A close-up photograph of several pink flowers, likely eucalyptus, with a soft, blurred background. The flowers are in various stages of bloom, with some showing the intricate details of the petals and stamens.

Blueprints for forest management published

New lightning detection system

Improving eucalypt survival

Forests' flying firefighter



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from the chief executive

The management of the public forest estate in New South Wales has many facets – only some of which we are able to touch upon in each issue of *Bush Telegraph*.

In this edition (page 10), we focus on Ecologically Sustainable Forest Management (ESFM) Plans that are the result of more than a decade of scientific research and community consultation. The plans firmly commit Forests NSW to the management of forests for the many values they provide.

ESFM Plans are a key step in the development of the organisation's new environmental management system and obtaining certification for our forest management activities.

Our commitment to building and maintaining Forests NSW road network underpins the economic contribution of both State forests and the timber industry to regional communities. With an annual budget of more than \$15 million, these roads are often a vital part of regional infrastructure. See page 9 for an overview.

This is the first issue of *Bush Telegraph* since the departure of former chief executive Peter Duncan to take up a new role in the NSW Premiers Department. Peter's time as CEO was marked by strong commercial performance and the first trade of carbon sequestered in forests. His contribution, particularly in the area of employee safety and the development of the environmental management system, is acknowledged and appreciated.

While the CEO may have changed, there is no change in the organisation's focus and commitment to the strategies that have been developing over recent years. This has been reinforced in a personal letter from the Commissioner for Forests, Barry Buffier, to our key stakeholders.

I, too, am personally committed to ensuring service levels are maintained and improved and welcome all opportunities to communicate with customers, contractors and all the people that benefit from our State forests.



Alastair Howard
Acting Chief Executive



Editors Carmen Perry / Leah Flint
Design & Layout Kathryn Laidlaw / Libero Design
Print Production Elena Clark / Pomegranate Production
Sub-editor Heather Clements
Printing Lindsay Yates and Partners

Editorial & subscription enquiries

Bush Telegraph Forests NSW, Locked Bag 23, Pennant Hills
 NSW Australia 2120 Ph: (02) 9980 4100 Fax: (02) 9980 7010
 Email: bushtele@sf.nsw.gov.au

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Cover photograph New Ecologically Sustainable Forest Management Plans describe how Forests NSW will manage native forests for the many natural, cultural, social and economic benefits they provide. See page 10 for story. *Photo by David Barnes/Forests NSW Image Library*

Norske Skog's \$130 million upgrade

Norske Skog's paper mill at Albury is now in the final phase of a \$130 million upgrade to increase production capacity by more than 20 per cent by the end of the year.

The world's largest manufacturer of newsprint, Norske Skog's Albury mill employs 260 people.

The mill is one of Forests NSW major customers drawing upon the state's valuable pine resource in the south west slopes and

providing a reliable long term market for plantation thinnings.

A major element of the upgrade, the installation of a new press section on the paper machine, took place during a four-week shutdown in February and March – the longest in the mill's 24-year history.

In December last year, 120 containers of paper machine components arrived at the mill. These containers held about 3000

tonnes of state-of-the-art equipment shipped from four different locations around the world – Finland, Germany, Austria and Brazil.

Early in the shutdown period there were an additional 900 people on site across two shifts, many of them contractors from the Albury-Wodonga region.

Mill manager, Guy Mycroft, said the upgrade of the press section included the installation of a NipcoFlex Shoe Press, the latest technology available to enhance water extraction from the newsprint sheet.

He said that by December it was anticipated that the paper machine would be running at the new rate of 1600 metres a minute, up from the existing 1300 metres a minute, to produce 265 000 tonnes of newsprint a year.

"Norske Skog Albury will now be a truly world-class newsprint manufacturing site," Mr Mycroft said.

– Sarah Chester

Public Affairs & Media, Albury



The operating floor at Norske Skog, Albury, was a hive of activity during a 28-day shutdown to upgrade production capacity. Photo courtesy Norske Skog

Strong future for cypress regrowth

The Brigalow Belt South bioregion decision which created new Community Conservation Areas has also delivered a strong future for cypress regrowth in the Pilliga State Forests.

The decision has provided for \$12 million over a five-year period for the ongoing non-commercial thinning of white cypress stands throughout the remaining State forest cypress areas.

"Cypress regrowth in the Western State forests is quite dense in many parts, and is referred to as wheat field regeneration," said Forests NSW Western region manager, Paul Wells.

"Forests NSW has been non-commercially thinning cypress regeneration for close on 100 years and this extra money will allow us to employ displaced mill workers and other people from Baradine, Gwabegar, Narrabri, Bingara and other areas.

"They will thin additional stands so that they continue to provide white cypress timber for milling in another 80 years or so, the usual rotation for this slow-growing species."

Paul said that without thinning, the cypress would stay "locked up"; that is, remain in a dormant state with stems about the size of rake handles.

Thinning is performed using brushcutters and chainsaws.

"The funded thinning program will provide for up to 45 additional jobs in Western New South Wales including affected timber and forest workers, as well as new opportunities for employment in rural towns and Aboriginal communities," Paul said.

"The area treated is expected to be 22 500 hectares over five years providing for future timber supply and enhanced biodiversity outcomes."

The recruitment process will seek to maximise Aboriginal participation by specific references in advertisements and by direct encouragement for Aboriginal employment through the Pilliga Forest Aboriginal Management Committee.

– Howard Spencer Public Affairs & Media, Coffs Harbour

Right: A stand of white cypress regrowth after thinning.



Stolen Generations Memorial at Mount Annan Botanic Garden

The 'stolen generations' issue has been a focus of Aboriginal reconciliation in Australia for many years.

To bring this issue to attention, plans for a Stolen Generations Memorial at Mount Annan Botanic Garden, located in south-west Sydney, were instigated in 2003 as a partnership between Link Up New South Wales, the NSW Stolen Generations Committee and Botanic Gardens Trust.

Located in beautiful natural woodland, visitors will experience the Memorial as a journey of healing and reflection, as they walk through the forest via a series of impressive boardwalks leading to a peaceful meeting place with water and a sculpture space.

Work on the project has progressed steadily in the past few years, and has involved Aboriginal trainees as part of their Certificate III in Land Conservation and Management.

Stage one of the path and boardwalk construction is now complete and provides access to the sculpture space.

The main structural timber for the boardwalk was generously donated through an arrangement with Forests NSW, NSW Forest Products Association and Merbein Sawmills.

The next phase of this significant reconciliation project will be to complete the southern section of the boardwalk and the sculptural centrepiece to be created by renowned Aboriginal artist, Badger Bates.

– Peter Cuneo

Manager, Natural Heritage, Mount Annan Botanic Garden

Below: The path to healing, part of the Stolen Generations Memorial at Mount Annan Botanic Garden. *Photo by Peter Cuneo*



Restoring an historic forest lodge

Edrom Lodge, a heritage listed federation-style building built between 1910-13, is situated on the far south coast of NSW, 35 kilometres south of Eden overlooking Twofold Bay.

The lodge was built by Mr J. Logan, a Monaro grazier, in the style of his family home in Scotland. In 1980, Edrom Lodge was classified by the National Trust for its federation period architecture and gardens, as well as its magnificent landscape setting.

Today, the lodge is owned by Forests NSW and is used as a conference, education and group activities centre.

Christine Taylor, the current lodge caretaker, said the lodge is open to anyone but preference is given to education groups.

"Edrom provides an ideal setting for groups studying landscape art and photography, as well as geology, marine biology and many other areas of study in the outdoors," Christine said.

"It is suitable for large university and school groups, community groups, family holidays or business functions.

"There is dormitory style accommodation for up to 72 people, with your own private beach and 20 acres of private water frontage."

Forests NSW recognises the importance of retaining the historical value of the lodge and, as part of its 'Communities in Forests' program with Conservation Volunteers Australia (CVA) has undertaken restorative work on the property.

In late 2005, a crew from CVA spent four days at Edrom Lodge undertaking restoration works including wall preparation, repairs and painting; rubbish removal; construction of a set of timber sleeper stairs; and installing new beds.

If you are interested in visiting Edrom Lodge take a look at www.edromlodge.com.au or contact the lodge caretakers Ph: (02) 6496 1510.

– Sally Arundell

Sustainability Project Manager, Maitland

Top: In their latest partnership project with Forest NSW, Conservation Volunteers Australia has undertaken restorative work on the historic Edrom Lodge near Eden. *Photo by Tony Karacsonyi/ Forests NSW Image Library*

Working partnership enhances field studies for students

The existence of the tiny town of Cascade, north of Dorrigo, has always been tied to the timber industry.

While there is no longer a sawmill there, the area is still home to native forest, plantation hardwood and not far from softwood plantations at Wild Cattle Creek.

It is also home to the Department of Education and Training's Cascade Environmental Education Centre where teacher John McQueen encourages students and visitors to understand sustainability while appreciating the historical links to timber production.

The Cascade Centre is one of 22 similar centres throughout New South Wales administered by the NSW Department of Education and Training.

Its role is to support school excursions and field work and to produce resources to assist this agenda.

Forests NSW has had a long presence in the town, and it is now entering into a memorandum of understanding with the



Forests NSW protection officer, Kath Bray, and teacher, John McQueen, in the grounds of the Cascade Environmental Education Centre.

Cascade Environmental Education Centre which will continue that association.

"The centre and townspeople will be looking after the area that includes the helicopter landing ground for forest emergencies," says Forests NSW protection officer, Kath Bray.

"We have undertaken a clean-up of the area and will remove pine trees that are quite old and dropping branches near the road.

"Part of our work would have been to clear the area surrounding the helipad and periodically burn it as a hazard reduction operation to reduce risk of fire in the village area, or fire spreading from the village area to our forests nearby."

Instead, Forests NSW and the Department of Education and Training have teamed-up so that the centre and its partners will replant the area with native species and look after its maintenance.

"This will mean we won't have to burn it and there will be a demonstration area available to show off the various species of local timbers that have been a mainstay of the village and district for many years," Kath said.

– **Howard Spencer**

Public Affairs & Media, Coffs Harbour

New collaboration with orienteers and rogainers



Have you ever seen red and white flags in the forest, or joggers at night? It may have been an orienteering or rogaining event in action.

Forests NSW, the Orienteering Association of New South Wales and NSW Rogaining have been working to develop a memorandum of understanding (MoU) over the past year.

The MoU establishes a framework for a collaborative working relationship between the three organisations and their affiliated clubs. The agreement addresses issues including:

- ongoing access to areas of State forest for organised orienteering and rogaining events, taking into account operational, environmental and culturally sensitive areas;
- access to planning information for the development of event maps and sharing of these maps with Forests NSW;
- standardisation of fees and conditions for event permits;
- provision and use of promotional material; and
- management of safety issues for participants and the general public.

Planning manager for Orienteering NSW, Mike Weller, says the MoU will provide

security for the future of orienteering and rogaining in NSW.

"This is a cooperative agreement which reflects a better understanding of each other's needs. In practice, orienteering will benefit from stability of fees, as well as State-wide consistency in the permit application process," Mike said.

"Where in the past, orienteering and rogaining have been limited to foot-based activities, they have recently diversified to include mountain bike orienteering and cyclegains, so access to State forests is becoming more important."

The opportunity to develop the MoU arose following the development of Forests NSW 'Living, working, playing... forests' strategy for sustainable recreation, sport, tourism and training which sees partnerships with stakeholders as an important step to managing State forests in the future.

More information about orienteering and rogaining can be found at www.nsw.orienteering.asn.au and www.nswrogaining.org.au

– **Hilary Smith**

Sustainability Analyst, Batemans Bay

Orienteer Rachel West during a 2003 event. The new MoU will ensure ongoing access to State forests for staging orienteering and rogaines. *Photo by Bob Mouatt*

Threatened species the focus of wildlife schools

Forests NSW has a long history in wildlife identification and management and a continuing role in education, delivering wildlife schools across New South Wales.

According to Forests NSW south coast planning manager, Ian Barnes, the earliest wildlife school that can be recalled was in the late 1970s.

Two decades on, interest in forest wildlife became so focussed on threatened species that it sparked the need for a more specific wildlife school.

Today, threatened species management within NSW is governed by the Threatened Species Conservation Act which was passed through Parliament in 1995.

Wildlife schools continue to be an invaluable method for training and exposing Forests NSW staff to the latest findings and survey methodologies in threatened species management.

This success has led to other state and federal government departments and private consultancy firms participating in these special schools.

The latest wildlife school was held at the Australian National University, Kioloa Coastal Campus, on the NSW south coast and focused on frogs, bats and reptiles.

Delivered by Frank Lemckert, Traeacey Brassil and Brad Law from NSW Department of Primary Industries Science and Research, a total of 22 participants from Forests NSW, NSW Department of Environment and Conservation, the federal Department of the Environment and Heritage and private consultancies attended the course.



The school provided participants with both theoretical and practical experience in the ecology of individual species, identification methods and survey techniques specific to frogs, bats and reptiles.

Several live threatened species were available for viewing during the week.

For more information on wildlife schools and future participation please contact Frank Lemckert at NSW DPI on Ph: (02) 9872 0159.

– Kelly Rowley
Ecologist, Batemans Bay

Wildlife school participant Brooke Marshall (centre) from NGH Environmental holds a golden crowned snake while NSW DPI research scientist, Frank Lemckert (left) leads discussions on reptile ecology, identification and survey techniques. Forests NSW supervising forest officer, Neil Theiderman, and Sydney consultant, Dejan Stojanovic (far right), observe the live specimen. Photo by Kelly Rowley



German forestry student down under

Travelling across the world to compare forest management practices in Australia with his home country of Germany, Forest Science Masters student, Tobias Zehetmair, has discovered many differences. Here, he reflects on his observations...

"I'm here in Australia for three month's field study as part of my course with Munich University. I've chosen to come to Australia and base myself in Batemans Bay to observe forest management in an environment totally different to Germany.

The eucalypt forests of the New South Wales south coast are strikingly different to German forests. The forests of Bavaria are made up of 60 per cent conifers and 40 per cent broad-leaved tree species. The climate there is much more variable and the forests change dramatically between summer and winter. Winter temperatures can be as low as -20 degrees celsius and snow is common. The trees do not grow during the winter months and all the broad-leaved species drop their leaves.

I've already seen a wide range of forest management activities here in Australia including native forest timber harvesting and supervising, pre-harvesting flora and fauna surveys and feral animal control.

The biggest difference is that office and field staff are very specialised in NSW. A German forester is responsible for all management activities in an area of forest covering about 3000 hectares. This includes timber harvesting and selling, marking trees for felling, culling for future growth, office work, public relations and fulfilling hunting quotas.

Hunting is an important part of forest management in my country. There is a strong hunting culture in Germany and animal control, especially of deer and wild pigs, is necessary to ensure regrowth and stability in the forest. The deer and pigs like to feed on seedlings and will dig them out of the soil.

I'm really enjoying my visit here in Australia, in particular the friendly people and possibilities to explore. I think that this trip won't be my last to the fifth continent."

– Tobias Zehetmair
Student, Batemans Bay

German forestry student, Tobias Zehetmair, completing field work on the south coast of NSW as part of his studies with Munich University. Photo courtesy Tobias Zehetmair

Forest trail a winner

The Tumut State Forest recreational trail is attracting a growing number of both locals and visitors including walkers, bike riders and people just simply wanting to walk the dog.

Forests NSW planning manager based at Tumut, Duncan Watt, said it was very exciting to see the trail, which is on the edge of town, used for so many and varied recreational uses.

The trail was officially opened in 2004 and has more than seven kilometres of recreational track.

Construction took place with help from volunteers, Green Corps and Conservation Volunteers Australia, with some of the construction costs covered by sponsorship from the timber industry, Tumut Shire Council and community groups.

Duncan said the trail was now home to the Tumut mountain bike race, which was held for the first time last year during Tumut's

'Festival of the Falling Leaf'.

"Last year the event attracted 229 entrants, twice the number expected. This was due to the very positive reviews the trails have received from mountain bike riders," he said.

The event will be held again this year with organisers expecting a significant increase in participants.

Duncan said the Tumut High School forest fun run will also be held again this year in June.

"The fun run is a fundraiser for the local school and raised more than \$1000 in 2005.

"The trail also caters for more serious runners with an eight kilometre loop, or for walkers with a four kilometre loop," he said.

Tumut State Forest was also the base for a cycle rogaie in 2005 with around 130 participants.

– Sarah Chester

Public Affairs & Media, Albury



Mountain bike riders traversing the Mundowie Loop – one of the trails in the Tumut State Forest recreational network. Photo by Matthew Pope



Community cleans-up

Seven truckloads of household rubbish and rusted car bodies were dragged from Ourimbah State Forest and Jilliby Conservation Area, west of Wyong, by a dedicated group of community representatives during a forest clean-up in March.

"The operation took many months to plan and it was great to see members of the community work together on such a worthwhile project," said Forests NSW Maitland-based resource protection manager, Mike Pryjma.

"Thirty three four-wheel-drive, horse riding, community group, mountain and dirt bike club representatives joined forest neighbours,

Forests NSW and New South Wales Department of Environment and Conservation for the registered Clean Up Australia Day event," he said.

The project was the initiative of a recreation planning group within The Ourimbah Protocol.

So enthusiastic were the volunteers that they went on to clean-up part of Wyong State Forest a week later. There are plans for further clean-ups in surrounding forests. For more information on future clean-ups contact Mike Pryjma on Ph: (02) 4931 6574.

– Carmen Perry

Communications, Maitland

Inset: A four-wheel-drive club member drags a dumped car from Ourimbah State Forest during a recent forest clean-up day. Above: Seven truckloads of rubbish and rusted car bodies were removed. Photos by David Barnes/
Forests NSW Image Library

Forbes forester helps win Easter Show prize

Standing before Sydney's Royal Easter Show district produce exhibits, you have to wonder just how the hundreds of varieties of grains, grasses, wool, preserves, fruit, vegetables, wine, eggs and honey are kept looking their best for the two week display.

Forbes forester, Alan Smith, is an experienced exhibit designer with the answer.

"Displays often have secret paths built-in so the produce can easily be replaced throughout the show. A good display doesn't need produce replaced," Alan reveals.

Working with a team of ten people to design and construct the northern district exhibit ten days before the opening of the 2006 show, Alan was up against stiff competition from southern, western and central New South Wales and southeast Queensland all competing for an award.

This year, northern districts won the over-

all point score for quality of produce and were placed third in the display competition, taking home the prestigious HCM Memorial Shield.

The district exhibits have been the centrepiece of the Show for more than 100 years. In the face of this long history, Alan is a youngster, whose involvement stretches across a mere 13 years.

"Involvement in the exhibits tends to be a lifelong commitment with some people being involved for upwards of 60 years," Alan said. "There is great camaraderie within teams and rivalry between competing exhibitors.

"We work hard, but also have a lot of fun along the way."

NSW Department of Primary Industries sponsors the district produce exhibits and this year staged a neighbouring display focusing on innovative departmental



research in the areas of seafood harvest, carbon sequestration, olive oil testing and Asian vegetable classification.

– Carmen Perry Communications, Maitland

Alan Smith and the winning northern district produce exhibit depicting the life of early pioneers. Photo by David Barnes/Forests NSW Image Library



Top shooters hit the mark



More than 110 of the top handgun shooters from around the country were in Orara East State Forest near Coffs Harbour in March for the 2006 NSW State International Practical Shooting Confederation (IPSC) Handgun Titles.

IPSC competitions are held world-wide and use a variety of target types including paper and steel, stationary and moving, scoring targets and penalty targets.

"There is no set way these targets are arranged, nor even how many targets are used in a single match," match organiser, Sam Hui, of Coffs Harbour Pistol Club said.

A competition organiser creates a number of stages conforming to a set of IPSC design rules, each using different numbers and arrangements of targets, to create

a shooting challenge that the competitors have to solve as accurately and as rapidly as possible.

Stages usually require competitors to move away from a starting position to enable them to see and engage with all the targets in the stage.

"This adds an athletic component to the test, as well as an intellectual one in that the competitor is required to work out the most efficient manner and order of engaging the targets, taking into account his/her own shooting skills and athleticism," Sam said.

"Also, unlike other shooting disciplines, all participants – male, female, junior – compete together over exactly the same stages, with the same rules and the same scoring procedures."

Only one competitor at a time shoots a stage. At all times this competitor is under the direct observation and control of a trained range officer whose primary task is to enforce the match safety rules.

In Australia, practical competitions are for centre-fire pistols and revolvers of calibres from 9 to .38mm.

– Howard Spencer
Public Affairs & Media, Coffs Harbour

Above: Shooters were on target for the NSW State IPSC Handgun Titles at the Coffs Harbour Pistol Club range in Orara East State Forest. Inset: A shooter in the Titles lines up targets through a stage window. Photos by Howard Spencer

Forest roads

vital to regional communities

Everyone uses roads and they are a vital part of the economic fabric of regional and rural communities.

It's doubtful though, if any industry is more intensive in its usage and length of roads than the plantation timber industry.

Forests NSW director, Peter Crowe, said building and maintaining roads was synonymous with growing plantations – the two cannot be separated.

“So much of what we do is reliant on good roads and Forests NSW intensive roading network is the basis, not only for the supply of our plantation products, but for protection of the plantation estate from fire, and all these things benefit our regional communities,” Peter said.

Across the state, there are vast differences in ownership and management of roads in plantation areas.

In Forests NSW Monaro Region, most of the transportation task is undertaken by state and regional roads. Examples are the Monaro Highway and the Bombala to Delegate Road. These roads carry the wood over 90 per cent of the distance to the processor.

In the Central West, most of the wood is transported on regional and local roads. Forests NSW roads are responsible for 10 per cent of the log haul.

But in the South West Slopes, the story is very different. Around Tumut and Tumbarumba, Forests NSW manages an estate of almost 90 000 hectares with approximately 8000 kilometres of road, of which more than 90 kilometres is sealed, and carries out 55 per cent of log haul distance.

“Across most of the State forests there are small construction and maintenance teams,” Peter said.

“However, in the South West Slopes a large and specialised team exists to manage high standard road construction and contract out a range of tasks including blasting

and gravel crushing, bitumen sealing and road line marking.

“A number of foresters have presided over these operations across many years but Phil Collins, construction and maintenance supervisor in the region, has been outstanding,” Peter said.

By contrast, in the Central West the construction and maintenance task has fallen to specialised construction units operating within local councils such as Oberon.

In these situations, Forests NSW has agreed to roading plans with the councils and funds a very high proportion of the works carried out specifically to permit timber haulage.

At Oberon, Forests NSW and the Council have worked together on a four-to-five year plan to upgrade Shooters Hill Road and a number of connecting shire roads in the Gurnang and Vulcan plantations.

While at Sunny Corner plantation, in conjunction with Bathurst and Lithgow City Councils, some \$4.5 million worth of work is underway.

In the north of the state, Forests NSW plans to upgrade Hanging Rock Road from Nundle through to Hanging Rock plantation. This project should cost around \$1 million with most of the work being carried out by Tamworth Regional Council.

Peter said the annual cost of road construction and maintenance in the plantations has been running at round about \$15 million a year, but this is set to increase to provide a higher standard of transport and lowest possible haulage costs to Forests NSW steadily expanding customer base.

“The expansion of timber processing and the consequent improvement in local and forest roads has been a boon to regional communities who now have better standard, safer roads and more jobs and economic development in their regional communities,” he said.

– Sarah Chester
Public Affairs & Media, Albury

Clockwise from top: Billalaloola Road, Tumut; A Toll B-double truck with central tyre inflation on all axles hauling pulpwood to Norske Skog at Albury on main road 284 between the Hume Highway and Tumbarumba; Forests NSW crews making a very precise job of sealing Billalaloola Road near Tumut; Sourcing crushed rock at a Forests NSW quarry near Tumut. *Photos Forests NSW Image Library*

Blueprints for forest management published

Gone are the days when forests were just for cutting down timber to build house frames. In today's world, our forests are living, working environments that we all want to see managed for a wide range of values. Howard Spencer explains how the new Forests NSW Ecologically Sustainable Forest Management Plans will help.

Just as we need blueprints to build a house, State forests in New South Wales are being managed by a set of blueprints that determine how Forests NSW workers go about ensuring they measure up to world standards.

The blueprints, the Ecologically Sustainable Forest Management (ESFM) Plans, have been endorsed by the Minister for Primary Industries, the Hon. Ian Macdonald.

The plans cover the State forests and State forested lands of Upper North East, Lower North East, Eden, Tumut and South Coast of NSW.

"Our goal is to conserve and protect forest values ranging from biodiversity and forest productivity to the ability of forests to act as carbon sinks and for the many recreational and cultural values they provide," said planning specialist, Jim Simmons, who has been living with the plans for the past three years.

The plans describe natural and cultural heritage values, and how these are to be conserved while preserving forest health.

The plans also indicate how timber supply will be sustained and the forest resource used for economic and social development of rural communities.

Operational planning processes are specified and the plan ensures continued improvement through public consultation, monitoring and reporting.

The ESFM Plans specify regional coordination, involve cooperation of other land managers to ensure maximum effect, and require management on State forests to complement management on other forested tenures such as national parks.

"The national objective is to look at the whole forest landscape and balance the way we use and conserve Australia's forests," Jim said.

Forests NSW has adopted the National Forest Policy Statement definition of sustainable forest use and will:

- maintain ecological processes within forests (the formation of soils, energy flows, and the carbon, nutrient and water cycles);
- maintain the biological diversity of forests;
- optimise the benefits to the community from all uses of forests within an ecological framework.

"The NSW Government has identified natural resource management as a basis for primary industries and building vibrant communities in rural NSW," Jim said.

"The ESFM Plans recognise that forests are dynamic places and that our management needs to be flexible and be guided by the occurring ecological processes.

"Over the past 20 years or so, Forests NSW has moved to actively manage other forest values such as flora and fauna, water and soil, recreation and Aboriginal and non-Aboriginal heritage, as well as timber.

"These plans set out how we are going to provide for forest uses such as timber supply, grazing, honey production, access, regional infrastructure and recreation while maintaining the ecological processes and environmental values.

"The plans also identify how Forests NSW will maintain forest health by protecting the forest from bush fires, insects, diseases, weeds and pest animals," Jim said.

Developing landscape management with community participation has not been an overnight project.





Stakeholders have had a long period of input during the regional assessment process which included the identification of areas for the comprehensive, adequate and representative reserve network and development of the Regional Forest Agreements.

Draft ESFM Plans recognising the presence of dedicated and informal reserves within State forests were prepared in 2000, and then after stakeholder input, redrafted for public display again. That process finished last year, and the final plans are now being released.

"These ESFM Plans apply to over 1.5 million hectares of native forest, and the coverage will be extended into Western and Riverina native forest areas as well as planted forests," Jim said.

"This will introduce a consistent way of managing our forests and form part of Forests NSW environmental management system.

"Planning does not stop with the strategic ESFM Plans but becomes more detailed as the area of operation becomes smaller and the activity more intense."

Manuals are used to ensure that the same planning process is used across the state.

Adaptive management principles are used by Forests NSW, which means that forest processes are monitored, and where there are possible adverse impacts, operations changed to suit.

In practice, if a harvest plan called for operations in a certain 150 hectares, and a pre-harvest survey found habitat of threatened species of plants or animals that needed to be protected, a set prescription of harvest exclusion is imposed. This and other

exclusions to protect water quality and areas of heritage significance might reduce the net harvest area by up to 40 to 50 percent.

"Forests NSW will report each year on our progress in implementing ESFM Plans and these reports will be consolidated into State of the Environment Reports and the Australian State of the Forests Report," Jim said.

"These provide a snapshot of how we are doing in comparison with world standards of forestry practice."

Hard copies of the plans can be purchased by contacting Forests NSW Information Centre Ph: 1300 655 687 or (02) 9871 3377 for \$20. Copies are also available for free download at www.dpi.nsw.gov.au/forests.

– Howard Spencer

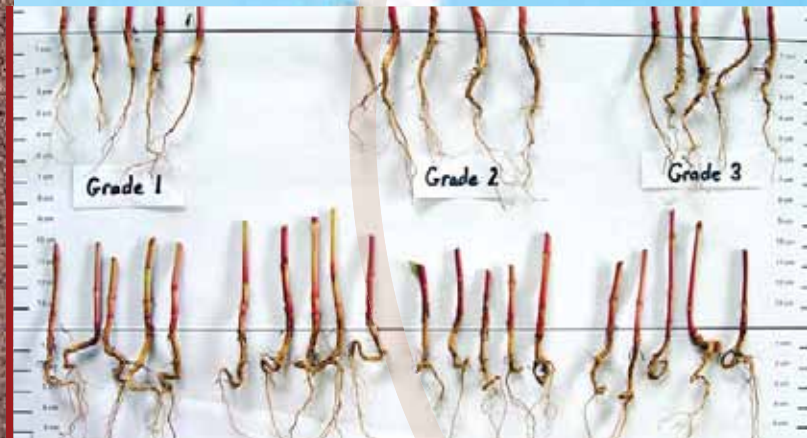
Public Affairs & Media, Coffs Harbour



Conserving and protecting forest values ranging from biodiversity and forest productivity to the ability of forests to act as carbon sinks and for the many recreational and cultural values they provide is the focus of Forests NSW ESFM Plans. *Photos Forests NSW Image Library*

ESFM PLAN

Survival rate of eucalypt seedlings improved



Forests NSW researchers are putting Eucalyptus seedlings through boot camp training to toughen them up before they go out into the big wide world.

The tough regimen is set to improve the survival rate of the seedlings when they are planted out.

But there is a soft side to the research as well: they have found if the seedlings have a good drink of water and a dunking in water retentive gel before they hit the ground, they will be better able to survive a two-week window without significant rain.

“We are trying to bring our plantation survival rate up to 90 per cent or better,” said research scientist for Forests NSW plantation improvement group, Dr Dane Thomas.

“This will mean there will be lower infill costs for failed seedlings and a more even plantation development with better eventual wood quality.”

The initial research two years ago set out to grow better seedlings in the nursery to improve survival.

Eighteen months ago, the work was extended to

specifically examine root quality, which manifests itself in wind blown trees in the plantation, but begins at seedling stage in the nursery.

These projects examined nursery practices such as initial seedling raising, transplanting, growing out and then planting. They meet with success at every stage.

The researchers were aware of anecdotal evidence that toughening up the seedlings might improve their survival chances in the field.

“We instituted a reduced irrigation regime, cycling through normal irrigation and reduced irrigation,” Dane said.

“This prepared the seedlings for a period of reduced rainfall for up to two weeks after planting out.”

At the same time the researchers were experimenting with water retention gel treatments in an effort to provide the seedlings with enough moisture to survive up to two weeks without rain after planting.

The water gel samples brought success, but at a higher financial price. There are three methods that can be used.

One is to soak the seedlings in a gel mixture immediately before planting out, replacing the usual two-minute water soak.



Another was to use the water soak, and to dip the root ball into a gel mixture immediately before it reached the planting hole.

The third method was to place a litre of gel slurry into the planting hole.

"That one was incredibly labour intensive, and so brought planting costs up to \$1200 a hectare," Dr Thomas said.

"The water soak replacement had no increase in labour costs, so at \$2 a hectare it was the cheapest.

"The best method, at \$45 a hectare for gel and labour, was dipping the root ball before planting."

This \$45 for a 90 per cent survival guarantee could be measured against the possibility of replanting, and perhaps missing a season as well.

"That cost is what plantation managers will have to weigh up before they decide whether they will use a gel or take a chance," Dane said.

Project officer Geoff Heagney said that during the course of these experiments it was noticed that seedling root quality, measured as the extent of root bend commonly known as 'J-rooting', was lower than expected and should be improved.

"We found that there was a correlation between nursery practices and J-rooting," Geoff said.

"The root damage began at the trans-

planting stage from 512 seedling trays, where the seedlings were pushed out from the bottom.

"There was another opportunity for root damage as the seedlings were pressed into dibble holes in hiko trays that carry 40 seedlings.

"What we were unable to measure was whether or not there was another chance for J-root damage at the final plantation stage."

They found that gentle handling of the seedlings at the transplanting stage reduced the J-root problem.

This could even be tracked down to individual workers and how they handled the seedlings.

"Gently does it is the answer," Dane said.

"This has now been adopted as a nursery practice, which should bring immediate gains in survival rates and reduced J-rooting.

"But what we found was that direct sowing of seedlings into hiko trays, from which they are finally planted out, was the best answer."

This brings its own problems of increased costs through higher labour demands. It also highlighted germination problems.

"Direct sowing can work with Dunns white gum and spotted gum," Dane said. "But it will be harder for species like blackbutt, which is a staple in New South Wales, and Gympie messmate, which is common in Queensland.

"In these species it is hard to distinguish between actual seed and just chaff, so there is work to be done now to better separate the seed."

– Howard Spencer

Public Affairs & Media, Coffs Harbour



Top (left to right): The most effective and cost efficient method of promoting survival of seedlings is to coat the roots in gel just before planting out; The three root systems on the top row are acceptable, the lower row exhibits J-root and other problems; Eucalypt seedling ready for planting; Forests NSW officer Darrel Johnstone washes the roots of seedlings to examine root quality, researchers are trying to bring plantation survival rates to 90 per cent or better; Eucalypt plantations are a valuable resource for the people of NSW. Left: Gentle handling of seedlings at the transplanting stage reduces J-root problems.

Grant Johnson our **flying** firefighter

Forests NSW helicopter pilot Grant Johnson is in vanguard when it comes to fighting fire.

"The helicopter can take pressure off ground crews by knocking over a small fire very quickly and efficiently before it becomes a big fire," Grant said.

"It is able to reach a fire in a rugged area very quickly while ground crews can be hours away.

"However, you will always need someone on the ground to make sure the fire is properly contained.

"Using a chopper may be expensive but there is a lot of plantation and native forest we would no longer have if we didn't use one," he said.

There is a quiet air of confidence and calm about Grant. When you fly with him you feel safe and with good reason. He has flown helicopters for 30 years and fought fires from the air for most of that time without an accident.

A youthful, fit 58, he has worked in numerous jobs from mustering cattle and agricultural spraying to instructing and running his own flying school.

Grant joined Forests NSW in 1995 and can recall a number of Christmas days when he has been away from home fighting fires.

Based in Sydney at Bankstown, he travels depending upon the fire season, starting in the north at Casino and Grafton, and moving down the state as the fire season progresses.

Needless to say, Grant can't take holidays in the summer. When he does take leave it is not to escape the demands of his job.

"I don't find it stressful at all. I might've when I was younger. I've done it for so long

now, I've just gotten used to it. There are no real surprises," Grant said.

"You've got to be very careful and use your common sense.

"Smoke is dangerous as it reduces visibility and makes flying very hazardous.

"Helicopters are designed to fly low for specific work, so with that comes the danger of power lines. Wherever there are houses or buildings, there are power lines. So you have to keep a very watchful eye.

"A lot of wedge-tailed eagles turn up at fires as the heat flushes animals out of the burn area. An eagle can bring you down if it hits the windscreen or the tail rotor.

"You also have to be watchful of other aircraft. In a Section 44 (declared bushfire emergency) you get a lot of aircraft on a fire and it gets very busy. I've worked with up to eight other helicopters on a fire.

"Fires are usually windy and it is bloody hot in the aircraft. Most don't have air-con," he said.

While not fighting fire, Grant fills his year with such things as hazard reduction burns and forest health checks. Or on the home front, he relaxes on his power boat – just fishing and cruising.

He obviously loves his work, is devoted to saving the forests, and has no plans to retire yet.

"A farmer rang me the other day to thank me for helping save his property near Bathurst two or three days before Christmas. That was nice," he said with a modest smile.

– Sarah Chester Public Affairs & Media, Albury



Plan of attack

When the office calls in a smoke sighting from a tower, which is usually cross-referenced from another tower, the fire room dispatches a forester to help Grant locate the fire and refill the water bucket.

"You have to find a convenient dam or water source close to the fire. When you choose the water you have to take a good look because some dams have pump houses and, with them, comes power lines," Grant said.

"It is no good having the source of water too far away from the fire. It must be as close as possible so you have a good turnaround on the fire.

"I put the forester down and then the water bucket and load the foam into the container," he said.

Grant carries nearly a tonne of water and nearly always uses foam, which helps smother the fire with lots of bubbles.

"The foam container holds about 40 litres of a substance like a very strong detergent, which is good for about 30 trips.

"You need fuel and foam transported out to the helicopter. You go through a lot of fuel," Grant said.

Grant tackling a fire near Fitzgeralds Mount not far from Bathurst. *Photo copyright Western Advocate.* Inset image: Forests NSW helicopter pilot Grant Johnson has flown helicopters for 30 years and fought fires from the air for most of that time. *Photo by Sarah Chester*

Lightning strikes have the ability to take a huge toll on the 2.8 million hectares of plantation and native forest that Forests NSW manages across the State.

This is why Forests NSW lightning strike display system is so important to the organisation and the people of New South Wales who ultimately own this very valuable resource.

The man in charge of the lightning strike display system, Forests NSW acting manager Geographic Information Systems, Wayne Mackey, said it was uneconomic for the organisation to insure against fire in the forests.

Wayne said the lightning strike information was displayed together with data including tenure boundaries, roading and drainage.

Information from the system may also be used to determine if a fire was started by lightning for the purposes of fire reports and fire-cause investigations.

The system was extensively studied to determine that the Kosciuszko fires were caused by lightning in January 2003.

Wayne said long-term lightning strike data collection could enable lightning strike prone areas to be identified, thereby providing information to fire managers when developing risk management strategies.

Taking control of a lightning strike

“In an effort to counter the risk of fires caused by lightning strikes, Forests NSW began work on the detection system in 1999 and it has undergone a number of upgrades since,” Wayne said.

“The system can now be used to identify the coordinates of a lightning strike within 200 metres, which is more accurate than could be estimated from a fire tower.

“It can also be in use when fire towers have limited visibility and when aircraft cannot fly or are restricted.”

Wayne said the system has allowed Forests NSW to facilitate more efficient use of detection resources, such as aircraft that can cost from \$260 to \$1400 an hour to operate.

“Using the system, storm activity may be viewed long before a storm arrives in an area, and fire fighting and surveillance resources can be moved accordingly,” he said.

Modified versions of this system are now being used by 100 users including Forests NSW, Department of Environment and Conservation and NSW Rural Fire Service.

The system allows fire managers to view near real-time lightning strike information on a web-based mapping interface.

“One of the most powerful aspects of this system is the ability to view lightning data in relation to tenure to assess the risk of each strike causing a fire that could encroach onto a State forest, national park, Crown reserve or nearby private property,” he said.

“The system is near real-time because the radar image is updated every 15 minutes.

“The radar image can be used to determine the intensity and spread of the rain, temperature, wind, fire danger index and humidity. These are all measures that provide background information and indicate if conditions are favourable for wildfires.”

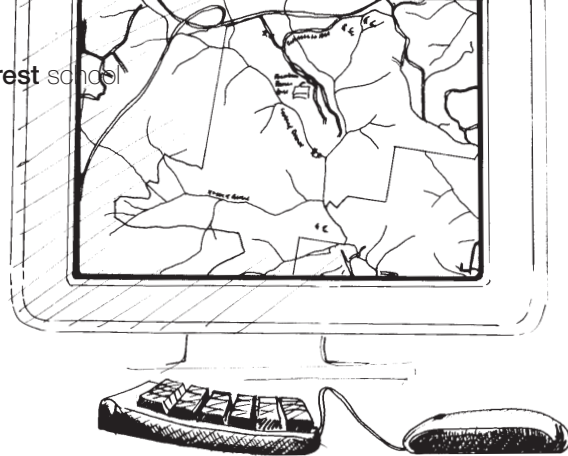
Wayne said the interactive display enables users to access detailed information about each lightning strike as required, such as time of strike and coordinates. There can be instances of more than 200 000 strikes in one day.

“Maps can be easily generated and supplied to fire crews using software that is user-friendly. In many cases, the crews are then able to reach the fire and contain it before it spreads and becomes a major threat to property and assets,” Wayne said.

— Sarah Chester

Public Affairs & Media, Albury

Photo courtesy Michael Bath



What do you do? GIS operator

Scribby wants to know what a GIS operator does. He meets with Sandy from Forests NSW to find out more.



Scribby: So what does GIS stand for and what does a GIS operator do?

Sandy: GIS stands for Geographic Information Systems. GIS operators do cool stuff like working with hi-tech computer hardware, software and digital photos of the landscape taken from planes and even satellites. GIS operators put information together to create maps. They study where things are in relation to each other like forests, rivers, roads, houses and more.

Scribby: What do you need to know to become a GIS operator?

Sandy: To be a good GIS operator you need to be really good at using computers, which is a good thing because I love computers! You also need to be good at working out where things are in relation to each other. It's like being an explorer discovering new landscapes!

Scribby: How does GIS help Forests NSW?

Sandy: GIS helps Forests NSW in lots of ways. We help show where different forests are and what types of trees are in those forests. We can also show plantations and how old the trees are in the plantations. GIS show roads and tracks in forests so forest managers know what areas need special attention. One of the most important things though, is showing where wildlife habitats are so that foresters know where they are during timber harvesting and bushfires.

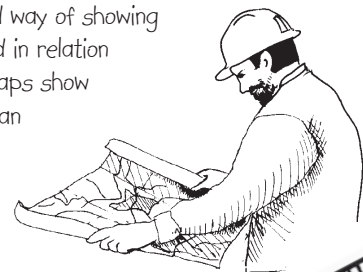
Scribby: What's the difference between geography and cartography?

Sandy: Geography is the study of the landscape and the location of places or things in the world, both natural and man-made. Cartography is putting geography on the computer and paper. For the two to work together, a

GIS operator has to have good skills in making it easy for readers to see where things are and the distances between things.

Scribby: How do maps help with fighting forest fires?

Sandy: Maps are a very good way of showing where things are on the ground in relation to each other. In a bushfire, maps show firefighters which roads they can take to get to the fire to put it out. Maps also show what sort of forest the fire may be heading towards and where dams are located to get water to put the fire out. Did you know fires can be mapped? We can get planes to fly over the fire and take photos of it, these photos are then added to the map on the computer to see where the fire has burnt and where it's headed.

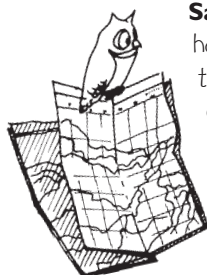


Scribby: In what other ways can GIS help people?

Sandy: GIS helps lots of different people in the community. Special maps can help local councils with town planning. GIS can help emergency services, by showing where fire trails are and for tourism by showing where landscape features are that people would like to visit. Without GIS, making maps would take a lot longer!

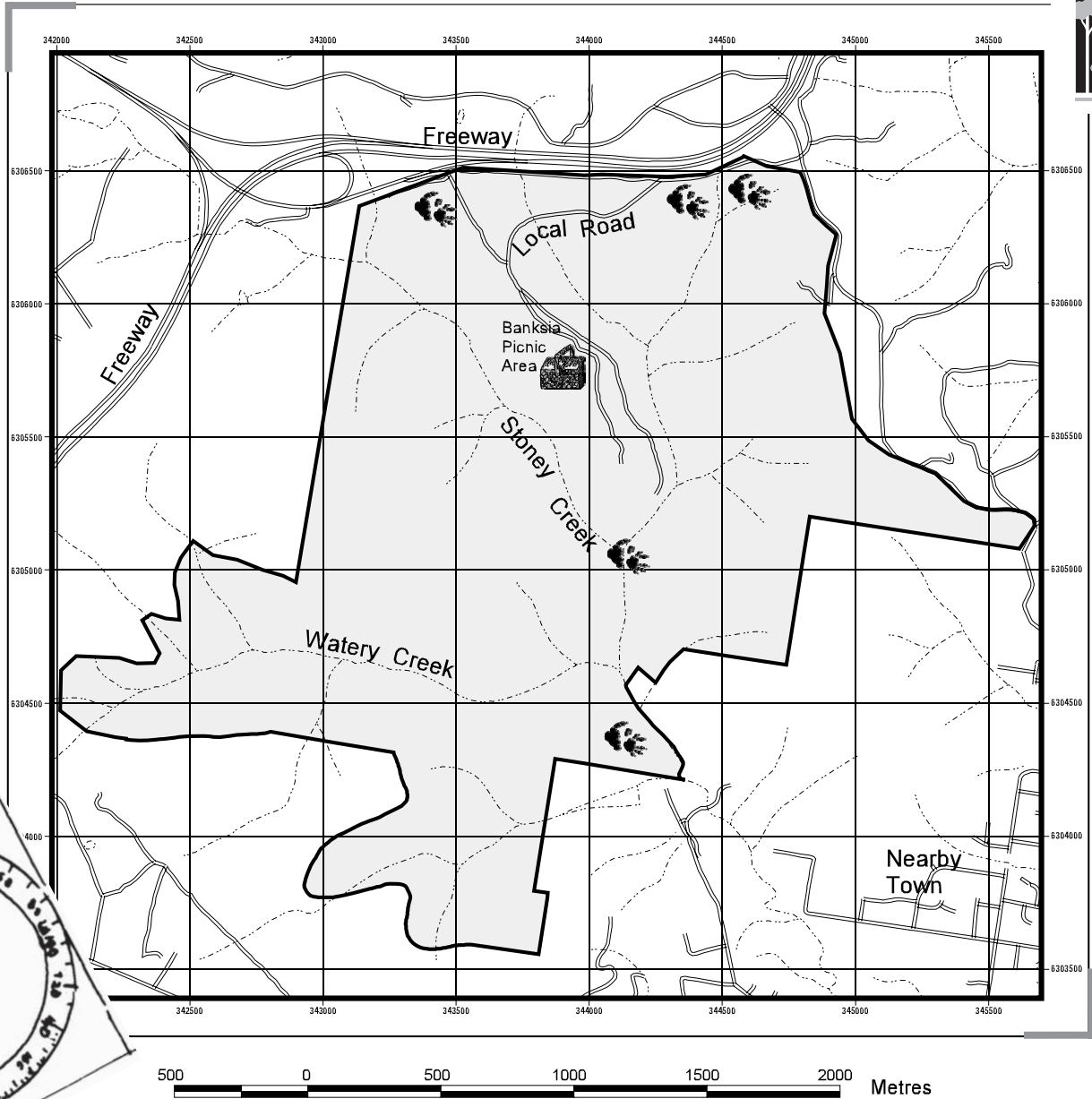
Scribby: What do you like best about being a GIS operator?

Sandy: GIS is fun because I get to meet lots of interesting people in different jobs. It's also great because I can discover new things in the landscape like wildlife areas and new owl habitats. GIS is also rewarding because I can help people solve problems by making special maps for them.

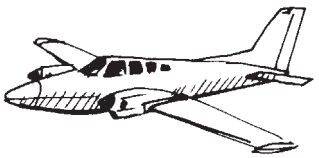




Local State Forest

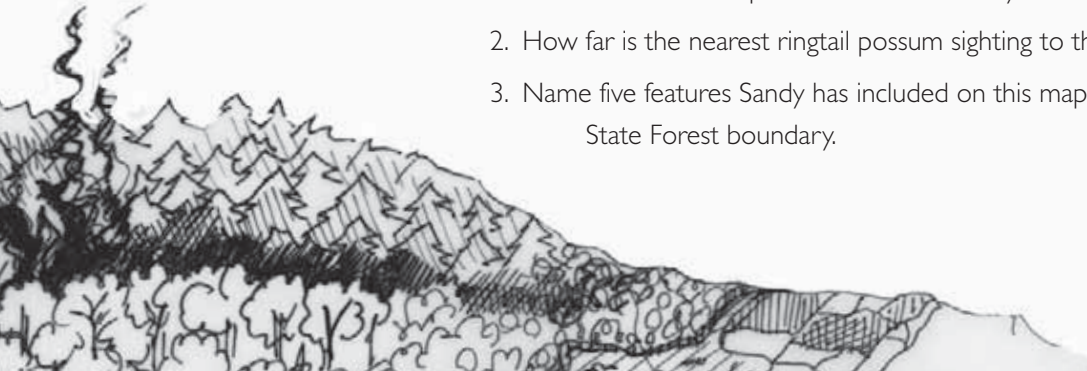


	Ringtail Possum Sighting	
	Roads	
	Creeks	
	Local State Forest	



Can you read Sandy's map? Find out...

1. The direction of the picnic area from Watery Creek?
2. How far is the nearest ringtail possum sighting to the Picnic area?
3. Name five features Sandy has included on this map eg. Local State Forest boundary.





Teachers gain insight into forestry

Fifty three agricultural teachers from across New South Wales took a first-hand look at forestry when they attended a five-day NSW Association of Agriculture Teachers' biennial conference based at Charles Sturt University, at Wagga Wagga, in late April.

As part of the conference, Forests NSW conducted a tour of its forestry operations in the Hume Region around Tumut and Tumbarumba.

Forests NSW regional manager, Bob Germantse, said the field trip gave teachers a look at site preparation and harvesting in the pine plantations plus a tour of Forests NSW state-of-the art nursery at Blowering.

"Forestry and agriculture have a lot in common and supporting this conference is an excellent way for us to give teachers a better understanding of a dynamic industry that is renewable, recyclable and responsible," he said.

President of the NSW Association of Agriculture Teachers and conference organiser, Tony Butler, said the theme for the conference was 'environmental sustainability'.

"Agriculture teachers were able to witness first-hand how businesses such as the timber industry utilise natural resources while maintaining sustainable work practices.

"After seeing these practices, teachers will be able to incorporate what they have learnt into the way they teach agriculture," Tony said.

– Sarah Chester

Public Affairs & Media, Albury

Forests NSW Damien O'Reilly addresses the agricultural teachers on their field trip at Rosettes Road, Buccleuch State Forest, where they looked at the clear fall of the 1972 age class by Rosin Developments. *Photo by Mal Baker*

School-based traineeships with Forests NSW

Bombala High School student Jessica Perkins is undertaking a part-time, school-based traineeship and her host employer is Forests NSW.

Jessica is one of 122 registered trainees and apprentices with the South East Regional Training and Enterprise Centre (SERTEC) based at Bega.

She will be working in Forests NSW Bombala office once a week for two years where she will receive on-the-job training and experience in business studies. This work may be counted towards her Higher School Certificate.

Forests NSW Monaro regional manager, Gavin Jeffries, said Forests NSW was pleased to be able to assist Jessica with a placement for her traineeship.

"Providing opportunities for employment in both a local industry and towards the end of senior school studies is important," he said.

At the completion of her course, Jessica will receive a Certificate II in Business.

Bombala High School principal, Mr Lindsay Paul, said it was pleasing to see students gaining an education concurrently with local vocational training.

"Bombala High School is a strong supporter of such schemes," he said.

Group training team leader for SERTEC, Melinda Michael, said building a partnership between the employer, the school and the student provided opportunities to gain a qualification, which is a requirement of the HSC.

"Jessica's job prospects are enhanced through employment schemes such as these," she said.

– Sarah Chester

Public Affairs & Media, Albury

Clockwise from top left: Bombala High School's, Donna Shelley; Forests NSW, Danny Farrell; SERTEC representative, Melinda Michael, and trainee Jessica Perkins. *Photo by Sarah Chester*



Cross-country courses created

Deniliquin school students will be running through the forest this year trying out one of three new cross-country courses in Deniliquin State Forest.

In conjunction with local schools, Forests NSW has marked three cross-country courses giving primary and secondary students in the Riverina the option of running a two, three or four kilometre route along the Edward River and through the forest.

Forest NSW fieldworkers constructed information signs at the start and finish of each course. Route-markers in the form of coloured arrows guide students through the forest; to stay on track, runners keep the appropriate colour on their right hand side.

Local athletics coordinator, Judy Lees, provided unlimited advice regarding the length and routes of the courses. A number of local cross-country carnivals and the Riverina district carnival have already taken place in the forest with all involved keen to make greater use of the tracks in the future.

Not only will the young people of Deniliquin and surrounds benefit from these new courses but so will visitors to Deniliquin State Forest.

– Mick Lalor

Operations Forester, Deniliquin

Three new cross-country courses are ready for action in Deniliquin State Forest, with information signs constructed by Forests NSW fieldworkers. *Photo by Mick Lalor*



hot off the press

– our latest publications

Real stuff – hard copy publications

(all prices are GST inclusive)

Lower North Coast Forest Map (\$9.85)

Coming soon. An updated guide to the forests of the Barrington Tops and Manning Region.

Copies of Forests NSW publications are available from Forests NSW offices across NSW. To locate your nearest office or to order publications call 1300 655 687, fax (02) 9872 6447 or email cumberland@sf.nsw.gov.au

Virtual stuff – new on our web site

Ecologically Sustainable Forest Management Plans

Describe how Forests NSW will provide for multiple uses while maintaining ecological processes and environmental values. See www.forest.nsw.gov.au/esfm



Forests NSW web pages

Browse through the new look updated web pages. See www.dpi.nsw.gov.au/forests

June – August 2006 events

- | | |
|-----------------|---|
| 2-4 June | Sydney Timber and Working with Wood Show Australia's largest showcase of products and services for the woodworking and timber industries. Forests NSW will have a display and continues to sponsor the woodworking competition. www.workingwithwood.com |
| 5 June | World Environment Day |
| 15-17 June | Primex Field Days, Casino One of the premier agricultural field days and the largest commercial exhibition in northern New South Wales. NSW DPI will have a display at this event. www.exhibitionmarketing.com.au |
| 23-25 June | Fishing Show and Outdoors Expo An event for the 4x4, camping boating or fishing enthusiast. Look out for NSW DPI's display. www.fishingshow.com.au |
| 2-9 July | NAIDOC week |
| 14-15 July | Mudgee Small Farm Field Days The latest and greatest farm-related products and services will be on display. Visit the NSW DPI display. www.arec.com.au |
| 24-28 July | Living in a Hot House Forests NSW joins Mount Annan and Wollongong Botanic Gardens in an event all about global warming for years 5-6 students. Gerard Nolan, Cumberland State Forest Ph: (02) 9871 0050 |
| 28 July | Schools Tree Day Planet Ark 1300 885 000 |
| 30 July | National Tree Day Planet Ark 1300 885 000 |
| Aug – November | Cumberland State Forest activity program Fun activities for one and all. Cumberland State Forest Ph: (02) 9871 3377 or 1300 655 687 |
| 29 Aug – 3 Sept | Keep Australia Beautiful Week |

How will Forests NSW manage State forests today and for generations to come?

The new Ecologically Sustainable Forest Management (ESFM) Plans set out broad strategies, performance indicators and measurable outcomes for forest management.

The plans for Upper North East, Lower North East, Eden, Tumut and South Coast of NSW describe how Forests NSW will provide for uses such as timber supply and recreation while maintaining ecological processes and environmental values.

Available from Forests NSW Information Centre
Ph: 1300 655 687 or (02) 9871 3377

RRP **\$20.00** per plan including GST.

Free copies available for download at www.dpi.nsw.gov.au/forests

