

For more than 150 years, visitors to the south-west corner of Western Australia have gazed up in awe at the mighty karri tree or *Eucalyptus diversicolor* which soars up to 90 metres and rivals the

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Californian redwood as the world's tallest tree. However, tree species like the karri occupy only a tiny part of a vast state and most are rarely seen outside this high-rainfall environment. The challenge for farmers, sawmill owners, plantation investors and the Forest Products Commission is to find the right type of tree for an environment that becomes drier as the distance from the coast increases. However, the situation is made more complex by widely varying soil conditions, land use and rainfall. Sadly, rising watertables are also triggering the twin problems of waterlogging and increased salt levels which have rendered large tracts of once-fertile land unsuitable for farming. Smarter management of trees is necessary as it is a way of achieving economic, social and environmental benefits. Increased tree plantings do help but the key to success lies in selecting the right tree for a particular environment. From a historical perspective, plantation development in WA is entering a third phase. The first two phases saw the planting of hardwood and softwood in the state's high-rainfall area in the south-west corner. Now lower-rainfall areas are being targeted as opportunities exist for large scale plantations and industrial development. Over time, plantation timber in areas of lower rainfall will become a major Australian industry delivering commercial, social and environmental benefits to the whole country.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes			X		
Stage 6 Industrial Technology	Yes			X		

Section name:	ECO-EFFICIENCY	Page No:	144-145
Title:	Lending a hand overseas	Author:	Peter Fuller

### Article Summary

An account of the work undertaken by the Rural Fire Service (RFS) in conjunction with associated international organisations. Activities that have been undertaken in a number of countries including South Korea and China are acknowledged and range from fire protection and preparedness to fire suppression. The depth of experience that has been developed by the RFS is identified as a sound foundation for providing cost effective opportunities in increasing the skills and expertise of personnel from both the RFS and overseas agencies in relation to fire management issues.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes	X				
Stage 6 Industrial Technology	No					

Section 8:	ECO-EFFICIENCY	Page No:	146
Title:	Starting from pole position	Author:	Gayle Bryant

### Article Summary

With some clever rethinking of the humble utility pole, Koppers Wood Products is helping precious timber go further. Working with its customers to find suitable alternatives to old-growth timber is a main focus for Koppers. The company uses natural renewable plantation pine and managed regrowth hardwood resources to produce an extensive range of treated wood products such as utility poles with built-in protection against termites and decay. It has a 20-year supply agreement with Forests NSW to use species that are sustainable for the future. The challenge for Koppers' supply chain is to identify and assess future timber supplies and identify the best way to process and present timber so that it meets their customers' changing and adapting needs. In recent years, Koppers has used innovative technology to introduce a new product called a "composite pole" which comprises a steel sleeve fixed to the bottom end of the pole. This sleeve increases the efficiency of the timber by using shorter lengths and reduces exposure to hazards which in turn enables alternative timber preservation options to be included in future product variants. This means fewer chemicals are required to treat the timber and, as well, it opens up the potential to use faster-grown plantation timber species with less durability. By making more efficient use of timber, Koppers is increasing the yield of forests as well as using recycled timber which reduces the amount of new timber required. Strict adherence to environmental regulations ensures that the use of preservatives when treating timber is done in an environmentally sustainable way.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes				X	

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Stage 6 Industrial Technology	Yes				X	
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Section name:	INNOVATION	Page No:	150-152
Title:	Let's stick together	Author:	Tim Treadgold

### Article Summary

A discussion on the relationship that has emerged in Western Australia between Westbeam, an organisation involved in the manufacturing of timber products and the Forestry Products Commission, who are concentrating their efforts on tree planting activities in environments that traditionally receive a low annual rainfall. Westbeam has made a significant investment in capital equipment that is used to produce laminated veneer lumber products from the plantation timber resources that have been established by the Forestry Products Commission. A description of the processes associated in the production of the laminated veneer lumber is outlined. The properties and the relative advantages of these products are also discussed. The multiple benefits of the activities conducted by Westbeam which includes environmental and economic issues are identified and discussed.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes		X			
Stage 6 Industrial Technology	Yes				X	

Section 9:	INNOVATION	Page No:	153
Title:	Keeping it in the family	Author:	Mark Kestgian

### Article Summary

The latest generation of a South Australian timber-working dynasty is devising innovative ways to get the most out of each log that comes its way. In 1983, the disastrous Ash Wednesday bushfires destroyed lives, homes and trees but it also provided an opportunity for the Whitehead family to become more involved in the timber industry. From the area known as the "green triangle" in the south-east of the state where the finest radiata plantations suffered particular devastation, the Whitehead family salvaged as much timber as possible. At the same time they continued their traditional core business of cutting sleepers for the South Australian railways. The business has since grown to become a successful, medium-size, vertically integrated family business, manufacturing a diverse range of wood products for more than 100 customers. The company specialises in using residual-grade radiata pine logs in a variety of products including boards, fence palings, pickets, posts, rails, garden sleepers, structural timber, vineyard and farm posts. And, true to their farming heritage, the Whiteheads have complemented their wide-ranging timber business with extensive agroforestry activities.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes	X				
Stage 6 Industrial Technology	Yes			X		

Section name:	INNOVATION	Page No:	156
Title:	The colour of karri	Author:	Alethea Mouhtouris

### Article Summary

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Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes	X				
Stage 6 Industrial Technology	Yes	X				

Section 9:	INNOVATION	Page No:	157
Title:	Square pegs and round holes	Author:	Mark Kestgian

### Article Summary

A Victorian company has devised a revolutionary "radial" milling technique that offers significant savings over standard or "square" milling operations. The Radial Corporation uses its radial process to cut logs from the outside to the centre to produce long wedges of timber rather than making parallel

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cuts and at right angles to initial cuts. The radial method has been proven to produce less waste and the timber sections have a more consistent growth ring orientation with less residual stress than square-cut timber. Radial milling also allows for the efficient removal of lower quality pith wood and minimises the distorting effect of this wood in sawn boards. The high proportion of wastage occurs in square milling as a result of trying to fit the square geometry into the round log. Special technology is used to release growth stresses evenly into each wedge. This method of milling has found some unique applications such as the new indigenous cultural centre at Uluru National Park in the Northern Territory. The entire roof structure in this building is supported by radial-sawn wedge rafters and used less than one-third the timber which would have been required if square-milled timber was used. The company is looking to licence and sell the technology both nationally and internationally.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes				X	
Stage 6 Industrial Technology	Yes				X	

Section name:	INNOVATION	Page No:	159
Title:	Staying true to form	Author:	Rachael Sullivan

### Article Summary

A description of how Big River Timbers, a Grafton based organisation, has changed its operation as a result of the NSW government decision to restrict the use of large areas of diverse forestry resources in the region. Prior to the 1980's Big River Timber operations were focused on harvesting a variety of rainforest timbers. As a result of the restricted supply of these timbers, the organisation focused its operations on the development of laminated timber products from eucalypt stock. The organisation now largely devotes resources to the production of Formply. Their success with the development of Formply has allowed the company to expand nationally and focus on the development of other timber products.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes		X			
Stage 6 Industrial Technology	Yes	X				

Section 9:	INNOVATIONS	Page No:	160
Title:	The right treatment	Author:	Mark Kestigian

### Article Summary

In Victoria, few people go more than a day without passing one of the impressive projects that use material from Davids Timber. Such projects include freeway noise attenuation fencing, treated decking timbers at Docklands, or a huge access ramp to the main beach on Phillip Island. Davids Timber was founded 40 years ago and is focused on the development of business infrastructure such as new and enlarged warehousing, production automation and continued investment in state-of-the-art timber treatment and drying facilities. Timber treatment is a large part of the company's operation with investment being made in Alkaline Copper Quaternary (ACQ)-treated products making them one of the pioneers in ACQ treatment. ACQ-treated timber is the most popular alternative used worldwide, offering protection against decay, fungi, termites and borers.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes		X			
Stage 6 Industrial Technology	Yes			X		

Section name:	INNOVATION	Page No:	162-163
Title:	On the right track	Author:	Mark Kestigian

### Article Summary

An account of the development of the Caterpillar company which has played a significant role in the development and manufacturing of construction and mining machinery as well as forestry equipment. Equipment that the company has designed specifically for the forestry industry is identified. Caterpillar's commitment to sustainable environmental practices as well as their desire to strive for

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excellence in economic performance and social equity is identified. Initiatives that have been undertaken in conjunction with the National Association of Forestry Industries in Australia are discussed. The new technology that Caterpillar is incorporating in the development of its forestry machinery is specifically identified as being the basis to help save valuable natural resources for future generations.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes	X				
Stage 6 Industrial Technology	Yes	X				

Section 9:	INNOVATION	Page No:	164
Title:	Keeping it in the family	Author:	Mark Kestigian

### Article Summary

One Victorian hardwood supplier has found benefits in diversifying its plant handling processing and its distribution and sales operations. The family-owned McCormack Timbers Company has been a leading supplier of kiln-dried Victorian hardwood for more than 40 years. It specialises in appearance grades such as standard and select in Victorian ash, messmate and Victorian oak. Unlike other timber companies, McCormack Timbers have split its fully automated sawmills and processing plant from its administration, sales and distribution operation. It has proven to be more efficient as now it acts more as a wholesaler and can dispatch full semi loads directly to customers within a 24 hour period. A highly experienced sales executive team ensures that the needs and requirements of customers are met quickly and efficiently. More recently, the company launched a new product for treating hardwood to an H2 or H3 rating, eliminating the threat of termite or fungal infections. The company also holds a logging licence with VicForests, which is committed to the long-term viable supply of logs using sustainable forestry practices.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes		X			
Stage 6 Industrial Technology	Yes			X		

Section name:	INNOVATION	Page No:	166
Title:	Getting the better of pests	Author:	Mark Kestigian

### Article Summary

A discussion of the activities and developments undertaken by the Bayer Environmental Science business group that has been created by the multinational Bayer organisation. Specifically the role of the organisation in the development of pest control technologies is identified and discussed. A new and yet unnamed product is recognised as having several benefits over existing technologies. In particular, this product ensures a slow release of both fertiliser and insecticides which has the potential to eliminate fertiliser run-off and a dramatic reduction in the need for aerial spraying. The product meets the Australian Forestry Standards and is an example of Bayer's commitment to research and development and their belief in environmentally safe forestry products.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	No					
Stage 6 Industrial Technology	No					

Section 9:	INNOVATION	Page No:	167
Title:	Five generations of timbermen	Author:	Hyne family

### Article Summary

The Hyne family's involvement in the timber industry spans five generations and dates back to 1882, when Hyne Timber's business was established on the banks of Maryborough's Mary River by Richard Matthew Hyne who arrived in Australia from England in 1864. After various business ventures, Hyne opened the National Saw and Planing Mills on the banks of the Mary River where timber sourced from Fraser island, Tin Can Bay and Burrum River was milled. In 1889 he became involved in politics and, as the member for Maryborough in 1889, moved that the state government take action to replant forests and create a department of forestry. Richard Hyne's son Henry and grandson Lambert took

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over the business on his death in 1902 and together they rode out the Depression. Henry kept the mill open even when there were no orders as he believed that his staff should retain their jobs as long as the bank would allow. Lambert continued the family business acquiring several country hardwood mills in order to maintain resource and, recognising the potential of softwood plantations, built a sawmill to process thinnings. Lambert's sons Richard and Warren continued the business travelling the world investigating sawmills and manufacturing plant technologies. The company diversified its operation over the years including sawmills, kilns, manufacturing plants, timber preservation and glue-laminating plants.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes	X				
Stage 6 Industrial Technology	Yes	X				

Section name:	SOCIAL RESPONSIBILITY		Page No:	171
Title:	With one voice	Author:	Julia Newbould	

### Article Summary

An account of the foundation and the activities undertaken by the Australian Plantation Products and Paper Industry Council (A3P). This organisation is primarily concerned with the ability of Australia to play a significant role in the supply of paper products for the global market. The various activities that A3P is involved in to ensure that its primary objective is met are described. These activities include the development of a genuine partnership between governments and industry interests as well as the promotion of investment in the natural resources that are the foundation for the industry. It is also noted that despite the increase in the global demand for forestry products, Australia's competitiveness is challenged by developing countries that fail to adhere to acceptable environment standards. A3P works closely with overseas associations to ensure the future security of forestry resources.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes	X				
Stage 6 Industrial Technology	Yes	X				

Section 10:	SOCIAL RESPONSIBILITY		Page No:	172- 173
Title:	Rehabilitation in the bush	Author:	Alethea Mouhtouris	

### Article Summary

For many NSW inmates, being part of a "bush gang" offers a life without walls as well as the chance to learn valuable work skills which they can use after their release. For almost a century, an innovative partnership between the Department of Corrective Services and Forests NSW has enabled the employment of thousands of inmates and established a series of pine plantations to provide softwood for NSW. Years ago, the then Forestry Commission of NSW found it difficult to attract workers to isolated, inhospitable land to carry out hard physical labour. The Department of Corrective Services was approached to supply inmates nearing the end of their sentences who would work at an afforestation camp prior to their release, to help them re-assimilate into the community. Today, the focus is more on the physical and mental benefits for inmates as well as practical outcomes for the community. Thousands of inmates have been provided with invaluable self-development opportunities with their work being broadened to include fire-trail clearing, back-burning and the planting of new forests. Inmates gain experience with heavy machinery and learn new skills associated with sawmill machinery which gives them the experience necessary to go on and find work within the industry when they are release. Vocational training opportunities through TAFE can also be accessed which provides them with even greater employability. One of the most significant benefits of the partnership with Forests NSW is that it gives inmates – whether they're working in a bush gang, at the sawmill or in a furniture workshop – a glimpse of the opportunities that await them in the future.

Applicability		Usability scale				
		1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes				X	
Stage 6 Industrial Technology	Yes			X		

## In the Living Forest An Exploration of Australia's Forest Community

Section name:	SOCIAL RESPONSIBILITY				Page No:	177
Title:	An industry of monumental importance			Author:	George Martin	
<b>Article Summary</b>						
<p>An historical account of the development of the Tumbarumba Shire in southern NSW. It is suggested that the availability of timber resources has played a significant role in the development of the region since the commencement of European settlement. The changes that have occurred from the past pit sawing of timber to the automated technology of today's timber processing are noted. Another significant change associated with timber production in the area, namely the establishment of softwood forests is noted. The historical development of these softwood forest areas is outlined together with an acknowledgement of their importance for an area that continues to develop its future around timber resources.</p>						
<b>Applicability</b>		<b>Usability scale</b>				
		1 <small>low usability</small>	2	3	4	5 <small>very usable</small>
Stage 5 Industrial Technology	Yes	X				
Stage 6 Industrial Technology	No					

Section 10:	SOCIAL RESPONSIBILITY				Page No:	178-179
Title:	Seeing the forest for the trees			Author:	Peter Fuller	
<b>Article Summary</b>						
<p>Educating the public on the realities of modern forestry, its importance and the strides it has made is a key concern of the industry's peak national body, the National Association of Forest Industries (NAFI), which marks two decades of energetic forest advocacy in 2006. NAFI membership spans the forest and wood-products sector, from plantation firms and value-added producers to research groups. Its concern is to secure the future of Australia's forestry industries by helping to shape crucial regulations, securing resources and developing the people and products the sector will need. NAFI grew out of a complex of concerns in the late 1970s when the industry was undergoing a period of critical scrutiny as public interest in environmental issues increased. The 20 years since then have been well utilised, with NAFI promoting responsible environmental practices while also reinforcing the industry's economic strength. NAFI's vision 25 years from now is that people will have a greater awareness and acceptance of the need to sustainably harvest timber from native forests, along with plantation timber; there is wider recognition that growing timber can cut greenhouse gases, improve water quality and reduce salinity problems and there is recognition that timber is the most environmentally friendly building material. NAFI will continue to play a key role in the future by ensuring that the forestry industry is well respected for how it sustainably manages its resources, the quality of its research and the excellence of its products.</p>						
<b>Applicability</b>		<b>Usability scale</b>				
		1 <small>low usability</small>	2	3	4	5 <small>very usable</small>
Stage 5 Industrial Technology	Yes			X		
Stage 6 Industrial Technology	Yes				X	

Section name:	SOCIAL RESPONSIBILITY				Page No:	182
Title:	Perfect for pine			Author:	Cassie McCullagh	
<b>Article Summary</b>						
<p>An account of the development of the forestry resources by the Walcha Council which is located in the New England region of NSW. It is noted that the future of the timber resources that are being established in this region are focused on the development of pine plantations. The council has developed a plantation investment strategy that is aimed at attracting large-scale investors who are committed to long-term investment goals. It is noted that in addition to the softwood plantations, Walcha has also developed a reputation as a supplier of high-quality native hardwoods. By the establishment of these forestry resources it is noted that the region will have a more diverse economic base for the future than would have been the case if was to simply rely on traditional agricultural activities.</p>						
<b>Applicability</b>		<b>Usability scale</b>				
		1 <small>low usability</small>	2	3	4	5 <small>very usable</small>
Stage 5 Industrial Technology	Yes		X			

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Stage 6 Industrial Technology	Yes			X		
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Section 10:	SOCIAL RESPONSIBILITY			Page No:	183
Title:	One step at a time	Author:	Mark Kestigian		

### Article Summary

South-eastern Victoria's Wellington Shire sits comfortably in the middle of the state's vast Gippsland region whose timber industry combines large hardwood timber holdings with extensive softwood plantations that account for \$180 million of output a year and employs 800 people. Timber from the region is used for a wide variety of products ranging from housing and construction timber through to value-added products such as furniture and special mouldings. Interestingly, stringy-bark timber from Wellington Shire was used for the flooring of Australia House in London. The shire's timber industry is known for its innovation and forward thinking and this is most evident in the development of STEP – Sustainable Timber Enterprise Precinct – which aims to ensure a long-term future for the industry. STEP consists of a 37 hectare area specifically designated for timber-related enterprises with the shire encouraging new industry developments and investments within the precinct.

Applicability	Usability scale				
	1 low usability	2	3	4	5 very usable
Stage 5 Industrial Technology	Yes		X		
Stage 6 Industrial Technology	Yes		X		