

**Fifty year affair with south coast hardwoods**

**Measuring carbon in wood products**

**Fossicking in forests**

**New Department of Primary Industries**



# contents



## forest log

- 3 Minister sees stronger rural voice with DPI
- 3 Native timber banjo ... sounds unique
- 4 Pine logs inaugural export from new Eden wharf
- 4 AusTimber cements importance of timber industry
- 5 Sweet music of violins over Kendall
- 5 Catching the mountain bike bug
- 6 Traditional owners manage forest areas near Walcha
- 6 75,000 trees planted near Aberdeen
- 7 Aware and skilled workforce takes to the road
- 7 Industry research suggests termite threat more myth than reality
- 8 No Jiminy! Massive cricket uncovered near Taree
- 8 Trees donated to outback war memorial

## features

- 9 One man's experience – 50 years of south coast hardwoods
- 10 Sparkling rewards for forest fossickers
- 12 Forever rescuing animals
- 13 Forbes forester flying high
- 14 How long does it last?  
Looking at carbon storage in wood products

## forest school

- 16 Activity sheet: What do you do?  
Aboriginal cultural heritage officer
- 18 New look education web pages
- 18 Wildlife detectives a hit at Easter Show

## what's happening?

- 19 Walcha geared for big event
- 19 Hot off the Press – our latest publications

## from the managing director

People. It's a theme that comes through in this issue of *Bush Telegraph*, from our staff, our partners in community initiatives, recreational forest visitors and people who earn their livelihood from State forests.

In this issue we profile two staff members with passion – one for rescuing native wildlife and the other for aviation (see stories page 12 and 13). We also reveal the work of our researchers in developing a computer model for tracking the fate of carbon stored in wood products from harvest through to disposal, providing further evidence of the greenhouse benefits of using timber products.

State Forests' partnerships with the community are also highlighted in this edition. On page 6, you can read about a unique agreement signed with the Anaiwan traditional owners, while on page 8 an outback war memorial has benefited from trees donated by our nurseries.

The recreational use of our forests continues to be on the rise, with fossickers enjoying their pastime in forests across the state (see page 10). It's just one example of the myriad activities that can be pursued in State forests, at the same time as our traditional business of selling timber supports local sawmillers and businesses (see story page 9).

And finally, on page 3 you can read about the combining of the primary industry portfolios (fisheries, minerals, agriculture and forestry) into a new Department of Primary Industries, with a view to giving rural NSW a stronger voice in Government.

I hope you enjoy this people-focused issue.



Peter Duncan  
Managing Director



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**Cover photograph:** Newly-sharpened saw blades, ready for milling native hardwoods on the south coast. Peter Smith runs the Romney Park Sawmill and Ulladulla Joinery and Hardware and has been in the industry for more than 50 years. See page 9 for his story.

Photo by Tony Karacsonyi

# Minister sees stronger rural voice with DPI

As part of the April mini-budget NSW Treasurer, Michael Egan, announced the integration of the four primary industry portfolios in NSW – NSW Agriculture, NSW Fisheries, State Forests of NSW and Mineral Resources – to create a new Department of Primary Industries (DPI).

NSW Minister for Agriculture and Fisheries, Ian Macdonald, said the formation of the new department would give rural NSW a stronger voice in Government than ever before.

"It's important to note that the Department of Primary Industries will maintain close links with industry and have front-line service delivery as a priority," Mr Macdonald said.

"In creating this department, NSW will also be brought into line with the Federal structure that includes agriculture, forestry and fisheries in the one department.

"I know that the four agencies concerned have a proud history of servicing the State's agricultural, fishing, forestry and mining industries.

"The integration of the departments provides an opportunity for the Government to better integrate research, extension, regulatory, advisory and policy development for the State's primary industries while at the same time streamlining the duplication of cross-agency functions such as corporate services."

– **Bill Frew** Public Affairs, Sydney



The formation of a new Department of Primary Industries



## Native timber banjo ... sounds unique

**Dennis Burt, a water quality forest assistant with State Forests of NSW, writes to *Bush Telegraph* about his recent and unique birthday gift ...**

An Australian-made musical instrument is a thing of great beauty; and the chance to own one came with my 60th birthday when my wife, Wendy, offered to buy me a new four-string banjo.

I had heard of Roger Simpson, a banjo maker in Brisbane. He and his wife own a small company called Eucalypt Banjos, and after visiting their web site and a phone call or two later, construction of my new instrument began.

It took three months to make before the exciting moment arrived; the unpacking and playing of the first cords. What a sound!

The neck of the banjo is West Australian sheoak with a silver ash strip, with the finger board made from Cooktown ironwood. The peg-head veneer is laminated jarrah; the resonator back, ironbark veneer; resonator rim, laminated ironbark veneer with tiger stripe jarrah and; the tone chamber, solid segmented flooded gum blocks. All the bronze is poured and machined from a foundry in Brisbane.

So, if you hear the ringing sounds of a banjo coming from one of State Forests' water quality monitoring sites across the State then it will most likely be me.

Dungog-based forest assistant Dennis Burt is thrilled with his banjo constructed from native timbers. *Photo by Dennis Burt*

## Pine logs inaugural export from new Eden wharf



The export of 12,000 tonnes of pine logs to China in May was the first commercial use of the new multi-purpose wharf at Two-fold Bay, near Eden on the far south coast of New South Wales.

The new wharf, primarily built as a munition facility for the Australian Navy, has been strengthened to take commercial vessels which are bigger and less manoeuvrable than Navy vessels.

Following the first load, shipments of approximately 18,000 tonnes of pulpwood from State Forests of NSW pine plantations near Bombala are due to continue every six to eight weeks for the next three years, with most of the logs going to China and Japan.

State Forests Monaro regional manager, Bob Germantse, said

the organisation had a contract with Pentarch – an Australian-owned company that specialises in exporting logs.

The company exports out of Australian ports including Geelong, Portland and Bunbury and also from ports in New Zealand.

“They have a very good existing export business which has helped give State Forests access to overseas markets to successfully utilise excess pulp logs,” Bob said.

He said the pulpwood logs, mostly from Bondi State Forest, are being exported because they do not meet domestic sawmill’s specifications and are surplus to local pulp mill requirements.

Bombala-based contractors Monaro Logging are harvesting and hauling the logs to stockpiles near the wharf.

“It is an excellent opportunity to fully utilise the timber resource while at the same time adding to the stability of the industry which is of real benefit to the Bombala community,” Bob said.

– Sarah Chester  
Public Affairs, Albury

Above: The new multi-purpose wharf near Eden. *Photo by Tony Karacsonyi*

Below: Loading pulpwood logs from Bondi State Forest, near Bombala, for transport to Eden and then export to China and Japan. *Photo by Tim O’Kelly*

## AusTimber cements importance of timber industry

AusTimber 2004, the largest timber expo in the southern hemisphere, proved a huge drawcard with people travelling from all over the world to promote the latest in timber technology.

AusTimber director, Ron Limb, said the event’s host venue of Albury-Wodonga was booked out by exhibitors and people involved or interested in the timber industry with more than 8,000 people attending the six-day expo in late March.

“It was a melting pot of nations and information and an event that will further cement the importance of the timber industry both locally and on an international level,” he said.

An AusTimber highlight was the in-forest demonstrations at Koetong, about one hour’s drive from Albury, where a number of new harvesting machines were seen in action for the first time in the world.

At the in-forest demonstrations eight companies demonstrated more than 50 machines worth collectively around \$60 million.

Ron said the driving force behind the demonstrations was State Forests of NSW Planted Forests executive general manager, Peter Crowe, who is based at Albury.

“Most of the major forestry companies in the world were involved and to see their machines in action was a truly magnificent sight,” Peter said.

– Sarah Chester Public Affairs, Albury

Peter Crowe enjoys an in-forest demonstration of timber harvesting equipment, staged in association with AusTimber 2004.

*Photo by Sarah Chester*



## Sweet music of violins over Kendall



The sixth annual Kendall National Violin Competition, firmly established as a showcase for young musicians, was held in April.

Each year Australia's finest young violinists compete for the prize of a superb violin made of native timbers by Graham Caldersmith, valued at \$8,000. Past winners have gone on to major success both in Australia and overseas.

The competition's patron Hazel Hawke AO is an enthusiastic supporter of the event. "The competition is very worthwhile and

exciting, not only for giving opportunities to young musicians, but also in recognising the use of Australian timbers in the making of concert instruments," Ms Hawke.

State Forests of NSW and mid north coast company, Australian Solar Timbers, are the event's major sponsors.

State Forests marketing manager, Ron Wilson, said the organisation was proud to be associated with the competition.

"This event brings music to regional areas and celebrates the use of beautiful Australian timbers in the making of concert instruments.

"State Forests' involvement with the competition helps promote the value-adding of NSW native timbers to their best potential. I can't think of a better example of maximising value than to create musical instruments," Ron said.

The semi-finals of the competition were held in the picturesque setting of Government House, Sydney, with the finals staged at the home of the competition, the mid north coast township of Kendall.

Victorian Katherine Luke took out the event, with a performance that enthralled both the audience and adjudicators.

(left to right) Douglas Head of Australian Solar Timbers; Hazel Hawke AO, competition patron; semi finalist, Emma Jardine; and Ron Wilson of State Forests of NSW.

*Photo courtesy John Halkett*

## Catching the mountain bike bug

This year's Polaris Mountain Bike Challenge proved that more and more State Forests staff are catching the mountain bike bug.

Held in extremely wet and muddy conditions on the New South Wales south coast in March, the event attracted twelve teams from State Forests.

Along with 500 other riders, they madly tackled a 25-kilometre square area of rugged bush, State forest, mountain and coastline, spread from Bawley Point to Batemans Bay and inland to the Clyde River.

Competing in teams of two, competitors carried enough gear for two days, including an overnight camp.

Checkpoints included the mountain tops of Durras and Mogood; the deepest trackless gullies in State forests where bikes had to be dragged, pushed or carried; beaches; cliff tops and even a 50-metre crawl inside a cave.

State Forests, a major sponsor of the event, now presents its own trophy – 'The Laurel Hill Trophy' – to the best overall effort by a State Forests team.

This year the trophy went to Melissa O'Halloran from State Forests Resources Branch and her husband, Peter, who came 14th in a field of 49 mixed teams. It was considered a great first time effort by the pair, in what was very difficult riding conditions.

State Forests entrant, Hilary Smith, said it was her most demanding Polaris event to date.

"The cave was particularly challenging for me and the wet downhill runs tested everybody, especially on the second day," she said.

Best placed for State Forests were Duncan Watt and Andrew Crisp who came 20th in both the men's category and overall.

– Sarah Chester Public Affairs, Albury



Sally Arundell from State Forests during the 2004 Polaris Mountain Bike Challenge on the south coast.

*Photo by John Hardwick*



Walcha operations forester, Nigel Fuller, with Anaiwan representatives at Riamukka Camp, from left, Louis Wright, Herb Wright, Syreene Kitchener, Ann Fuller, Zelma Moran and Lincoln Wright. *Photo by Howard Spencer*

## Traditional owners manage forest areas near Walcha

State forests south of Walcha will be used for Aboriginal cultural heritage teaching following the signing of a unique agreement between State Forests of NSW and the Anaiwan Aboriginal traditional owners in March.

State Forests Mid North Coast acting regional manager, Kathy Jones, said the deal covered an area of Riamukka and Nowendoc State Forests.

"Under the arrangement, State Forests gains cooperation with pest and weed control, fire detection, fire control and building maintenance, while the Anaiwan elders will use the area for camping, caretaker accommodation and cultural heritage teaching," Kathy said.

"This is only the beginning of cooperative arrangements between State Forests and the Aboriginal community on the mid north coast."

Anaiwan elder Syreene Kitchener opened the signing ceremony by paying respect to "the old people who went before us".

"Land to us is the essence of life. We come from the land, the land provides for us and we return to the land, and it is because of this connection we are sitting here today," Syreene said. "The journey for us has been long. We have sat and waited for a time to share our stories and songs.

"The vision for this place is primarily on cultural revival and cultural teaching. For our stories to survive we see the urgent need to start these programs.

"We, the Anaiwan traditional owners, would like to say 'Let's walk together on the land to make a better future for us all'."

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

## 75,000 trees planted near Aberdeen

A seventy-five hectare eucalypt plantation was established on buffer land near the Dartbrook coal mine in the Upper Hunter Valley in April.

State Forests of NSW and the mine's owner, Anglo Coal, signed a contract to plant 75,000 trees between the mine and the township of Aberdeen.

"This is the first large-scale tree planting and largest mine site plantation established by State Forests," Hunter regional manager, Pat Groenhout, said.

"The project represents a significant step towards the development of sustainable plantation forestry in the upper Hunter over the next 30 years."

Anglo Coal technical services manager, Neil Winkelmann, said the company was pleased to be a part of the ongoing development of sustainable diversified activities and enterprises in the region.

The plantation consists of spotted gum and a river red gum/flooded gum hybrid, both chosen for their quick growth in dry, saline conditions.

Pat Groenhout said that a number of plantation trials on mines and buffer lands over the past four years has given State Forests the knowledge and skills to maximise survival and potential returns from future timber harvesting.

"Our goal is to see plantations established that will capitalise on the proximity of the upper Hunter to timber processing industries on the lower north coast, as well as the



A 75 hectare eucalypt plantation has been established on this land near the Dartbrook coal mine near Aberdeen in the Hunter Valley. *Photo by Alex Flint*

ability of power generators to co-fire tree-based biomass with coal to reduce future greenhouse gas emissions."

– **Emma McMahon** Public Affairs, Sydney

# Aware and skilled workforce takes to the road



## Industry research suggests termite threat more myth than reality

New industry research suggests that termites are least likely to be the cause of structural damage to homes, with as few as 0.3 per cent of households linking the insects to major structural problems in their dwellings.

Results from the research, conducted by the Timber Development Association (TDA) based on housing data compiled by the Australian Bureau of Statistics (ABS), underline the effectiveness of termite-prevention systems developed for Australian houses.

The TDA analysed a sample of almost 8,800 homes surveyed by the ABS in compiling its Housing Survey. The sample spanned owner-occupied houses built since 1967, when termite management standards were first introduced.

Some 13.4 per cent of the homes surveyed had experienced structural damage and the analysis ranked the main causes of damage cited by homeowners. Most common was major cracking in walls and flooring (2.5 per cent), followed by sinking or moving foundations (1.8 per cent) and rising damp (1.4 per cent).

Only three homes in a thousand, 0.3 per cent of the sample, indicated that termites were a problem.

Spokesperson for the Plantation Pine Framing Alliance, Nick Livanes, said that there have been tremendous advances in technology designed to prevent termites encroaching into framing systems.

He said cost-effective termite protection systems were becoming a standard inclusion in new homes.

"A good builder will incorporate readily available termite barriers into a new home and provide the homeowner with assurance against termite damage. Homeowners can therefore enjoy the environmental and cost benefits of using plantation pine in their home, while also having peace of mind," Mr Livanes said.

– **Bill Frew** Public Affairs, Sydney

New industry research demonstrates the effectiveness of modern termite protection measures in building new homes. *Photo State Forests Image Library*

A more capable and aware workforce of drivers is the result of a new training program implemented throughout State Forests of NSW.

A team of driving instructors was trained in 2003 under the guidance of experienced race car driver and advanced driving instructor, Ian Luff.

Taken from various regional locations, the instructors have returned to train their own colleagues in the skills of professional driving.

Gloucester-based instructor and operations supervisor, Steve Upton, has recently trained staff from the organisation's Hunter Region, with the assistance of plant operator Robert Vanderdrift.

"While a few of the more experienced staff questioned why they might need training after 25 years behind the wheel, most approached the day-long course with an open mind," Steve said. "I think they enjoyed the assessment of their driving, as for many it had been a long time since they passed their driver's licence test."

Training notes and a video presentation were followed up with a written assessment, practical demonstrations in work vehicles and a driving exercise in the company of the instructor.

"From small things, like being aware of where your head is positioned in relation to the window and side bars in case of an accident, through to more crucial skills, such as emergency braking and gaining control of your vehicle if it goes into skid, were part of the course," Steve said.

The driver awareness training will continue to be part of State Forests' regular training programs, with all staff who drive vehicles on the job taking part.

– **Leah Flint** Public Affairs, Sydney

Top left: A new driver training program ensures that State Forests has a capable and aware workforce of drivers. *Photo State Forests Image Library*



## No Jiminy! Massive cricket uncovered near Taree



## Trees donated to outback war memorial

A special memorial in the New South Wales outback town of Sheeppart will now be more inviting to visitors and protected from the harsh elements thanks to a donation of trees and shrubs by State Forests of NSW.

Funded only by minimal membership fees and fundraising activities, the Sheeppart and Community War Memorial is a modest tribute to Australian and Aboriginal servicemen and women.

Located about 80km west of Lightning Ridge, the opal mining town is home to 2,500 people during the cooler months between March and November, with the population dropping to less than 700 people during summer when temperatures soar to between 40 and 50 degrees Celsius.

"Organisers originally approached us for advice on the best species to plant that would survive in the arid conditions of the area, but we decided to go one step further and provide them with the trees," State Forests Nurseries operations manager, Steve Sullivan, said.

"On our advice, tubestock species, mostly woodland box and mallees, will be planted at the site, simply because they are the species best suited to survive the harsh, dry conditions.

"We have already donated 100 plants from our nursery at Dubbo and plan to supply more trees as the community needs them."

Secretary of the memorial committee, Norm Jones, said it took many working bees to build the memorial and establish the gardens.

He said theirs was the only cenotaph in NSW to fly the Aboriginal flag and honour Aboriginal servicemen and women.

The area will be planted with more trees later this year, with picnic tables and barbecues also to be added to the site.

– Emma McMahon Public Affairs, Sydney

A forester from State Forests of NSW Private Forest Unit, Brett Cann, found more than he bargained for during a recent survey for frogs.

Brett and fellow foresters were in Lansdowne State Forest on the mid north coast expecting to hear the familiar croak of a frog.

Instead, they were confronted with a giant hissing cricket, the king cricket (*Australostoma australasia*).

"When disturbed he was very aggressive, raising his body, swinging from side to side and hissing," Brett said. "He then proceeded to charge our group of unsuspecting foresters.

"This cricket is the only insect I have ever met that would have a go at you and try to eat you."

Brett says king crickets are thought to be a relatively common species although infrequently encountered due to their preference for late night foraging on warm spring and summer nights during light rain or high humidity.

"During daylight hours, cold or dry periods they burrow into moist soil or rotten logs," Brett said.

"King crickets are thought to occur along the east coast of NSW and Queensland and throughout Tasmania in moist forest.

"It is thought that they use those enlarged jaws to battle other males over breeding females.

"They have an omnivorous diet ranging from fungi to frogs, or basically anything that comes too close.

"The males are especially partial to cannibalism of females."

The Lansdowne king cricket, with a head and body length totalling 60mm, has been passed on to the Australian Museum in Sydney, along with a female specimen caught in the same area.

– Howard Spencer Public Affairs, Sydney

An aggressive and large king cricket uncovered during night surveying in Lansdowne State Forest. *Photo by Brett Cann*

The Sheeppart and Community War Memorial is an outback tribute to Australian and Aboriginal servicemen and women. State Forests of NSW has donated plants to the project. *Photo courtesy Norm Jones*



# 50

## One man's experience - 50 years of south coast hardwoods



Spend a few hours with Peter Smith and it's soon obvious how much this man knows about timber – from assessing the products that can come from a tree in the bush, to looking at logs in the mill yard and evaluating the quality of sawn timber. After 50 years in the timber industry, Peter has it all pretty much covered.

Now in his seventies, he runs the Romney Park Sawmill near Ulladulla on the New South Wales south coast. The mill employs ten people, processing a variety of hardwoods harvested from State forests near Batemans Bay.

Tough and springy spotted gum timber used as handles in high-strength garden tools such as hammers, axes, shovels and rakes; and a complete set of products to build a log cabin are just a few examples of the products coming from the Romney Park mill.

A few kilometres down the Princes Highway, Ulladulla Joinery and Hardware is also part of Peter's business. Here, his staff take timber sawn at Romney Park for processing into a number of value-added products. Two kilns are also on site to dry timber for use in decking and other domestic construction.

Walking through his joinery yard with trusty labrador Jimmy a fixture by his side, Peter points out loads of timber bound for various parts of Australia.

Pointing to a sling of spotted gum, Peter says it's bound for use restoring Cobb & Co. coaches in Victoria.

"We also supply ironbark for use in repairing the hubs of the wagon wheels," he says.

For many years, Peter has been supplying custom-made bolsters and wedges for use in transporting steel and pipes around the country. The timber is precisely shaped to ensure the steel isn't bent or damaged as it is shipped from the manufacturing plant to customers.

"We use off-cuts to make the wedges, ensuring that every bit of timber in the joinery is used," Peter said.

The joinery has recently developed a range of outdoor furniture using local hardwoods. Marketed under the badge 'The Romney Range', there are five

settings for the range named after local rivers including the Clyde, Tuross and Deua, that highlight the textures and colours of south coast timbers.

Peter is passionate about his business and utilisation of native hardwoods, and the 75-year-old still turns out work in his joinery.

"We have a young apprentice at the moment, and he has just designed and made an outdoor bench seat with mortis and tenon joints," Peter said. His pride in the work of all of his employees, from bench saw operators through to carpenters, is obvious.

The joinery also accommodates special orders, like recently custom manufacturing south coast stringybark window and door frames for a local customer. The joinery also supplies timber to a local cabinet-maker who turns out high-end tables, sideboards and chairs sold from a boutique gallery at Milton.

The south coast hardwoods Peter works with in his joinery are complemented by north coast species ordered in from other mills.

Recently, Ulladulla Joinery supplied a large order of ironbark decking for use in a boardwalk near Newcastle. But he's shipping his timbers much further than that.

"We are supplying tallowwood exercise equipment for use in parks in Tokyo, Japan," Peter says. The equipment is placed as a number of 'stations' in parks that see people undertake a variety of exercises, from chin-ups through to jumps.

Peter says a lot has changed in the timber industry over the past half a century, and he can remember a time when 17 sawmills were operating around Batemans Bay.

"Times have changed. We try to value-add to every piece of timber that comes into our joinery," he said. "I hope you don't think I'm skiting, but I'm proud of my business and all of the people that work for me. I'd do anything for them."

And from meeting the people that work in the mill and joinery, it's obvious that they would do anything for Peter too.

Leah Flint Public Affairs, Sydney

Right (top to bottom): Peter Smith with his labrador, Jimmy, in the yard of his Ulladulla joinery; Ulladulla Joinery apprentice, Cameron Williams. Also pictured is the outdoor bench set he designed and made (above); Mark Durscher works on bolsters used in transporting steel.



## Forest fossicking guidelines

Fossicking in State forests is administered by State Forests of NSW. People wishing to fossick in State forests must obtain permission from the local State Forests office. Permits are usually issued for a 12-month period.

Only a limited range of fossicking techniques can be undertaken in State forests. No explosives, equipment or machinery operated by mechanical, hydraulic, pneumatic or electrical power can be used. No fossicking at all is permitted in flora reserves or forest preserves.

When fossicking for minerals in State forests you must not:

- excavate, undercut or damage the bank of any watercourse
- interfere with the flow of water in any watercourse
- cause pollution of any watercourse
- disturb mud or clay or fine silt so as to cause significant turbidity in any watercourse
- drill or excavate a hole larger than 1 metre x 1 metre
- damage or take any bush rock.

Fossicking is also limited to taking no more than the following amounts during any single 48 hour period – 25kg of minerals (other than gold or gems); 50gms of gold; or 100gms of gemstones.

The site of any fossicking must be left in a clean and tidy condition. You must replace any soil, rock or other material that has been disturbed in the course of fossicking for materials before making any further excavations.

For contact details of State Forests' offices Ph: 1300 655 687 or (02) 9871 3377 or view our web site at [www.forest.nsw.gov.au](http://www.forest.nsw.gov.au)

State forests are used for a variety of recreational pursuits, but fossicking just happens to be the one where you might strike it rich. Or is it? Howard Spencer reports.

Looking at the twinkling gems in Errol Hagelstein's hand, it is hard to appreciate the sheer hard work that has gone into finding the stones.

But seeing them nicely cut and polished makes it all seem worthwhile.

These sparkling stones were garnered from the bottom of Ewingar Creek, and many other creeks just like it, which run through nearly every State forest.

You can't help thinking of the saying "there's gold in them thar hills". In fact, there is much more than gold. It is just one of the precious metals and minerals fossickers in New South Wales State forests are looking for nearly every weekend of the year.

It is also little wonder that they are fossicking in State forests. The areas that now grow good sustainable timber for the people of NSW and beyond were often once the sites of early mines.

In Orara East State Forest, west of Coffs Harbour, there was once a mining town that was larger than the early coastal village, where Australian and Chinese miners rubbed shoulders as they sent shafts into the hillsides.

The Chinese shafts were round to leave evil spirits nowhere to hide. The Australians made theirs square.

Shafts of all shapes and sizes dot the forests around the State.

Areas have been marked off on many State Forests maps

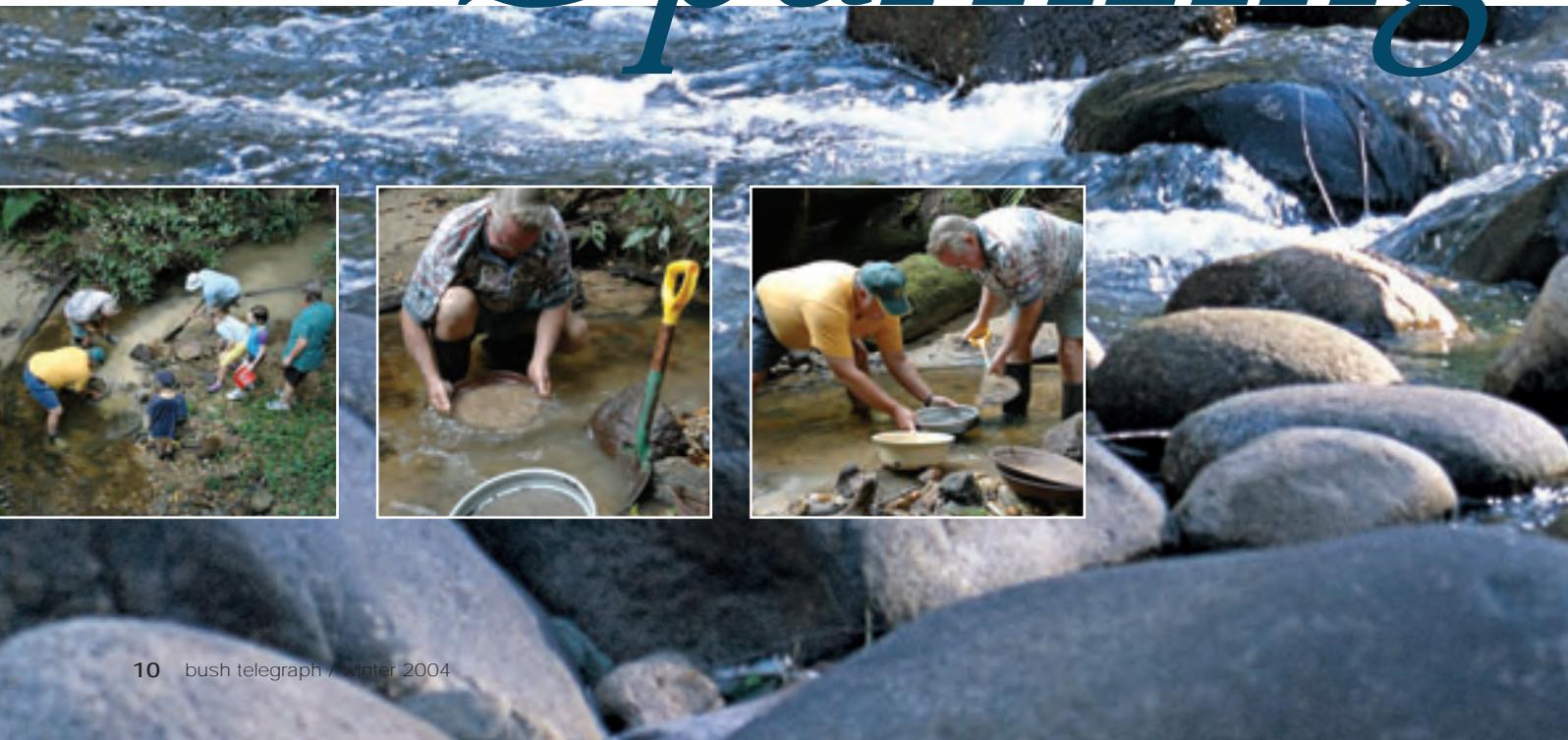


Right: It takes quite a few hours and a lot of hard work but you can go from crystal in a creek bed to finely cut stones ready for use in jewellery.

Far right: Panning in Ewingar Creek reveals crystals and even some gold.

Below (left to right): Errol Hagelstein and fellow fossickers enjoy an afternoon looking for gems and gold in Ewingar Creek; Lindsay Watson searches for gems hidden in the gravel of Ewingar Creek; Fossickers Grant Watson and Lindsay Armstrong panning for gold.

# Sparkling



## Gems

Gemstones are rock-forming minerals. Their value is determined by their qualities of beauty, durability and rarity.

The beauty of a stone may be in its colour (as in an emerald or ruby), its fire (as in a diamond) or by a special optical effects (such as the play of colours in an opal).

Because they are rock-forming minerals, gemstones can be obtained from rocks on which they crystallized. Usually they are present in small amounts only, and breaking up the rocks may damage the gemstones they contain. It is preferable to search for gems that have been eroded from the rock and deposited in stream gravel in known gem-bearing areas.

Being durable, gemstones survive the processes of rock weathering and stream transport and, like alluvial gold, collect in crevices in streambeds and in gravel bars on the insides of stream bends. They may be recovered by panning, but sieves are more commonly used.

The gemstones found in NSW creeks and rivers include sapphire, topaz, spenel, quartz, topaz, citrine, garnet, amethyst and quartz.

Fossicking clubs can be found throughout Australia.

For more information on fossicking contact Mineral Resources New South Wales on Ph: (02) 9901 8269 or visit their web site [www.minerals.nsw.gov.au](http://www.minerals.nsw.gov.au)

showing where early gold mining shafts have been preserved.

Errol Hagelstein is the vice president of the Coffs Harbour Lapidary Club and a member of the Casino Lapidary Club.

One recent trip won Errol a smoky quartz crystal bigger than a football that weighed around 20kg. But Errol has decided it will be kept as a specimen, or more likely as a doorstop.

"You won't get rich fossicking," says Errol, bringing a halt to any thoughts of striking it rich.

"This is very much a hobby when you consider that it might take around six hours to cut and polish a small piece of smoky quartz for a pendant, after you have gone out for a few days to find the stone, and the end result sells for \$20."

One fossicker says that after 20 years panning gold he has enough in the bottom of a bottle to make one ring for his wife that he might set with a stone he has found and cut.

If you are still keen and prepared for the hard work, there are some simple rules that all fossickers need to follow (see left). And then you need the equipment.

For washing gems from stream gravels, two to four sieves of varying mesh widths, a gold pan, a short-handled shovel, small containers for specimens, tweezers and a hand lens.

Special light-weight gem sieves can be purchased from lapidary supply shops and some disposal stores.

Along with this, if fossicking in State forests you should take all the equipment necessary for a day in the bush – including plenty of food and water, and a first aid kit.

So, what are you doing next weekend?

– Howard Spencer Public Affairs, Coffs Harbour



# rewards

## FOR FOREST FOSSICKERS



# forever rescuing animals

Plenty of people have unique interests they pursue outside of work hours. But Janine Kovacs, a clerical officer from State Forests' Hume Region, has a volunteer role that requires extreme dedication and complements her day job. Sarah Chester reports.

When Janine shares her desk with a monitor lizard, no one in the office bats an eyelid. She's often found hard at work with joeys stuck up her jumper for warmth while she awaits a Wildlife Information and Rescue Service (WIRES) coordinator.

However, her office manager at Tumut, James Butt, has drawn the line at tortoises. They smell too dreadful.

Janine's been down a six-metre well to get a tiger snake and been bowled into a dam by a kangaroo being attacked by domestic dogs.

But despite the physical dangers, Janine continues to be forever rescuing animals.

A clerical officer with State Forests for 18 years, she's Hume Region's wildlife saviour and has been a member of WIRES for 10 years.

"When I started with WIRES, I was working in State Forests' Tumbarumba office. The police mentioned to my then boss Steve Horsley, that a member of the public was vandalising road-kill carcasses by 'defacing' them with paint.

"Steve sheepishly admitted that one of his staff was responsible. And that as a member of WIRES, the person in question had been marking the animals with a big 'W' to indicate to other WIRES members that the carcasses had been checked for babies and injuries and moved to the side of the road," Janine said.

The 'W' also lets the public know that WIRES is active in the area.

Janine loves snakes in particular. Her long-suffering husband, Beesh, has been living with pythons and a variety of venomous snakes for years.

"Beesh has come around now and he is making the snake boxes, possibly to ensure his own safety," she said.

Janine is a reptile and raptor (birds of prey) coordinator for Snowy Mountains WIRES and travels extensively throughout the state training people.

Along with 17 others she will soon be accredited, which she said is a great honour, as there are not many WIRES trainers in Australia.

"I think snakes are great and they need someone to stick up for them. People often don't understand snakes and kill them because they are afraid. If people leave them alone they will leave people alone.

"Everyone asks me have I been bitten and I have great satisfaction in replying, 'not yet,'" Janine said.

She said State Forests has been very supportive of her work and fellow employees alert her to animals in need of help.



"Last year, fieldworker Mal Baker brought me in a greater glider that he found stuck in a wire fence. A big eagle was sitting on the fence post next to the glider getting ready for lunch," Janine said.

For Janine, WIRES is a way of life. She is forever thinking of her animal friends and is ever vigilant because in



the hills around Tumbarumba, Batlow and Tumut, road kill is a big problem.

In fact, road kill is Janine's speciality.

"I hate to see animals hurt on the road – they suffer terribly," she said.

"I pull road kill off the road as far as possible because the animals that eat road kill such as hawks and eagles often become yet another road statistic.

"The stink, especially from wombats, can be horrific – but pulling them off the road always gives me a great sense of satisfaction."

Everything about rescuing animals seems to give her a sense of wellbeing and she is always encouraging others to join WIRES.

She warns would-be rescuers to be very careful when removing road kill because the rescuer is in danger of going the same way as the animals.

"I always wear a high-visibility safety vest donated by State Forests," she said.

So if you see Janine out and in her 'high-vis' jacket, slow down and give her a helping hand.

– Sarah Chester Public Affairs, Albury

Above: Janine is a big fan of snakes. She is pictured here with her pet carpet snake, Axminster, and BJ, a hybrid.

Left: Janine in front of a cage built by her husband, Beesh, with three blue-tongued lizards which will be released after winter. She said if she released them now they would just be bird bait. Photos by Sarah Chester

# forbes forester flying high

Senior forester Rod Clark spends many hours at work driving hundreds of kilometres throughout State Forests' Western Region managing the cypress forests around Forbes.

And what does he do when he's off duty? He spends as much time as he can flying over the same region.

Rod's private passion is his home-built Jodel Bebe D9, a low-wing open-cockpit ultra light aircraft.

The plane did not have a quick birth. Rod first began the project in 1984, and the aircraft took shape from purchased materials and parts constructed in garages at his homes until it made its first flight in 1999.

"I learned to fly in Casino in the early 1980s," Rod says. "Now I am a licenced private pilot and ultra light pilot."

The craft is built from timber, albeit imported spruce as the plans called for, with a fabric skin.

"But the prop is from native hoop pine which I had milled from Pikapene State Forest timber," Rod said.

The aircraft project has proved to be just what Rod intended.

"I wanted the challenge of building something that was exacting and complicated," he said. "I had to learn a number of new skills such as woodwork, aircraft welding and metalwork, installing controls and fabric working. The propeller I designed myself and that is a science all of its own.

"It works really well, but I did have an engineer check the design."

The project took him an estimated 2,000 – 3,000 hours

"I have built a few houses, and that's easy by comparison. You use established systems and it is not as exacting. In aircraft the tolerances are as small as a 100th of an inch," Rod said.

The Jodel is a French design, dating back to the early 1950s. About 1,000 have been built around the world, and at least another nine in Australia that Rod knows of. It uses a Volkswagen 1700cc engine, which now has about 200 hours up.

Rod has flown his Jodel to 11,500ft, and it cruises at 70 knots, which is about 130km per hour. Its maximum speed is 145km per hour.

The Forbes geography is perfect for the Jodel, where Rod tends to shy away from flying directly over forested areas because there are few emergency landing options. He spends most of his day in forests anyway.

The rural areas around Forbes tend to have plenty of open paddocks just in case he has to glide the Jodel down.

Taking off is a thrill of its own. As the motor is started by manually turning the propeller, Rod has a rope he attaches to a hook at the rear to prevent the craft from getting away before he has a chance to slip into the cockpit.

Once in, he pulls a lever to release the rope from the hook and off he goes.

There are other ultra light pilots and builders in the Forbes aero club, which also embraces light aircraft and gyrocopter pilots.



For Rod, the flying and building bug has seriously bitten. He has a new project under way, a Pazmany PL4A – another ultra light design, this time with an aluminium skin. It is also a low-wing open cockpit monoplane, but the wings will fold so it can be towed on a trailer similar to a glider.

"This will mean I can tow it long distances for a holiday or to an aircraft meet, fly it where I want and still have a car to get around in," Rod said.

Rod is a mentor with the Sport Aircraft Association of Australia, which offers the growing band of dedicated home builders a means of overcoming difficult construction and design problems.

"I suppose you could say I am passionate about flying," says Rod.

– Howard Spencer  
Public Affairs, Coffs Harbour

Above: Senior forester Rod Clark prepares for take-off in his home-manufactured Jodel Bebe D9.

Below: The Jodel on the runway. *Photos by Howard Spencer*



# How long does it last? Looking at car

Virtually everyone knows that trees are great – they take carbon dioxide pump out oxygen for us all to breathe and

But what happens if the

Does it depend on the type of tree and the products that are sawn

State Forests researchers David Gardner and Fabiano Ximenes

For the past few years, David and Fabiano have been collaborating with other researchers from across Australia as part of the national Cooperative Research Centre (CRC) for Carbon Accounting. Their 'hands-on' approach to the collection of data relating to carbon storage in wood and wood products has seen them explore some interesting places – digging up old rubbish dump sites looking for the remains of wood and wood products, in forests weighing whole trees and log products on a weighing trailer and tracking them through sawmills, into sawn lumber, and on to home building sites assessing the use of timber and other construction products.

Recently, David and Fabiano collaborated with Ian Davies and Stephen Roxburgh from the Australian National University (and also from the CRC for Greenhouse Accounting) to draw together the results of their many study areas to develop TimberCAM – a new computerised accounting model for forest products.

"Over the last few years, there have been a number of models developed to predict the amount of carbon stored in forests from the time they are planted to when they are harvested," Fabiano said. "These models are being used in national greenhouse gas inventories and carbon trading projects.

"But until now, little attention has been given to the fate of carbon stored in wood products. We have developed a model based on true-life data obtained through on-the-ground measurements."

The TimberCAM model Fabiano and his colleagues developed tracks the fate of carbon stored in trees through their harvesting, conversion to wood products, utilisation and end-use options. It is based on data collected over the past five years by collaborators in the CRC for Greenhouse Accounting.

"TimberCAM allows us to simulate the carbon stored in the harvest of a specified volume of timber over a number of years, where the timber is assigned to the manufacture of a variety of products," Fabiano said.

"The species of the tree plays a significant part on the amount of sawn timber and residues during the milling process.

"The model takes into account how residues from the manufacture of the products will be used; the fate of the product at the end of its life; manufacturing conversion efficiencies; and service life, including any loss of carbon during service."

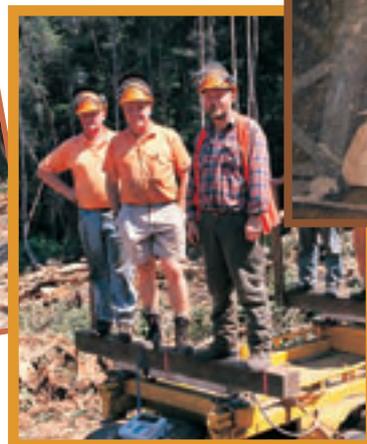
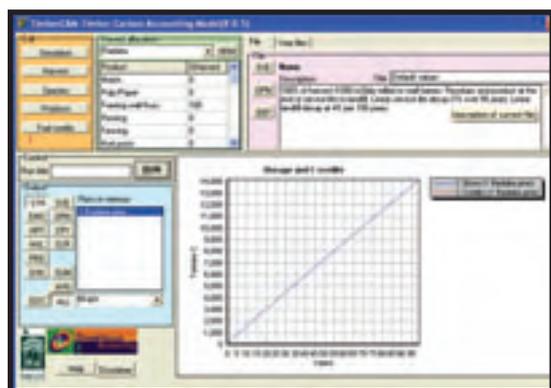
Fabiano said that one of the main features of TimberCAM is that it allows great flexibility in the handling of residues generated in all stages of the lifecycle of timber.

## Carbon, trees and the greenhouse effect

The increase in carbon dioxide and other gases in the atmosphere has resulted in concern about the possible effects on the world's climate. This increase of carbon dioxide has been associated with global warming or the greenhouse effect. Forests and forest products play a vital role in using and reducing greenhouse gases.

Plants carry out a process called photosynthesis. They take in carbon dioxide from the air through their leaves and use energy from the sun to make food. As part of this process the carbon is then stored or "fixed" within the stems, leaves and branches of the plant and oxygen is released into the air. The carbon dioxide is only released again when the plant is burnt or decomposes.

Timber and other wood products store the carbon dioxide they absorbed when they were growing trees. The carbon stored in the timber will not be released even when a tree has been harvested and processed into timber products.



# Carbon storage in wood products

from the atmosphere through **photosynthesis**, store the **carbon** in their trunk, branches, roots and leaves. trees are cut down? Does the carbon stay 'locked up'? And for how long? at the mill and produced in factories? have the **answers**.

"This is very important as a substantial portion of the carbon contained in the harvested log product in fact ends up in the residue stream after milling, processing and use. Therefore, the impact of the range of residue types and their use on the total carbon storage in wood products may be very significant," he said.

"TimberCAM offers 15 Australian timber species and products to choose from. For example, you could look at blackbutt sawn into floorboards, fencing and retaining walls," Fabiano explained. New species and wood products can be easily added to the model by the user.

"Each product can be assigned a percentage of the harvest for each species, so you could say 50 per cent of the total logs goes to boards, 30 per cent fencing and 20 per cent retaining walls. It also varies according to whether the timber is left green or dried. The result is initially displayed as a graph showing the increase in carbon stock over a number of years."

The product descriptions are extremely detailed, taking into account data obtained through the various studies, with several different parameters available for each product.

It accounts for the amount, types and fate of residues generated during processing,

preservative treatment and installation of wood products.

"The model also takes into account the decay of products during service, and therefore any release of carbon into the atmosphere, and options for disposal at the end of the product's life.

"For example, 70 per cent of fences may end up in landfill, with 20 per cent re-used in furniture and 10 per cent burnt for energy."

Fabiano said that using figures from New South Wales State forests gave an illuminating example.

In 2002/03, 750,000m<sup>3</sup> of hardwood sawlogs and 1,690,000m<sup>3</sup> of softwood sawlogs were harvested, in addition to 13,000m<sup>3</sup> of hardwood veneer and 83,000m<sup>3</sup> softwood veneer logs and approximately 70,000m<sup>3</sup> of other products (for example, poles). TimberCAM estimates that some 300,000 tonnes of carbon is stored in the resulting wood products and 400,000 tonnes in the residues.

"That's approximately half of the carbon stored annually in State Forests' entire plantation estate," Fabiano said.

David Gardner said that work would continue on refining the model, including more options for paper products being added to the list of simulations.

"This model could play a significant role

in accounting for carbon in wood products," David said. "Current international guidelines assume at best that the carbon in wood products is released into the atmosphere over their service lives.

"Our work shows that forest products provide a long-term store for carbon that extends well beyond the end of their service lives.

"The research provides further evidence of the greenhouse benefits of using timber and timber products."

David and Fabiano are exploring options for making TimberCAM publicly available, and are working on an instruction manual for once the model is released. Look to future issues of *Bush Telegraph* for updates.

— Leah Flint Public Affairs, Sydney

Far left: TimberCAM – a new accounting model for forest products – has been developed by researchers from State Forests of NSW and the Australian National University as part of the CRC for Greenhouse Accounting.

Centre sequence: The researchers have been to some interesting locations in order to obtain the data that underpins the TimberCAM model – from harvesting operations in the bush and to sawmills. At each location they took a custom-built weighing trailer.

Sequence below: Digging up rubbish from old landfill sites to uncover the remains of wood products gave the researchers knowledge of the true life of wood products and the carbon they store. *Photos courtesy Fabiano Ximenes*



# WHAT DO YOU DO???

Serge has an assignment for school. He has to interview an interesting person in his community and find out about their work. Serge has organised to meet with Lisa.

**Serge: What's your job at State Forests of NSW?**

**Lisa:** I'm an Aboriginal cultural heritage officer.

**Serge: What's the best part of your job?**

**Lisa:** Finding Aboriginal sites, cultural material and bush foods. Also, working in the forest and chatting with Elders.

**Serge: How does someone become an Elder? Is it like being a king or queen?**

**Lisa:** The role of an Elder is given to an elderly person in our community. There are no kings or queens in Aboriginal culture.

**Serge: Why are Aboriginal Elders so important?**

**Lisa:** Elders are the keepers of knowledge, they are the people who teach you your laws (lores) and customs in your community. They teach the songs and stories of the ancestors, birds and animals and the environment.

**Serge: Who are some of the other people you work with?**

**Lisa:** I work with lots of people but overall it's the Aboriginal community and the foresters who manage State forests. It's important for foresters to know about the sites of Aboriginal significance in a forest area, especially when they're writing a harvesting plan. Harvesting plans set out which trees can be harvested to provide timber and other forest products and protect things like animals, waterways and Aboriginal sites.

**Serge: What happens to an Aboriginal site during harvesting?**

**Lisa:** All Aboriginal sites have a buffer zone around them where no harvesting is allowed and the area is left undisturbed. Different sites vary in significance to the local Aboriginal community. As a result, buffers are different sizes - the most significant sites will have the widest buffer zone.

**Serge: Why are Aboriginal sites important?**

**Lisa:** They're part of our heritage. They tell us stories of how we live and the type of things that are important to us. Sites hold all the information about our culture and are used to teach our children. Maintaining Aboriginal sites helps us to preserve our culture.

**Serge: What type of things do you find at Aboriginal sites?**

**Lisa:** Some of the sites contain rock art, axe grinding grooves, scar trees, water holes, middens, carvings, camp sites, hunting tracks, caves and rock shelters. Some sites you can't even see. Sometimes Aboriginal people just have a special connection with a place or feeling for it.

**Serge: Is it true that Aboriginal men and women have different sites?**

**Lisa:** Yes, there are women's sites and men's sites and each must protect their own.

**Serge: How many sites are there?**

**Lisa:** There are thousands of sites, many are thousands of years old. It's important to be on the lookout because new sites are always being recorded.

**Serge: Can we go and see some Aboriginal sites?**

**Lisa:** You must contact the local Aboriginal Land Council to find out which sites you can visit.

**Serge: If some sites are rocks and things, they can't really get damaged can they?**

**Lisa:** These sites have been there such a long time, even the weather over that time can cause damage. One of the main causes of damage is human activity and lack of understanding.

**Serge: Do you really like bush tucker?**

**Lisa:** Absolutely, I even make a really tasty kangaroo burger!

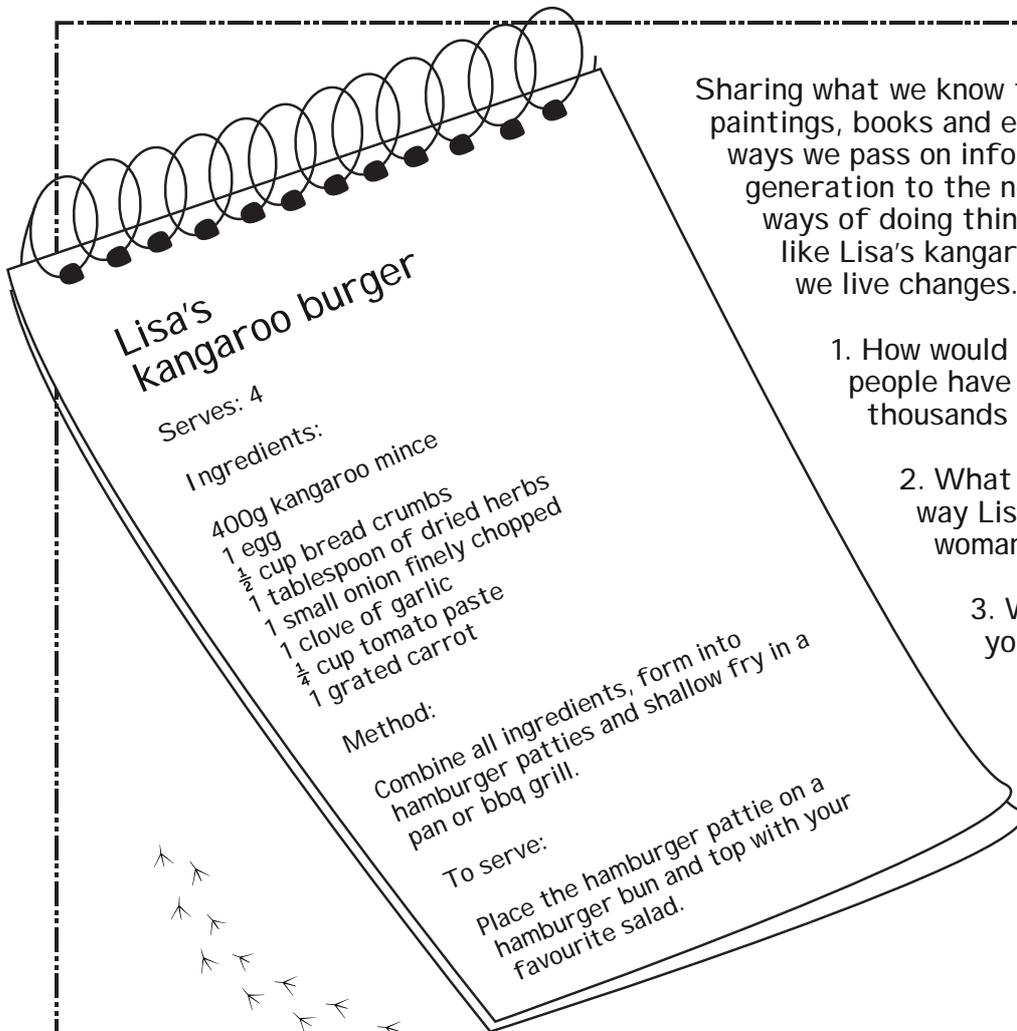
ABORIGINAL CULTURAL HERITAGE OFFICER





Sharing what we know through stories, paintings, books and even cooking are some ways we pass on information from one generation to the next. Often traditional ways of doing things change over time, like Lisa's kangaroo recipe, as the way we live changes.

1. How would traditional Aboriginal people have prepared kangaroo thousands of years ago?
2. What has changed in the way Lisa, as an Aboriginal woman, prepares kangaroo?
3. What traditions do your family keep?



## Lisa's kangaroo burger

Serves: 4

### Ingredients:

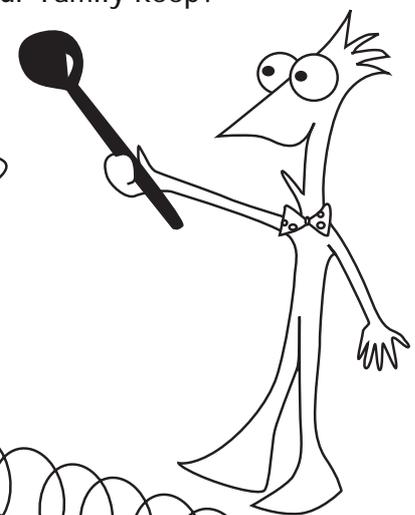
- 400g kangaroo mince
- 1 egg
- 1/2 cup bread crumbs
- 1 tablespoon of dried herbs
- 1 small onion finely chopped
- 1 clove of garlic
- 1/2 cup tomato paste
- 1 grated carrot

### Method:

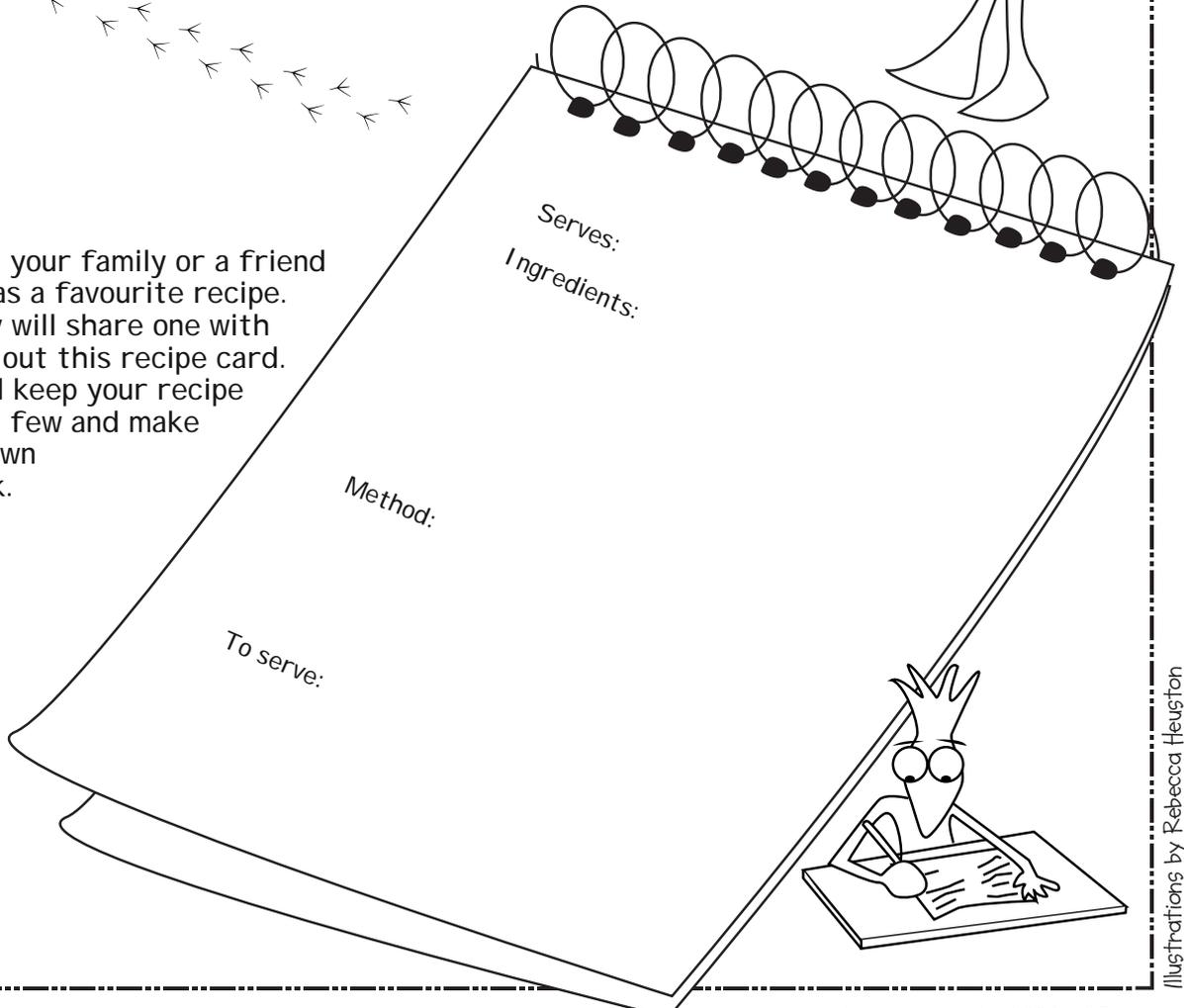
Combine all ingredients, form into hamburger patties and shallow fry in a pan or bbq grill.

### To serve:

Place the hamburger pattie on a hamburger bun and top with your favourite salad.



Someone in your family or a friend probably has a favourite recipe. See if they will share one with you and fill out this recipe card. Cut out and keep your recipe or collect a few and make your very own recipe book.



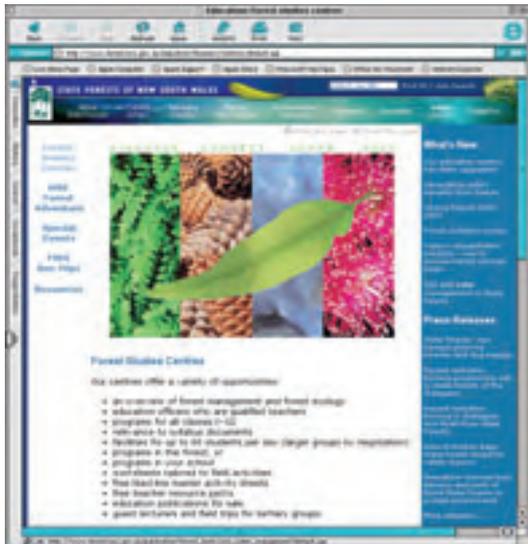
Serves:

Ingredients:

Method:

To serve:

# New look education web pages



The education pages of State Forests' web site have been expanded, with more classroom-friendly materials for primary and secondary students.

Schools can now access a range of free resources and programs on State Forests' new and expanded education web pages. Designed to make information on forests and forestry classroom-friendly, the site now features downloadable resources ready for students to use.

There is a wealth of information available for primary schools including three cartoon-style forest adventures with free supporting resource book, blackline master activity sheets on various topics, and ideas for conducting a self-guided field trip.

Secondary schools will notice a new series of activity sheets based on State Forests' fact sheet series. Topics covered to date include wood, forests and forestry, rainforests and timber harvesting in native State forests.

"This series will continue to grow and we are always keen for teachers to provide us with suggestions for new activity sheets or feedback on the existing activities," education coordinator, Carmen Perry, said.

A special events calendar, forest glossary, information about forest excursions and professional development courses for teachers plus a student assignment picture gallery all feature on the new web pages.

Start your forest adventure today at [www.forest.nsw.gov.au/education](http://www.forest.nsw.gov.au/education) or contact one of our education officers with your suggestions, feedback or for further information.

Contact the education officer in Sydney on Ph: (02) 9871 0050 or Newcastle Ph: (02) 4927 0977.

– Carmen Perry Education coordinator, Newcastle

# Wildlife detectives a hit at Easter Show

State Forests' display at the 2004 Sydney Royal Easter Show was extremely popular, with more than 4,000 people accepting the challenge: Could you be a wildlife detective?

Children and adults alike enjoyed using clues found throughout the display to complete a competition entry form and go in the draw for book prizes.

"The activity consisted of ten multiple choice questions, each relating to a different method used to survey wildlife in State forests," State Forests education coordinator, Carmen Perry, said.

"Some of the questions were a bit tricky, and it was great to see so many parents getting involved and working through the questions with their kids."

Carmen said the interactive activity involved props such as traps, bone and poo samples, and encouraged children to use all the clues to figure out the answer to each question.

"It was great to see the reactions of some of the kids as they heard the grunt of a koala for the first time and took a close look at bones regurgitated as pellets by a powerful owl," she said.

"State Forests ecologists conduct day and night-time surveys for a variety of animals and it was great to raise awareness of the valuable work our staff are doing in collecting information about our unique Australian animals."

Carmen also welcomed the 800 new subscribers to *Bush Telegraph* who signed-up to receive the free magazine while at the Show.

– Emma McMahon Public Affairs, Sydney

More than 4,000 children entered State Forests' wildlife detective challenge at the 2004 Sydney Royal Easter Show. *Photo by Bill Frew*



# Walcha geared for big event

Anyone interested in timber, the rural industries and a spot of leisure should keep the weekend of 25-26 September free this year.

A committee is now organising the 10th biennial Walcha Timber Expo – a showcase for the local community's mainstay of employment and industry.

The major sponsor is State Forests of NSW along with Brian Smith Timber Transport and Apsley Motors Walcha.

Nick Westman, planning manager for State Forests' Northern Region, and Nigel Fuller, operations forester for Mid North Coast Region, will coordinate the organisation's involvement in the event.

"This year the expo will cover traditional timber-getting, the role of the private landholder wishing to develop private hardwood and softwood plantations, and generally aims to educate the younger generation on future sustainable timber supplies," Nick said.

"Displays will also focus on Walcha's rural and agricultural background of fat lambs, wool and beef cattle production.

"There will also be an increased emphasis on recreation with four-wheel drive, camping and fishing displays."

The expo will be held at Walcha show-ground and with plenty to explore in the nearby northern tablelands forests there's no excuse not to be there.

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



Nick Westman with one of the timber totem poles placed around Walcha during past timber expos. The town is gearing up for the next big event in September. *Photo by Howard Spencer*

## hot off the press

– our latest publications

### Real Stuff – hard copy publications

(all prices are GST inclusive).

#### "Discover, connect, learn, play" – education brochure (free)

Outlines the education services offered by State Forests.

#### Recreation brochures (free)

Six new colour brochures outlining recreation opportunities in the State forests of the central coast, lower north coast, mid north coast, south coast, southern highlands and central west.



#### Bookmark (free)

A colourful new bookmark with interesting forest facts on the reverse side.



#### Stickers (free)

Two great new designs with choice of tags. Great for the car bumper!

**Technical Paper No. 67** *Ecological impacts and sustainability of timber harvesting and burning in coastal forests of the Eden area. Establishment and progress of the Eden Burning Study* by D. Binns and R. Bridges \$33 from State Forests Research and Development Ph: (02) 9872 0111

**Technical Paper No. 68 and CD** *Carbon sequestration predictor for land use change in inland areas of NSW – background, user notes, assumptions and preliminary model testing* by K. Montagu, A. Cowie, A. Rawson, B. Wilson & B. George \$16.50 from State Forests Research and Development Ph: (02) 9872 0111

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

## june – august 2004 events

- June - 15 August 'Red Cedar in Australia' exhibition at the Museum of Sydney. Looks at the discovery and description of cedar  
Museum of Sydney, Cnr Bridge and Phillip Street, Sydney Ph: (02) 9251 5988
- 30 May - 5 June World Environment Week
- 4-6 June Timber and Working with Wood Show, Fox Studios, Moore Park. State Forests will have a display at this show  
[www.workingwithwood.com/sydney/index.htm](http://www.workingwithwood.com/sydney/index.htm)
- 5 June World Environment Day
- 21-25 June 'Spirit of the Story' presented by State Forests, Mount Annan and Wollongong Botanic Gardens to celebrate the tradition of storytelling. For students in years 3-6  
Gerard Nolan, Education Officer Ph: (02) 9871 3377
- 6 July Teacher's bus trip to forests on the central coast. Teachers, lecturers and environmental educators are invited to a free day-trip to the forest for a first-hand look at forest management  
Carmen Perry, Education Coordinator Ph: (02) 4927 2908
- 15 July Flying Forest Spectacular at Cumberland State Forest Information Centre Ph: 1300 655 687 or (02) 9871 3377  
95 Castle Hill Road West Pennant Hills
- 25 July National Tree Day  
Tree planting at Cumberland State Forest at 11am and 2pm  
Information Centre Ph: 1300 655 687 or (02) 9871 3377  
95 Castle Hill Road West Pennant Hills
- 13-15 August Newcastle Woodworking and Craft Expo, look for State Forests display  
State Forests Hunter Region Ph: (02) 4927 2900
- 14-22 August National Science Week. Australia's annual celebration of science and technology  
[www.scienceweek.info.au](http://www.scienceweek.info.au)
- 27-29 August 2004 NSW Premier State Rally Championships held in the Watagan and Ourimbah State Forests  
[www.rally.com.au/RallyHome.aspx](http://www.rally.com.au/RallyHome.aspx)



Written by experienced drivers as a training resource for State Forests' troop of off-road drivers, the new *Glovebox Guide to Four-wheel Driving* is an essential companion booklet for anyone who enjoys exploring the Australian bush.

With hints and advice for driving in a range of conditions, essential equipment and emergency repairs, it's a great resource for both the inexperienced through to frequent users of four-wheel drives.

Retailing at just \$9.95 from State Forests Information Centre. Ph: 1300 655 687 or (02) 9871 3377.

[www.forest.nsw.gov.au](http://www.forest.nsw.gov.au)

# drive

If you own a four-wheel

or plan on buying one

- you must have this book!

