

Forest sustainability – what does it really mean?

Technology key to forest harvesting, sales and future

Worldwide interest in growing superior eucalypts

PLUS: Informative forests poster inside!



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from the chief executive

The NSW Government has completed its consideration of whether further forest reservations were possible on the south coast. In December 2004, the Minister for Primary Industries announced the creation of over 7,000 hectares of new national park estate in the south east. The Minister also announced the lifting of the moratorium against harvesting over a larger area of State forest in the region. The moratoriums had affected industry access to a large number of forest compartments since February 2003. The lifting of the moratoriums will lead to a more secure investment climate for value-adding by industry.

The south coast will also soon see the introduction of delivered sales as part of the roll out of this process across the state. This system sees Forests NSW directly engaging harvest and haulage contractors to fall timber and transport it to the mill door (see story page 10). The system brings with it many benefits, including ensuring correct log segregation and delivery of the various grades of logs to the best possible market. The introduction of more efficient and safe mechanical harvesting equipment in native forests, and the use of central tyre inflation on log trucks to reduce impacts on forest and council roads are other benefits that have come from this new way of doing business.

Forests NSW, too, is investing in the latest technology to assist us with forest management. Our resources analysts are using cutting-edge computer modelling software to emulate future forest growth under different management options (see story page 9). The models calculate how much timber is available, and where and when harvesting operations should be scheduled, with scenarios available from now to any point up to 200 years in the future.



Forests NSW will continue to explore technology that assists in improved forest management.

Peter Duncan
Peter Duncan
Chief Executive



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www.forest.nsw.gov.au or www.dpi.nsw.gov.au



Cover photograph The key to forest sustainability is managing all of the social, economic and environmental values of forests. Forests that are managed well for all of the values they contain will be more productive in the long-term according to Forests NSW sustainability analyst, Hilary Smith. See page 14 for story.

Photo Forests NSW Image Library

Expansion of national park estate in south east NSW

The State Government has added 7,135 hectares of forest to national parks and State conservation areas in the south east of New South Wales.

This brings the total forested area of the national park estate in the south east to more than 812,000 hectares. At the same time, 366,000 hectares of native forest will remain as State forest, which will support sustainable timber production for the region.

"This reflects the State Government's ongoing commitment to consider conservation needs, along with the need for healthy regional economies," said NSW Minister for Primary Industries, Ian Macdonald.

"This decision strikes a reasonable balance between the preservation of natural heritage areas and continued support for a sustainable, profitable timber industry in regional NSW."

Under the decision, 3,027 hectares of Monga State Forest will join the Monga National Park and its associated conservation areas, including 699 hectares of Crown lease which will be vested in the Minister for the Environment.

A total of 3,950 hectares in the upper reaches of the Deua River catchment in Dampier State Forest will also join Deua National Park.

Roughly 290 hectares of forest east of the Princes Highway near Termeil will become an extension of Murramarang National Park – including the area surrounding the renowned giant spotted gum known as 'Old Blotchy'.

Increases are also proposed for the Worrigeer Nature Reserve near Nowra and the Illawarra Escarpment State Conservation Area.

There is no change in the Eden area, where there is currently 163,605 hectares of State forest and 247,470 hectares of national park.

– **Howard Spencer** Public Affairs & Media, Coffs Harbour

The NSW Government has added 7,135 hectares of forest to the national park estate on the south coast. *Photo Forests NSW Image Library*



Relief at hand for thirsty red gum forests

Higher water levels flowing down the Murray River in February went to the rescue of some thirsty red gum forests.

"Unusual recent heavy rain in the upper Murray River catchment produced higher river flows that allowed flooding into some of the drought-stressed forests," said Forests NSW Riverina regional manager Mike Thompson.

"Red gum forests along the Murray River have been under stress for several years

due to continuing dry conditions associated with the ongoing drought in western New South Wales.

"The NSW Government is making careful use of the much-needed water in the Murray River by monitoring the natural flow into creeks that will carry the life restoring water to the Gunbower-Perricoota State Forest downstream of Echuca."

While most of the water made its way into storage in Lake Victoria on the lower Murray,

some entered the forests through creeks that flow naturally and unaided when the crucial height is achieved in the Murray River.

Mike said Forests NSW would monitor any improvements to forest health over the coming months.

"Management of the river flows to replenish soil moisture in the forests is complex and is coordinated by a number of water and land management interests and involves personnel from the Murray Darling Basin Commission and the states of NSW, Victoria and South Australia," Mike said.

"Trees suffering from drought stress have reduced vigour, lose their leaves and are also more susceptible to dieback from insect attack.

"Drought stress caused by loss of soil moisture can result in isolated tree deaths, or in the more severe cases, death of localised stands or clumps of trees unable to get sufficient moisture."

– **Howard Spencer**
Public Affairs & Media, Coffs Harbour

Red gum forests along the Murray River benefited from higher water levels during February 2005. *Photo Forests NSW Image Library*





Dancing man comes from forest to sea

Close to the township of Ulladulla on the south coast stands Bunan Yuin - a large sculpture of a dancing figure welcoming people to the Coomee Nulunga cultural walking track.

Forests NSW Southern Region Aboriginal affairs coordinator, Paul Carriage, said the track had been established to demonstrate the history and culture of the local Murramarang People.

"The track travels through heath down to the beach," Paul said. "It's open to all and is also used for guided tours with groups taken through by a local Aboriginal guide. It was built as part of a training program for local Aboriginal people to reconnect with their culture and involved members from the local Butler, Rook, Morrison, Carriage and Hughes families.

"At the start of the track is Bunan Yuin, and along the track are interpretation poles known as Garuwanga Daran (dreaming poles) in the local Dhurga language."

The dreaming poles depict the many species of flora and fauna found in the area.

In September last year, a bushfire damaged a section of the track, with Bunan Yuin and eight dreaming poles being destroyed.

"Ulladulla Local Aboriginal Land Council (LALC) then approached Forests NSW to see if any help could be obtained in replacing the burnt poles and finding a suitable replacement for Bunan Yuin," Paul said.

In December, Paul and David Mills, a member of both Forests NSW silviculture team and Ulladulla LALC, set out to find and deliver blank poles.

"And after many weeks searching for the uniquely shaped pieces of timber from the waste of harvested trees in North Brooman and South Brooman State Forests, we were able to supply the LALC with a replacement Bunan Yuin, along with timber for new dreaming poles," Paul said.

"David was responsible for putting together the new dancing man during weekends and days off."

In mid-December, staff from Forests NSW and the land council set about erecting the new Bunan Yuin at the head of the track.

"We were thrilled to set Bunan Yuin in place, gracing the start of the walking track once more," Paul said.

The new dreaming poles are almost complete and will put in place along the track over upcoming months.

For information on the Coomee Nulunga track contact Lynette Rook at the Budamurra Aboriginal Corporation on Ph: (02) 4455 5883.

– Leah Flint
Communications, Maitland

Above left: Bunan Yuin, the dancing man, is back welcoming walkers to the Coomee Nulunga cultural track thanks to support from Forests NSW and Ulladulla Local Aboriginal Land Council.
Photo by Tony Karacsony

Seeking help for website

The NSW Department of Primary Industries (DPI) is designing a new website and needs your help.

DPI web services manager, Bruce Ward, said the aim is to create a website that is simple and easy for industry, producers and the community to use.

"The new site will combine information from the existing forestry, fisheries, minerals and agriculture websites," Bruce

said. "We have close to 25,000 people visiting our sites each month and are keen to ensure that the new site meets the needs and expectations of as many of these users as possible.

"We are seeking people to assist us by providing feedback on draft designs, site maps and phrasing, and also to undertake simple navigational quizzes.

"Of course we also hope to get some valuable suggestions from users for website improvements."

Bruce said anyone can register to participate, with all correspondence via email.

Participants will be credited for their efforts by being listed on the 'acknowledgments page' of the new website.

If you would like to help shape the new NSW DPI website, you can find out more about the project and register at www.dpi.nsw.gov.au/referencegroup

– Steve Brown
Communications, Orange



A new website is under development for the NSW Department of Primary Industries. It's hoped user input will help make the site simple and easy to use.

Rare plant lives on thanks to 'Quentin'

Forests NSW staff have grown a quassia plant domestically in an effort to learn more about this elusive north coast shrub with a limited distribution. The study plant has thrived and has been affectionately dubbed 'Quentin' by local staff.

Usually quassias are a "non-descript understorey plant" according to one of their biggest fans, Coffs Harbour-based timber merchandising manager, Dale Mclean.

But Dale, who cites an interest in plants as the main reason for becoming involved in forestry, has nurtured 'Quentin' for around ten years.

In that time, the shrub has been a study tool for scores of forestry workers who have used the specimen to learn what they can about quassias in an effort to increase the knowledge of the plant and to preserve it when it has been located.

"In the bush quassias can be heavily grazed by native animals, and it is not an obvious plant," Dale said. "The shrub can grow up to two metres in height, with small red-tinged flowers and red fruit."

It was even thought to be extinct, but five plants were found on private property near

Moonee, north of Coffs Harbour, and then another 1,000 plants were found nearby in Orara East State Forest in a pre-harvest survey.

Since then many thousands more have been identified by Forests NSW staff using 'Quentin' as a reference guide. Moonee quassias (*Quassia sp. B*) are now subject to a Department of Environment and Conservation recovery plan.

– **Howard Spencer**

Public Affairs & Media, Coffs Harbour

Coffs Harbour forester Dale Mclean with 'Quentin' the quassia.
Photo by Howard Spencer



Firefighting abilities officially recognised

Approximately 900 Forests NSW staff are being issued with statements of attainment in a massive effort to recognise the skills of experienced firefighters.

During the past year, a rigorous assessment process has been conducted across the State in a joint project by Forests NSW and the Rivierina Institute of TAFE.

"The system was designed to be rigorous enough to conform to national assessment guidelines, but practical enough for our staff to complete it without major disruption to work programs," Adrian Ryan from Forests NSW human resources said.

Staff had to undertake a self-assessment checklist against set criteria, which involved discussion with, and approval from, supervisors and regional managers.

The assessments covered such elements as responsibilities, fitness, personal protective equipment, survival techniques, fire behaviour, radio systems and suppression tactics.

Some assessments involved group exercises, which were part of Forests NSW preparation for the recent fire season.

All staff involved will receive a statement of attainment from TAFE as well as a Forests NSW certificate, which will be valid for the next five years.

Adrian said the exercise enabled staff and their managers to showcase the firefighting abilities that exist within the organisation.

"We have a very high level of firefighting expertise within Forests NSW, and it is important for staff morale, the general public and other firefighting agencies to know that we are well prepared when the time comes to protect the State's valuable timber assets and surrounding areas from fire," he said.

– **Sarah Chester**

Public Affairs & Media, Albury

A fire entrapment exercise showing Forests NSW firefighters learning how to survive when surrounded by fire. *Photo by John Whittall*



Signs for safety

The forest industry in the south west slopes of New South Wales has introduced new road marker posts in an effort to increase safety.

The Forest Industry Council (FIC,) with particular help from Forests NSW, Ryam, Weyerhaeuser and Visy, has developed a road marker system specifically for use in pine plantations and native forests around Tumut, Tumbarumba and Batlow.

The road markers are gradually being introduced along key haulage routes to allow the timber industry and other forest road users to better communicate via UHF radio.

The markers are set a kilometre apart and are identified by a series of numbers increasing along a road and decreasing on the return trip.

It is intended that drivers make a UHF radio call every three-to-five kilometres, or when they turn onto another road, depending upon the road conditions and UHF coverage in the area.

Forests NSW timber merchandising manager, Gavin Jeffries, said all forestry traffic, and the public where possible, can communicate via the agreed framework on forest roads using the UHF channel of 40.

"This communications protocol will contribute towards safety on forest roads by allowing drivers to know where and when they might encounter other vehicles.

"It is similar to frameworks already being successfully used in Victoria and North America," Gavin said.

School bus drivers and the general public can also use the signs when they needed to identify their location to other road users, such as after an accident or break down, or hazards to other drivers along the road.

At present, Forests NSW is marking select routes with signs already erected along many roads in the Bondo, Red Hill, Adjungbilly and Wee Jasper forest areas, as well as along Wondalga Road, which runs through Green Hills and Bago State Forests.

– Sarah Chester Public Affairs & Media, Albury

John Hartnett and York Heinecke from Forests NSW with new signs installed in the south west slopes region. *Photo by Gavin Jeffries*



Sculpture links timber to boat building past

The link between timber from the mid north coast and the boat building industry is on permanent display thanks to a sculpture erected near the Laurieton United Servicemen's Club.

Forests NSW sponsored the sculpture through the supply of local timber.

The site near the Camden Haven River was used as a ship building yard in the early 1900s. The last ship built on the site was the Concord in 1923.

"An old photo of a ship built on this site inspired local artist, Max Scott," Forests NSW mid north coast regional manager, Kathy Jones, said.

"Max is a wood carver, boat builder and bushman. The sculpture is constructed of local hardwood timber, employing traditional ship building components and methods."

Local species used included tallowwood, blackbutt, blue gum and white mahogany which have been drawn from local regrowth forests. These will be identified by species names carved into the timber. Markers indicating past flood levels are also incorporated into the sculpture.

"Max Scott was born on the mid north coast into a family with strong traditions of fishermen and bushmen," Kathy said.

"He inherited a love and wealth of knowledge of both the ocean and forests of the local area, which expresses itself in his artwork.

"He was introduced to, and received tuition in, traditional and European wood carving and sculpture at a very early age by local Camden Haven artists."

Max has successfully exhibited his artwork in Australia and overseas and was invited to participate in the Djiridy 2000 Exhibition at Homebush Bay during the Olympic Games.

Other sponsors of the unique Laurieton sculpture have been Allan Taylor and Associates, Mitre 10, Laurieton United Servicemen's Club, Hastings Council, Australia Council and Camden Haven Chamber of Commerce.

– Howard Spencer Public Affairs & Media, Coffs Harbour

Artist Max Scott with Russell Madeley of Forests NSW, with Max's unique timber sculpture near the Camden Haven River in Laurieton, on the site of an old boat building yard. *Photo by Howard Spencer*

Timber to fall at Easter woodchop

Each year the finest axemen from across Australia and the world converge at the Sydney Royal Easter Show. 'The Royal' is regarded by many as the Wimbledon of the woodchop, with some of the sport's most prestigious prizes awarded during the ten day competition.

Forests NSW has sponsored the event for many years, with competition blocks sourced from State forests on the south coast.

Director of Forests NSW commercial services, Gary Keating, feels this is an important tradition.

"The woodchop is an icon event for the timber industry, not to mention the many thousands of keen spectators who flock to the purpose-built stadium at the show-ground," Gary said.

Many industry stalwarts are involved in the event, including Toby Davis, owner of Davis & Herbert Sawmills, who has been involved for almost 30 years.

A fifth generation sawmiller, Toby has 56 years experience in the industry.

"Toby is also an accomplished axeman, with a long and noted career in the sport," administration manager of Davis & Herbert Sawmills, Jeff Melville, explained.

Davis and Herbert has produced the predominantly silvertop ash (*Eucalyptus seeberi*) wood blocks for the Royal Easter Show for many years.

Each block is turned with a machine that requires expert control and considerable manpower in feeding log blanks, stacking and marking. It is imperative that the same log will produce all blocks for each heat or final of the competition.

"It is worthy of mention that all blocks are produced by Toby himself," Jeff said.

The Sydney Royal Easter Show will be held from March 18 to 31. See www.eastershow.com.au for details.

– **Susie Kable** Communications, Sydney

Australia's premier woodchopping event The Royal Easter Show is on from March 18-31. Forests NSW is a sponsor of the event. *Photo courtesy Royal Agricultural Society*



Orchids surveyed on south west slopes

The management of native plants is a crucial part of Forests NSW activities, with routine surveys for a variety of plants conducted in State forests across NSW.

State forests surrounding Tumbarumba in the south west slopes of New South Wales provide habitat for at least two threatened orchid species, *Prasophyllum bagoensis* and *Diuris pedunculata*.

Prasophyllum bagoensis is named after Bago State Forest and has been found in only one locality.

There are also other orchid species in the forests, which are not often seen and may be of particular conservation significance. It's thought that some may occur only in these State forests.

Many orchid species flower during a brief and specific period each year and cannot be detected or reliably identified at other times.

Due to the dependence on flowering periods, Forests NSW ecology team in the region has increased survey efforts to include different survey periods and improve the effective-

ness for detecting these and other potentially significant orchids.

Forests NSW ecologist Kelly Rowley, who is in charge of the surveys, said the work was undertaken during November and December last year.

At least 25 different species of orchids were found during the two weeks of surveys.

She said Forests NSW local planning forester, Lee Blessington, was very excited to find the endangered *Diuris pedunculata* while completing surveys in Maragle State Forest.

The species was found growing in several sites, including a previously cleared area of land, growing among grasses and herbs.

In compartments planned for logging, populations of this and other species of significance will be protected by conditions developed with, and approved by, the NSW Department of Environment and Conservation.

Among the interesting species observed were *Pterostylis alpine* and *Pterostylis foliata*, which are both uncommon in NSW; two unnamed species related to *Pterostylis cycnocephala*; and an unusual form of *Thelymitra media*, which had not previously been recorded from the area.

– **Sarah Chester**

Public Affairs and Media, Albury

Above left: A rarely seen orchid *Thelymitra media* uncovered while completing surveys in Maragle State Forest.

Left: *Thelymitra* sp also found during the surveys in late 2004. *Photos by Kelly Rowley*

Aboriginal cultural centre planned for Tumut

A feasibility study and business plan is underway for a proposed Aboriginal cultural centre at Tumut in the New South Wales south west slopes.



The Snowy Mountains Elders Aboriginal Corporation (SMEAC), Forests NSW and Tumut Shire Council are jointly developing the proposal for such a centre in the town.

Forests NSW Aboriginal coordinator and project manager, Alice Williams, said Jim Richards, a consultant from the Wagga Wagga Business Enterprise Centre, had been engaged to produce a feasibility study and business plan for the proposed centre.

A working committee has been formed to oversee the project, comprising members of the local Aboriginal community, SMEAC, Forests NSW and Tumut Shire Council.

"We need to examine the feasibility of promoting the recognition of Aboriginal cultural values through the development of the centre," Alice said.

"And we also need to ensure it is a viable enterprise for the local Wiradjuri Aboriginal community."

Alice said Tumut Shire Council had demonstrated its support for the project by offering a site for the centre.

"The SMEAC recognises that the development and operation of the centre could be most effectively achieved in partnership with other agencies and the non-indigenous wider community," Alice said.

She said the local Aboriginal community recognised an urgent need to protect its heritage and to promote an understanding and appreciation of its current and ongoing culture.

"The Hume region is rich in Wiradjuri Aboriginal cultural history and heritage.

"Tumut was a significant meeting place for many Aboriginal nations and clan groups that passed through the area on their way to the Bogong Mountains for annual ceremonies," Alice said.

Funding for the feasibility study and business plan has come from the Commonwealth Department of Employment and Workplace Relations and Regional Forest Agreement.

– Sarah Chester

Public Affairs & Media, Albury

Alice Williams discusses plans for the proposed centre with Ramsay Freeman, chairman of the Snowy Mountains Aboriginal Elders Corporation. Photo by Gavin Jeffries

Firefighters take on locusts

Forests NSW new position within the Department of Primary Industries (DPI) has brought some new challenges to staff normally hell-bent over summer on beating bushfires: they have turned their talents for aircraft operations to fighting locust plagues.

Operations forester at Forbes, Alan Smith, has been in the forefront of the Forests NSW response, handling up to eleven aircraft a day, some from as far away as Kununarra in Western Australia and Gatton in Queensland, out of the Forbes airport.



Aerial spraying for locusts at Back Yamma State Forest. Photos by Alan Smith

Forests NSW firefighters Lloyd Hill and Paul Maloney from Narrandera spraying locusts in Back Yamma State Forest.



"I remember the locust plague of 1983 on the farm out here when we covered our vegetable garden with cardboard boxes," Alan said. "It didn't make any difference; they ate everything that was green anyway."

The same thing is happening now, with a massive effort from DPI and Rural Lands Protection Board staff using every resource to attack the locusts.

"Forests NSW has been involved in eradicating the locusts since last October, with Forests NSW operators providing weather coverage, briefings, bringing in new aircraft, maintaining hourly checks and liaison with pilots," Alan said.

Forests NSW is also responsible for surveying for locusts and treating swarms on State forests.

The DPI locust fight will continue well into 2005.

– Howard Spencer

Public Affairs & Media, Coffs Harbour

a crystal ball would be handy for any company wanting to see where it might be in a few years time, but Forests NSW has taken a step closer to making this notion a reality by harnessing sophisticated computer modelling.

It is using a computerised planning tool to emulate future forest growth dynamics and management options.

Canadian software, Woodstock and Spatial Woodstock, is being used by Forests NSW resources officers to assist in native forest planning and operation scheduling.

The models calculate how much timber is available, and where and when harvesting operations should be scheduled. The software also enables the standing volume of timber and the condition of the forest to be ascertained at any point in time.

"This software has proven itself with softwood harvest computer modelling, but that is for even-aged forest with a single species and fairly consistent forest performances and silviculture," said Forests NSW resources analyst, John Turland.

"We have taken that knowledge and applied it to mixed species native forest with highly variable stand conditions and site productivity. This is using cutting-edge technology and so far providing good results.

"We are providing detailed predictions of where Forests NSW wood supply will be in a few years, to say 40 years, with broader predictions up to 200 years in the future," John said.

"The modelling is conducted at two levels using Woodstock.

"Strategic level modelling provides a forecast of the long-term wood supply capacity in terms of broad product types, species and location. Tactical level modelling looks at details on which precise compartments of forest will be harvested up to 20-40 years into the future.

"Spatial Woodstock enables results of modelling such as operation schedules and the status of the forest condition over time to be instantaneously

represented on maps. The real value this product provides is being able to model spatial constraints on the ground such as restricting harvesting of adjacent forest areas or clustering operations to reflect tactical level planning issues. With this functionality, operation schedules and wood supply forecasts better reflect the realities of management planning."

John said that modelling the future volume helps identify periods of changes in the predicted log volume, species and quality mix which is critical to forest managers.

These long-term predictions of changes in the product expectation help the timber industry to develop business plans for new equipment and help with ascertaining forward sales and marketing agreements.

"The program works similar to a chain of events," John said.

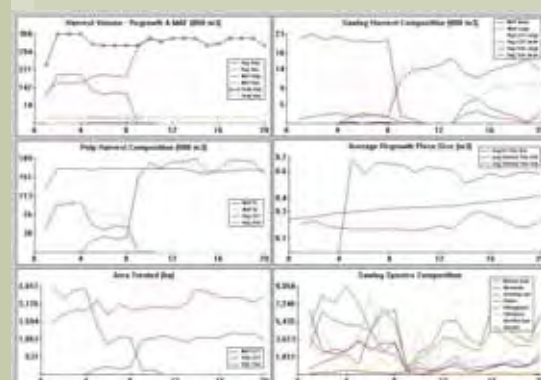
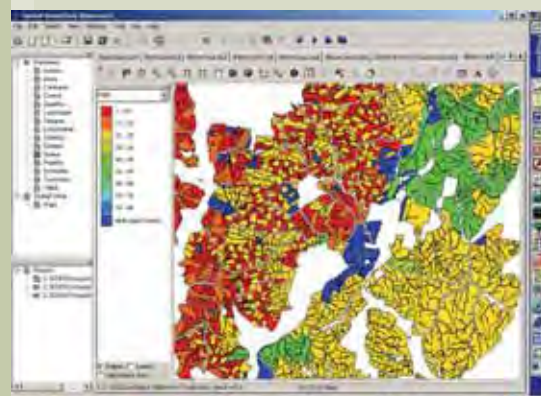
"We input area information, forest types, site productivity, stand quality and a range silvicultural possibilities for each forest block. We identify operational and management restrictions such as the minimum timber production level which must be sustained and the best rotation ages.

"It then determines the most appropriate silviculture for each forest block, how much timber is cut, where and when areas should be cut.

"Examples of wood supply issues which the sophisticated program helps with is the removal of wood supply spikes (over-supply) such as those from large-scale areas of regrowth forest following wildfires.

"Woodstock will select among a range of thinning options ranging from early thinning to on-time thinning or late thinning to smooth out the volume of timber and level of harvesting operations."

The initial stages of implementation have focused on south east NSW forests in transition from multi-aged forests of diverse quality timber to a more even-age regrowth forest.



Canadian-developed modelling software is being used by Forests NSW resources officers to assist in native forest planning and operation scheduling in south east NSW. Screen images courtesy John Turland

John said the project results are due to a multidisciplinary team effort, with staff from technical services and regional management and planning coming together to develop and validate the model.

"Forests NSW will not stop there. The same package will be adapted to predict what can be done in uneven-aged mixed species forest where more selective logging is currently practiced," John said.

— Howard Spencer
Public Affairs & Media, Coffs Harbour

MODEL FORESTS

□□□□ predicting where wood will grow □□□□

Delivered log sales

deliver better utilisation

Over the past seven years, Forests NSW has seen a transition from timber mills managing harvest and haulage contracts to the present arrangement where Forests NSW manages these contracts in many instances.

In 1997, 100 per cent of log sales from New South Wales State forests were on a 'stumpage-sale' basis.

Today, approximately two thirds, or around three million tonnes, of annual log sales are made on a delivered basis with Forests NSW engaging harvesting and haulage contractors.

This level is set to increase to more than 80 per cent during the next twelve months as Forests NSW rolls out delivered log sales to new parts of the state.

Forests NSW director of commercial services, Gary Keating, said this new approach to managing the supply of timber products (hardwood and softwood) from harvest through to distribution and delivery to the mill door was bringing major gains in forest value recovery, efficiency and safety.

"It makes good sense for the forest owner to manage harvesting and distribution operations," Gary said.

"A big advantage is the improved capacity of the forest owner to ensure correct log segregation and delivery of the various grades of logs to markets of best end use.

"Another major advantage of delivered sales is that we can now offer long-term harvesting and haulage contracts of up to ten years that give contractors the security to invest in modern equipment.

"Good examples of this are the widespread introduction of mechanical harvesting equipment in native forests that improve efficiency and safety, and the use of central tyre inflation on log trucks, reducing damage to State forest and shire roads."

"In every region where we have introduced delivered sales, we have developed new customers and achieved increased log sales through the capacity to offer a mill door service."

Gary said the numerous advantages of delivered sales are increasingly being recognised, with the system being adopted by other Australian states, and by most major forest growers throughout the world.

"Given its success to date, Forests NSW intends to continue to expand delivered sales across the state, providing new and existing customers with a one-stop shop when it comes to purchasing timber," Gary said.

"Ultimately, delivered sales bring us closer to our customers and contractors, and gives us a greater understanding of their businesses."

– Sarah Chester Public Affairs & Media, Albury



Recent contracts

The following contracts are part of Forests NSW improved delivered sales arrangements and have recently been awarded after a rigorous competitive tender process:

- A \$23 million contract to A.R. and M.E. Moffat Pty Ltd for harvesting up to 300,000 tonnes of sawlogs and pulpwood a year from Forests NSW Macquarie Region softwood plantations around Bathurst, Orange, Oberon and Lithgow.
- A \$50 million contract to Brian Smith Timber Transport Pty Ltd for harvesting, loading and delivery of up to 240,000 tonnes of logs a year from plantations near Nundle to local processing plants.
- A \$5 million contract to R. and V. Bergin Pty Ltd for loading and haulage of up to 120,000 tonnes of timber a year from Forests NSW Hume Region plantations to mills at Tumut, Tumbarumba and Holbrook.
- A \$12 million contract to Gibbs Logging for loading and haulage of up to 90,000 tonnes a year from the plantations in Forests NSW Macquarie Region.
- A \$7 million contract to Nettley Pty Ltd (trading as Mangan Logging) for loading and haulage of 60,000 tonnes a year of various log products in Forests NSW Macquarie Region.

Going electronic

In harmony with delivered sales, an innovative system of Electronic Delivery Docketing (EDD) is being progressively introduced to assist log delivery.

EDD is the culmination of several years' development by Forests NSW in collaboration with New Zealand company IFR Technologies and follows extensive testing with both softwoods and hardwoods.

The new system, known as 'Logtrack', replaces traditional manual dockets with electronic dockets created on hand-held computers at loading points in the forest.

Dockets are delivered to customers as a printed hard-copy and in electronic form. Data is transferred via modem to a central database by timber harvesting contractors and sawmill customers each day.

"The EDD system will enhance the efficiency and precision of Forests NSW log merchandising operations," Forests NSW project manager, Jamie Morton, said.

Under the old manual docket system, log sales and delivery data was often unavailable until the end of the month.

"The new computerised system will provide this information daily, allowing Forests NSW staff to monitor delivery of customer orders and bush log stocks much more efficiently," Jamie said.

"In addition, customers and contractors can also benefit from secure access to 'live' month-to-date account data from a web site developed by Forests NSW. The system is now live in four Forests NSW regions."



Top: An innovative system of Electronic Delivery Docketing is being progressively introduced to assist log delivery. It allows Forests NSW and customers to monitor log supplies and deliveries each day.

Above: Managing the supply of timber products from harvest through to distribution and delivery to sawmills is bringing major gains in forest value recovery, efficiency and safety.

Below: Hand-held computers are used in the bush to monitor the movement of each and every log cut. *Photos by Howard Spencer*



NSW eucalypt improvement attracts international attention

The successes of Forests NSW tree improvement program is gaining worldwide attention.

"There have been a number of research outcomes in the past two years which have largely shaped where we will be concentrating our efforts in the future," said Michael Henson, manager of the tree improvement program.

Much of that research will take place in the newly-announced Grafton Forest Centre of Excellence, in which the tree improvement team will play a vital role in developing a model hardwood plantation.

Foremost among the research subjects is *Eucalyptus pilularis*, commonly known as blackbutt, which produces more than 70 per cent of high quality logs from native forests on the north coast of New South Wales.



A pilot family forestry program producing plants of varieties of *E. pilularis* from mini-cuttings has been a focus of deployment over the past year.

Family forestry involves the vegetative propagation of plants from a number of seedlings of selected pedigreed families, providing a wider genetic diversity than the traditional and time-consuming approach to cloning from a single plant. The system aims to rapidly deliver improved material to operational plantations.

The tree improvement program has shown that using juvenile seedlings from selected families as mother plants for the cuttings has provided almost eight times the productivity, in shoot production for cuttings and rooting of cuttings, of par-



tially tested varieties derived from more mature material.

"In October at Aveiro, Portugal, I presented a paper, co-authored by Helen Smith from Forests NSW tree improvement program, on the adaptation of family forestry for eucalypts in NSW," Michael said.

"This was at a conference of the peak international body for forestry research, the International Union of Forest Research Organisations (IUFRO), and discussed issues associated with eucalypts in a changing world."

He also presented two posters, one covering the selection of disease-tolerant spotted gum in NSW, and the other on a study of the wood properties in a nine-year-old *Eucalyptus dunnii* progeny trial in NSW.

In Spain, Michael delivered a paper co-authored by Jerome Vanclay of the Southern Cross University sustainable forestry program, which showed a 30 per cent improvement in the site index (a measure of the potential productivity of the site) could give a 300 per cent improvement in the profitability of *Eucalyptus dunnii* in plantations.

"Our results emphasised the importance of good land and good planting material in commercial plantations," Michael said.

"Relatively small increases in the site index can mean large increases in production and profitability."

The trials also demonstrated that solid wood properties are directly correlated to the genetics of the tree, which could be improved through conventional tree breeding.

In November in Charleston, South Carolina in the US, again in an IUFRO conference, Michael delivered a paper on the evolution of breeding and deployment strategies for *Eucalyptus pilularis* and another on using the crown damage index (CDI) as a selection tool for insect tolerance in *Eucalyptus grandis*, commonly known as flooded gum, in northern NSW.

CDI is a measure of overall tree canopy health.

"Forests NSW has a long history of tree improvement programs for eucalypts beginning in the 1960s, but there has been renewed interest in the key plantation species of *Eucalyptus pilularis*, *E. variegata* and *E. dunnii* in the last ten years," Michael said.

"The current tree improvement program is concentrating on producing, for operational deployment, seedlings and plants from cuttings of the best available selected genotypes of these species that are commercially useful in the industry."

Howard Spencer

Public Affairs & Media, Coffs Harbour



From left: Staff discuss the growth of eucalypt seedlings at Forests NSW Grafton nursery; Timber from a research plot on the north coast; Taking a close look at the timber from a *Eucalyptus dunnii* plot. Photos by Howard Spencer

Oberon's window of opportunity

Top to bottom: Duane Sickert says JELD-WEN products are meeting homemakers' needs both now and into the future.

JELD-WEN door skin production. Plantation pine from the State forests of the central west is vital to production.

The 'door skin' press at JELD-WEN. Door skins become the outer faces of interior moulded doors. *Photos courtesy JELD-WEN*



Around the world, JELD-WEN is synonymous with windows and doors, with the company regarded as a world leader in this area of manufacture.

JELD-WEN is a manufacturer and distributor of a wide variety of doors, windows and assorted millwork products such as jambs, casing sets and mouldings. Here in Australia, Stegbar Windows and Corinthian Doors and Moulding are two of the company's wholly-owned subsidiaries.

The 'door skins' from JELD-WEN's plant at Oberon are one of the major end uses from the 65,000 hectares of plantation grown pine Forests NSW manages in the central west.

JELD-WEN general manager based at Oberon, Duane Sickert, said JELD-WEN purchased the feature panels plant in the town from CSR in September 2000.

"We operate the medium density fibreboard door skin press production 24 hours a day, seven days a week and currently employ 90 people," Duane said.

"Our door facings are 2.7 millimetres thick and comprise the outer faces of moulded interior doors with various inner components sandwiched in between."

JELD-WEN's doors are a diverse collection of solid wood, composite and steel available in a seemingly endless selection of styles and designs - everything from custom hardwood entry doors to interior passage and closet doors.

The company has been a partner in the USA Department of Energy's Energy Star program since 1998, and was honoured for its leadership in manufacturing products that earn the Energy Star label.

"JELD-WEN has developed new products that reliably withstand common weather conditions, helping homeowners save money through decreased energy bills and reducing the costs associated with door and window maintenance, repair and replacement," Duane said. "From products that resist rot, to those that won't warp, swell or sag when exposed to wet or extreme temperatures."

Although JELD-WEN is best known for its door and window manufacturing and distribution, the company also has a tile insurance division and owns resorts and hotels.

JELD-WEN was founded in 1960 as a small millwork company at Klamath Falls, Oregon, 15 miles north of the California border. Its headquarters are still at Klamath Falls, and the company is now regarded as the largest privately held company in Oregon, according to Oregon Business Magazine.

Duane said with the rapid growth in popularity of the company's wood fibre-moulded doors, there was virtually no such thing as waste.

Internationally, JELD-WEN owns several wholesale companies that distribute its window, door and millwork products, usually together with other products, to home centres, timberyards and builders.

"We pride ourselves on being a vertically integrated company able to meet homemakers' needs both now and in the future," Duane said.

He said JELD-WEN has consistently grown during its 45-year history and now has more than 150 divisions spanning nearly 20 countries including the USA, Mexico, Canada, England, France, Singapore, Indonesia, Chile, Japan, Poland and Latvia.

The company employs a mammoth 20,000 employees across the globe, and approximately ten per cent of JELD-WEN's employees reside in Australia.

"Our primary and largest source of woodchips is Forests NSW through Carter Holt Harvey and the pine plantations in the central west are absolutely crucial to the long-term success of JELD-WEN Wood Fibre Division - Australia," Duane said.

— Sarah Chester

Public Affairs & Media, Albury



SUSTAINING

Forests NSW is undertaking a range of projects looking at forest sustainability and how it can be measured.

Sustainable forest management is about managing forests for the long-term, retaining opportunities for future generations to meet their needs and expectations while also providing for the present.

But what does this mean in practice? Forests NSW sustainability analyst, Hilary Smith, has been grappling with these issues.

"Forest sustainability is really about maintaining the forest values that the community holds," Hilary said. "By 'values', we mean things such as employment, timber products, cultural heritage, recreation, education,

Forests NSW and Conservation Volunteers Australia. This program aims to maximise the involvement of local people and volunteers in the support of conservation and management programs in State forests.

Threatened species surveys, construction of ponds to enhance frog diversity, maintenance of recreational trails, weed eradication and bush regeneration were a few of the projects undertaken.

"Being part of this program provides Forests NSW with an opportunity to put something back into the communities in which we operate," Hilary said.

So, how do you measure sustainability? Underpinning much of the work of the Sus-

"The latest report contains a forest sustainability diagram (see right) to better illustrate the forest values that we are seeking to maintain and how they interact," Hilary said.

So what are some of the key sustainability issues facing Forests NSW?

Hilary said shorter term issues include how much forest is available for harvesting, how well supply commitments to the timber industry are being met and the degree to which the environment is protected during harvesting.

"Our ability to meet Government expectations of a growing profit from timber revenue also influences decision-making and efficiency," she said.

How can forest sustainability be achieved?

Can it be measured? These are the questions we ask ourselves as the managers of State forests across New South Wales.

forest regeneration, native plants and animals, water, fire, forest health and research."

Much of the work of Forests NSW Sustainability Group has focused on the social aspects of forest management, specifically non-timber values, which are an often overlooked side of forest management.

"Sustainability is also about being good forest stewards, being aware of our social responsibility in managing forests on behalf of the people of New South Wales," Hilary said.

"One area of focus is the diverse recreation values of State forests and we have developed a strategy called 'Living, working, playing ... forests' in collaboration with groups that use forest areas for nature-based recreation.

"Working with the community is crucial to achieving sustainable forest management."

An exciting program, badged *Communities in Forests*, was developed last year between

ustainability Group has been a need to better understand the true worth of benefits provided through sustainable forest management.

"It isn't easy to measure the value of all of the benefits," Hilary explained. "It is possible to determine the economic value of timber and non-timber products (such as bee keeping and cattle grazing), but how do you measure the value to the community of a forest area used for recreation or the value of a rainforest or cultural heritage site?"

"We don't have all the answers yet, but a set of social, environmental and economic indicators have been developed and will continue to be refined."

Forests NSW sustainability performance is communicated annually in its *Social, Environmental and Economic Report* (known as the *Seeing Report*), with the organisation recognised as a leader in the area of sustainability reporting in the government sector.

And longer term issues are even more complex.

"Long-term productivity and sustainable yield, how well the forest is regenerating after harvesting and the stability of all environmental functions are areas we are looking at," Hilary said.

"Then there's social equity with respect to the range of forest products and values and the adequacy of staff training and knowledge management in delivering these. The ability of the organisation to respond and adapt to changes in the expectations of all stakeholders is also a significant challenge."

In terms of forest sustainability, over the past five years the area of State forests managed for timber production has declined significantly, while demand for products has increased. In parallel with this, the area and proportion of State forest managed for conservation values has increased, making

OUR FORESTS

a significant contribution to the stability of the overall forest environment.

Trends over the past five years show that less forest is being harvested each year, and while the average volume removed per hectare harvested has increased slightly, this is still within agreed sustainable levels and reflective of the selective nature of modern timber harvesting operations.

"Finding and maintaining a balance between the expectations placed on the organisation in terms of productivity and profitability and the management of healthy, functioning forest ecosystems will continue

to be a significant management challenge," Hilary said.

Important steps toward this will be the production of Ecologically Sustainable Forest Management Plans for each operating region in 2005 and progress towards certification of the organisation's Environmental Management System. Forests NSW is also responding to customer interest in forest certification, ensuring the environmental credentials of the timber supply.

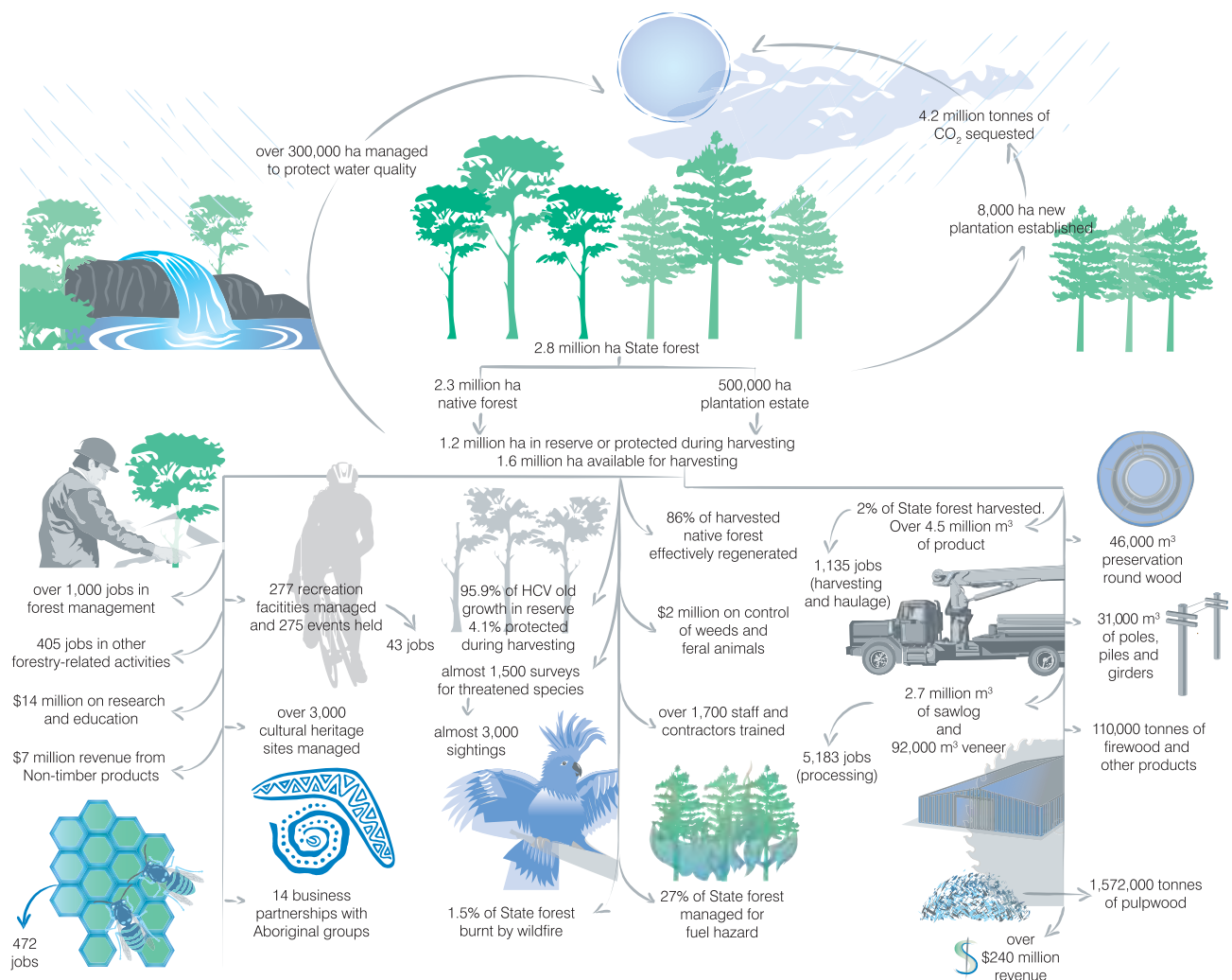
"The bottom line is that organisational profitability is dependent upon the provision and management of social, economic and

environmental values of forests," Hilary said. "Forests that are managed well for all of the values they contain will be more productive in the long-term."

Further information on sustainability can be found in Forests NSW 2003/04 *Seeing Report*. Copies are available from Forests NSW Information Centre on Ph: 1300 655 687 or (02) 9871 3377 or download a copy from www.forest.nsw.gov.au

– Sally Arundell

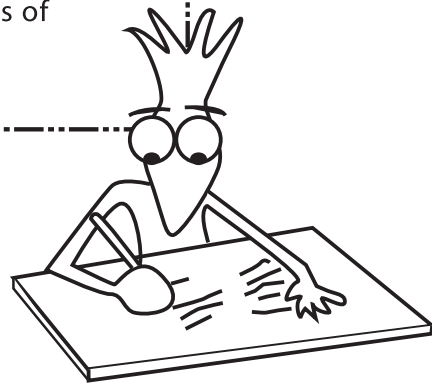
Sustainability project manager, Sydney



Poet tree

Did you know?

World Forestry Day is celebrated in forests around the world on March 21 each year as people take time to consider the benefits of forests to the community.



Timber
Renewable, recyclable
Energy saver.
Environmentally friendly, product by nature.

State forests
are busy places,
Used for timber,
habitat and
bike races.

I dreamed
I was a possum,
curled up in a tree.
Sleeping through the
daylight, peacefully.

I see nocturnal natives

I hear snakes slither

I feel relaxed and
refreshed

I smell fresh forest air

I taste cool creek
water.

Did you know?

The fruit of the eucalypt tree is known by most as the gumnut.

City,
busy, rushed
school, work, traffic, shops
wildlife, campfire, trees, tent
camping, hiking, 4-wheel driving
silent, spacious
forest.

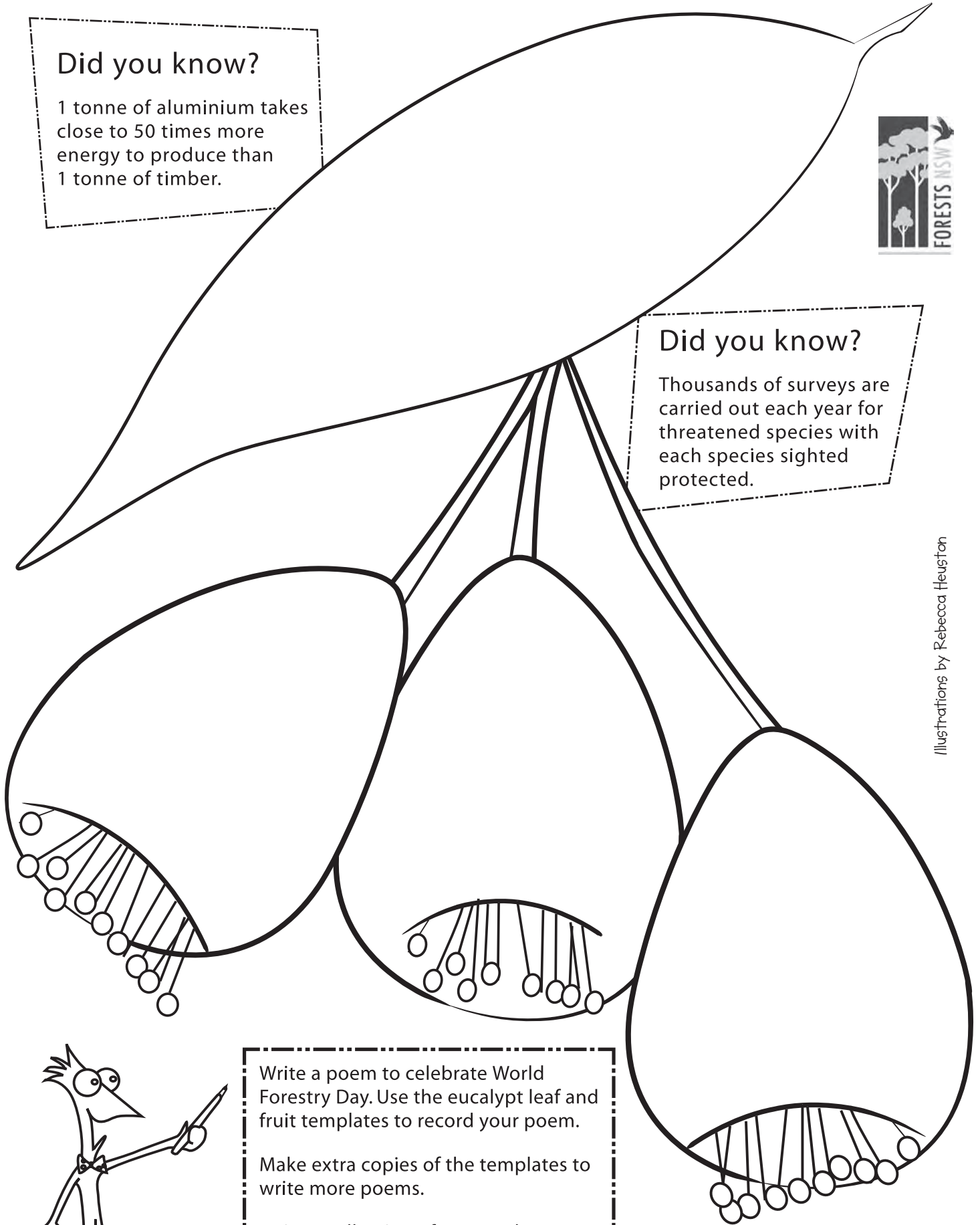


Did you know?

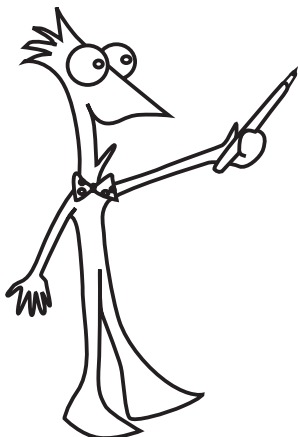
1 tonne of aluminium takes close to 50 times more energy to produce than 1 tonne of timber.

Did you know?

Thousands of surveys are carried out each year for threatened species with each species sighted protected.



Illustrations by Rebecca Heuston



Write a poem to celebrate World Forestry Day. Use the eucalypt leaf and fruit templates to record your poem.

Make extra copies of the templates to write more poems.

Write a collection of poems, draw a tree trunk on paper and add your leaves and fruits to make a POET TREE.

New classroom poster

Free inside this issue of *Bush Telegraph* is an illustrated wall poster.

Education coordinator, Carmen Perry, said the poster had been developed primarily to enable students to have a better picture of where forests are located across NSW.

"But it's sure to be popular with others outside of school," she said.

"The poster incorporates a map of the state showing not just State forests and national parks, but all areas of forest and bushland.

"We have also prepared graphics that show exactly how forests are managed and the many products that come from New South Wales native and plantation pine forests," Carmen said.

Carmen said that State forests are managed to balance the way people use forests for things such as timber with the conservation of forest features like clean water, native animals and cultural heritage.

"We hope our graphs demonstrate how all of the forest values are linked and how these relate to all of our everyday lives."

The poster also incorporates a timeline demonstrating the major milestones in forest management in New South Wales.

Find your poster in this issue, or call Forests NSW Information Centre on Ph: 1300 655 687 or (02) 9871 3377 for more free copies.

– Leah Flint Communications, Maitland



Events	Teachers Bus Trips
Date	Bathurst: 12-13 April (during autumn vacation) Coffs Harbour: 4-5 November Hunter: 5 July (during winter vacation) and 2-3 December
Details	Teachers, lecturers and environmental educators – one and two day bus trips to the forest, taking a first hand look at forest management. Cost: free
Events	Spirit of the Story
Date	Cumberland State Forest (Sydney): 25-29 July
Details	Students in Years 3 to 6 – presented by Forests NSW, Mount Annan and Wollongong Botanic Gardens. Celebrate the tradition of story-telling and learn about the story of eucalypts. Cost: free
Events	Wildlife Roundup
Date	Cumberland State Forest (Sydney): pick a day that suits you!
Details	Students in Years 3 to 6 – presented by Forests NSW and Featherdale Wildlife Park. Observe live native animal behaviour, explore their habitats and discover how ecologists find and conserve wildlife in State forests. Cost: Approx. \$5
Events	Strickland Forest Expo
Date	Strickland State Forest (Gosford): September 5-9
Details	Students in Years 5 and 6 - presented by Forests NSW, Rumbalara and Taronga Zoo Environmental Education Centres. Environmental education across the curriculum with art, science and live specimens from Taronga Zoo. Cost: \$3 per student
Events	Water, Weeds and Wedgies
Date	Cumberland State Forest (Sydney): 17-21 October
Details	Students in Years 3 to 6 – celebrate Bushcare Month, Bird Week and Weed Buster Week in October. Be part of the action in the hilarious drama called 'Clean up your act' and appreciate how birds and other creatures are vital parts of the bush ecosystem by being part of this fun event. Cost: free

State forests come alive in 2005

Forests NSW will again offer a range of exciting events for students and teachers over the next twelve months. Most activities are offered free of charge or at minimal cost.

"The best part about running forest excursions and events is watching students' faces light up with excitement as they get off the bus," Forests NSW education officer, Gerard Nolan, said. "Every week, hundreds of students visit State forests and they are always enthusiastic about learning in an outdoor classroom."

For information on special events and forest visits contact Gerard Nolan at Cumberland State Forest on Ph: (02) 9871 0050 or visit our website at www.forest.nsw.gov.au/education to download free resources.

– Carmen Perry
Communications, Maitland



A variety of forest education events will be offered this year.
Photo Forests NSW Image Library

Cumberland's valuable volunteers

The smooth-running of Australia's only metropolitan State forest wouldn't be possible without the valuable assistance of volunteers. A pool of more than 30 volunteers is involved in key programs at Sydney's Cumberland State Forest, including community education initiatives.

Forests NSW runs training for volunteers to help conduct guided walks on weekends and also to assist with major school events.

Cumberland education officer, Gerard Nolan, said volunteers gain valuable experience and skills, form new networks with like-minded people and even train other community groups.

"Recently our volunteers ran a session to share information about local plants and their suitability for native animals being cared for by the Sydney Metropolitan Wildlife Society," Gerard said.

The volunteer group also makes an important contribution to the running of Cumberland's school education program.

The valuable role that volunteers can play in contributing to programs is highly regar-

ded by all at Forests NSW, and this was reinforced by Forests NSW chief executive, Peter Duncan, when he attended an award night at Cumberland to recognise volunteers' efforts.

"This type of volunteering is greatly beneficial to both the forest and to our organisation," he said.

Peter said he was keen to see the role of volunteering continue and increase.

– Leah Flint Communications, Maitland



(left to right) Forests NSW Julie Graham and Jose Orellana, Cumberland volunteer Libby Sakker, Forests NSW chief executive Peter Duncan, Cumberland volunteers Malcolm Barnes and John Meade, and Forests NSW Gerard Nolan and Amelia Jones. Photo by Mike Hill

hot off the press

– our latest publications

Real stuff – Hard copy publications

Recreation brochures (free)

Five new colour recreation brochures. Explore the State forests of the south west slopes, Riverina and central west with these free brochures outlining the best forest recreation sites and popular forest-based activities. And discover the guidelines for four-wheel driving, trail bike riding, and recreation in general, courtesy of the new brochures.

'Living, working, playing ... forests' wallposter.

A gorgeous poster highlighting the many aspects of forests.

Sustaining the Forest (free)

Forests NSW annual sustainability report has been revamped into a shorter, more reader-friendly document. Read about Forests NSW performance against indicators in social, environmental and economic areas. Also available on-line at www.forest.nsw.gov.au/publication/e_sv/default.asp

Virtual stuff – New info on our web site

Annual Report. Reports on State Forests of NSW financial performance for 2003/04. Go to www.forest.nsw.gov.au/publication/annual_report/default.asp

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

march – may 2005 events

- March – May Cumberland State Forest activity program
A variety of activities for kids and families.
Cumberland State Forest Ph: (02) 9871 3377 or 1300 655 687
- March 1 - 4 Science in the Forest
High school students can complete their science field work in their local State forest. Conditions apply.
Sydney schools contact Gerard Nolan, Cumberland State Forest Ph: (02) 9871 0050
- March 3 - 5 Newcastle Regional Show
NSW DPI will have a display at this event.
Ph: (02) 4961 2085
- March 12 - 13 Polaris Mountain Bike Challenge
A two-day overnight event combining mountain biking with navigation, bush skills and touring.
www.polarismtb.com.au
- March 16 - 26 'Children of Eden'
Music theatre at Cumberland State Forest, Sydney. Adults \$36, Concession/Group \$32 + booking fee.
www.ticketmaster7.com.au or Ph: 1300 136 166
- March 18 - 31 Sydney Royal Easter Show
Forests NSW will sponsor and supply timber for the woodchop.
www.eastershow.com.au
- March 21 World Forestry Day
Cumberland State Forest Ph: (02) 9871 3377 or 1300 655 687
- April Kendall Violin Competition Semi Finals
Government House, Sydney. Forests NSW is a major sponsor of this event for Australia's up and coming young violinists.
Keri Levy Ph: 6559 4619 or www.kendallviolin.org
- April 29 – May 1 Tocal Field Days
Premier agricultural event, this year focusing on small scale winemaking, fish-friendly farms and farm safety. NSW DPI will have a display at this event.
www.tocal.com or Ph: 1800 025 520
- May 12 - 15 Home Show
Annual exhibition at Sydney Exhibition Centre, Darling Harbour. Forests NSW is sponsoring the timber display at this event.
www.sydneyhomeshow.com
- May 13 Kendall Violin Competition Finals, Kendall
Forests NSW is a major sponsor of this event.
Keri Levy Ph: 6559 4619 or www.kendallviolin.org

recreation



With ten full-colour recreation brochures covering State forests around New South Wales, exploring your forests has never been easier!

Each brochure highlights popular local recreation pursuits, key recreation sites and facilities and tips for a safe and enjoyable forest visit.

Brochures outlining guidelines for four-wheel driving, trail bike riding and forest recreation across New South Wales are also available.

- South Coast • Cumberland State Forest (Sydney) • Central Coast • Lower North Coast • Mid North Coast • Southern Highland • South West Slopes
- Riverina • Central West • Western NSW



For those wanting the complete picture of forests and national parks, pick up a copy of Forests NSW Forest Maps. Maps currently available for the South Coast, Central Coast, Lower North Coast, Mid North Coast and Central West of NSW.

The maps show forest roads and trails, walking tracks, picnic areas and lookouts.

From all good map shops or buy over the phone from Forests NSW information centre.

RRP \$9.85 Best Bush Map showing all of NSW also available.



maps

Call Forests NSW Information Centre for brochures and maps on Ph: 1300 655 687 or (02) 9871 3377

Recreation information online at www.forest.nsw.gov.au/recreation