

C REBUILDING THE CATHEDRAL

Growing and caring for new forests established after timber cutting is one of CALM's most important tasks. Roger Underwood (a forester in the south-west of W.A. for over 25 years) explores the philosophy and history of forest restoration.

My literature studies as a high school student included novels and poems written by soldiers in the First World War. From these, I carried grim images of the battle-scarred countryside of France and Belgium in my imagination, until I visited France for the first time in 1978.

I was on a study tour with a group of international foresters when, by train, we crossed the fields of Verdun - the great battleground of 1915. I did not expect to see a desolate landscape of mud, shell-holes and shattered forest, but what I did see that summer afternoon astonished me.

It was now a soft, productive and beautiful rural landscape, with rolling fields of crop and pasture, fine woodlands of oak and beech and avenues of elm and poplar. The formerly mutilated countryside had been remade!

Later that year I spent time with the district forester at the Forest of Dean near the English and Welsh border. He was embroiled in controversy over the preservation of old-growth oak at the time. As a forester from W.A.'s karri country, I knew something about such controversies, but there was a difference between the English forest and ours.

The Dean oak forests had been clearfelled and regrown several times since forest records started

in Roman times about 2 000 years ago. The 'old-growth' oak stands at the centre of the present controversy were only 150 years old, having been replanted in the wake of widescale fellings for shipbuilding during the Napoleonic wars.

One final experience from my European trip was central to forming a lasting philosophy on forestry. During my European tour, I visited some of the world's great cathedrals. They all had three things in common: they were inspirational, they were man-made, and construction had taken a long time - often hundreds of years. I wondered if humans had the genius, vision, determination and technical skills to build cathedrals of stone and timber, whether they could build a forest?

I believe the Department of Conservation and Land Management, and the foresters whose main job is to regrow new forests, can do this. A major reason for my confidence is knowledge of the successes we have had already, and the growth of W.A.'s new forests which have developed after past harvest and regeneration.

Here are stories about four of them which I know well: the Eastern Goldfields' eucalypt woodlands, the jarrah forests along the Hotham Valley Line, the Treen Brook karri forest, and the Julimar wandoo forest.

by Roger Underwood
General Manager of CALM



Jiri Lochman

THE GOLDFIELDS' EUCALYPT WOODLANDS

The forests of the arid and semi-arid Eastern Goldfields are outstanding for the splendour and variety of tree species and their height and vigour in such a dry area. Most people don't realise that huge sections of this thriving inland forest are regrowth, which arose in the wake of clearfelling in the late 19th and early 20th centuries. The timber, which was hauled in on narrow gauge railways called woodlines, provided fuel for the mining industry and towns in the Goldfields.

W.A.'s first forest ranger was posted to Coolgardie in the late

1890s, when some of the State's first forest reserves were created in the Goldfields. Mining began in the early 1890s. The logging operations in the Goldfields lasted 65 years, and an area of over 3.4 million ha was clearfelled.

There was little planned regeneration of the cut over forests along the woodlines due to a lack of staff and funds.

Fortunately, the mature trees of these forests flower and carry seed nearly every year. In a healthy forest this seed normally feeds insects, but if the forest is burnt in a

wildfire or felled for timber, the seeds germinate prolifically. So a new forest now grows in the Goldfields, replacing the one cutover.

Some of these regenerated forests are now nearly 100 years old, and only a trained eye can distinguish between these and virgin stands in forest reserves. The Eastern Goldfields region in WA has a very harsh climate: sparse irregular rainfall, baking summers, and freezing winters. It is a miracle that such an environment produced naturally such a wonderful forest in the first place. Deeply reassuring is the way these forests coped with an almost total exploitation for their timber resources. A new forest again clothes the rocky hills and vast plains.

Today, with no demand for steam engine fuel at the mines, the forests are thinned in some places for domestic firewood, mine props and posts and rails. However, they are mainly managed for collection of seed to be sent to buyers in other arid countries, beekeeping, recreation and as a wildlife refuge.



Cliff Winfield

Magnificent salmon gums, one of the Goldfields' most beautiful trees.

THE JARRAH FORESTS OF THE HOTHAM VALLEY LINE

In an arc north-east, east and south-east of Dwellingup are 'the crown jewels of the jarrah forest'. The key factors contributing to forest excellence are all present: fertile soils, high rainfall, a resilient and dominating tree species with strong, durable timber, and abundant wildlife.

A huge section of the area was proposed as a Flora and Fauna Reserve back around the turn of the century, but the political climate at the time was not right for such a move. Instead, the Hotham Valley railway line was built through the forest, from Pinjarra to Boddington, in 1910.

Along the railway, a series of small timber towns sprang up. Each town had a sawmill, settlement, mill workers and bush crews, and was at the end of a network of timber tramways stretching into the forest. Along these lines, logs were hauled to the mills by steam locomotives. The timber was used in Perth, in the Goldfields and for wharves, or was exported all over the world.

As well as the men milling timber, an army of sleeper-cutters worked through the bush. Usually they formed the 'advance guard', selecting the best and straightest trees. The railway sleepers were hewn direct from the log and carted by horse and dray to the railhead. This was at the time when the W.A. wheatbelt was being opened up, and jarrah sleepers were needed in their millions to take railways into the new agricultural districts.

In the early days, there was virtually no government supervision of the industry. However, forestry

planning and protection commenced in the 1920s, and its influence was soon felt. Until then, only the worst trees, or unwanted timbers like marri, were left standing. The bush was clean cut over hundreds of square kilometres. After the 1920s planned regeneration began.

The Hotham Valley's jarrah forests, like the Goldfields' eucalypts and the wandoo, survived. Natural regeneration was just as successful after timber cutting as it would have been after fire or storm.

The Great Depression of the 1930s helped. Many mills were forced to close and a pool of workers became available to help foresters carry out essential fire protection, thinning and regeneration work.

By the 1950s, a superb new forest had replaced the old one. The only remaining timber town in the area is Dwellingup. Part of this forest is now in the Lane Poole Conservation and Recreation Reserve, and is enjoyed by thousands of visitors each year. Prime jarrah timber is growing on the rest.



Another successful before-and-after story. Ten years after clear-felling (above) and thriving today (right).

Jiri Lochman

TREEN BROOK

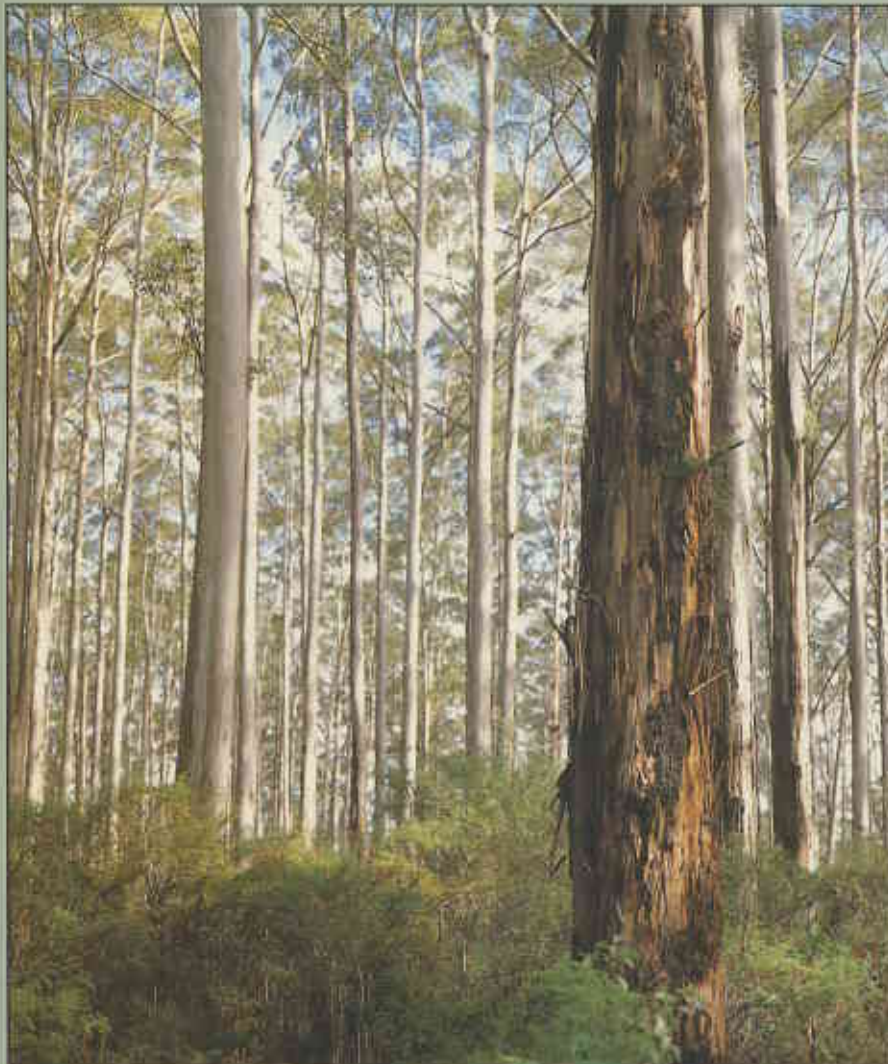
Of the many regenerated karri forests in the south-west, Treen Brook is perhaps my favourite. This forest, straddling the main road south of Pemberton, escaped conversion to farmland in the Group Settlement Scheme in the

1920s, but became a prime source of timber for the Pemberton mill in the 1930s. A few small areas of mixed karri-marri and pure marri were retained, but the remainder was clearfelled. Only seed trees were left in the cutover forest.

The forest could not be regenerated immediately, as karri trees regenerate differently from the annually seeding eucalypts, or species like jarrah. Karri produces seed infrequently, and the dense undergrowth and mature trees must be cleared away before the seed can germinate. Karri regenerates naturally only when a hot fire coincides with a seed year, which may occur only once every 5-7 years. In 1936/37 the whole forest flowered. The following year, foresters ran controlled fires through the cut over stands, seed fell onto the ashbeds and regeneration followed.

The new Treen Brook Forest is now 50 years old. The young trees are already over 60 m high. One section of the forest has been added to the neighbouring Warren National Park. Here, old logging tracks have become popular scenic drives and walks and clear streams are favoured for trout fishing. There are no signs of the old timber camps, the horse and bullock yards have gone long ago, and even the snig tracks and log landings, where the soil was churned to mud, have disappeared, reclaimed by the new forest.

It may be another 50 years or more before the new Treen Brook forest is as grand as the virgin forest it replaced, but the cathedral is being rebuilt!



The beginnings of a new forest - Treen Brook regrowth 50 years ago (above).

Treen Brook today - well on its way to cathedral-like grandeur (left).

Cliff Wirfield

THE JULIMAR

The wandoo (white gum) forest is one of W.A.'s most attractive and interesting, although not much of it is left today. Wandoo country was popular with early settlers, especially the open woodlands which were easily cleared and pastured. The best of the remaining wandoo country today is found in the Helena and Darkin River catchments and north-east of Perth between Bindoon and Toodyay in the Julimar Forest.

The Julimar has a remarkable history. In the early part of the century, almost half of it was taken up as farmland. However, most of these farms failed to survive the Depression of the 1930s, were abandoned, and reverted to Crown land. A short time later, the then Forests Department was able to convert the Crown land to State forest. Within a decade, a new forest was growing on the abandoned farms.

Julimar State Forest - wandoo regrowth after logging in the 1960s.

Roger Underwood



Then came the second part of the Julimar story. Between 1950-70, the forests not cleared for agriculture were cutover to supply logs to the region's sawmilling and woodchipping industries. I worked as a forester in this area in the early 1960s, marking seed trees and regenerating cut over stands. After regeneration work on the cut over stands, the seed trees were kept as an important source of nectar for beekeepers and a refuge for wildlife.

In the wake of this timber cutting and regeneration treatment, a second new forest grew in the Julimar. Today, old stumps still remain where felling took place, although these are disappearing as termites and occasional fires take their toll. The forest, recently nominated as a conservation park, is rich in wildlife (particularly birds and mammals) and continues to be a prime resource for beekeepers and a popular spot for visitors.

To many people, the idea of felling trees or cutting timber out of forests is an emotional and distressing one. To these people, the forest is a cathedral and is irreplaceable. They believe that to fell it is to destroy it - what was once a thing of value and beauty becomes forever a wasteland.

It is true that immediately after a clearfelling logging operation the landscape appears devastated. It is also a fact that in some parts of the world wastelands can develop after timber cutting in forests. But this has never happened in Western Australian forests, and should never happen if the community and its agencies are determined on reconstruction. The history of the First World War battlefields shows that even the most shattered landscape can be rebuilt, and, as illustrated in this story, W.A.'s experience already provides reason for optimism.

Trees are living things in the forest community and, like any other living thing, they experience birth, growth, competition for resources, sickness,

accidents and death. Luckily, our eucalypt forests are tough and resilient. They can cope with the transitory effects of timber harvest, particularly with modern forestry management. For example, road and stream zones are now retained to better protect each area's aesthetic, wildlife and water resource value; fire control is far more sophisticated; and a comprehensive reserve system has been put in place to preserve large areas of virgin forest.

While conservation is the major concern for W.A.'s forest managers, productivity and the beauty of the forest landscape is also of concern. Our job is to care for our natural heritage, in reserves and parks as well as to regenerate and rebuild following disturbance or harvest. These are long term and complex tasks and there are, no doubt, many refinements still to be made. Nevertheless, the success of our regeneration and restoration work to date is very reassuring. To the foresters in CALM, as to forest lovers everywhere, the new forests are a source of pride, and a vision for the future.



LANDSCOPE

Volume 4, No.1
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In W.A. the concept of marine conservation reserves was firmly established in 1984 when the CALM Act was passed, with provision for Marine Parks and Marine Nature Reserves, vested in the National Parks and Nature Conservation Authority.

Since 1984 two major Marine Parks have been declared in W.A.: Marmion and Ningaloo.

This is a new field in W.A., and there are no local precedents to guide us in resolving the many management issues which have emerged.

A first consideration has been that fishing is already controlled under the Fisheries Act. It would be foolish for CALM to attempt to establish itself as a fisheries management agency. A policy decision has been made that any fisheries in Marine Parks will be regulated under the Fisheries Act.

A more philosophical problem has been that many citizens, although generally sympathetic to the conservation cause, are unaccustomed to the idea of having parks and reserves in the sea. The idea that the sea is a public common where anything and everything goes is still well entrenched in public attitudes. Yet there are many terrible examples around the world where coastal environments and their resources have been devastated by excessive and improper use. In W.A. we have not reached that point.

W.A. can be proud of its fisheries management record, based on the principle of sustainable use for posterity. Development of a marine parks and reserves system along our coast is another essential part of the overall objective. It is to be hoped, then, that our first initiatives in this direction will receive public support.

PINES



*How can less than four per cent of the State's area supply us with all our timber needs, and save the hardwood forests at the same time?
Details on page 28.*

WALL OF MOUTHS



It's a fish-eat-coral world, but what do the coral eat? Find out on page 32.



BORERS

Now you can be sure there are no borers in the door. Well, if they are there, at least you'll know what to call them after reading the article on page 42.

TROUBLED WATERS



Does the very word pollution make you feel powerless? Discover what you can do to help the wildlife victims on page 20.

FOREST RENEWAL



What is the connection between the poets' of the First World War and W.A.'s forests? Find out on page 56.



JEWEL OF THE KIMBERLEY

What do you mean frog? In my home I am a prince. After all, Prince Regent is the only mainland reserve where all of the original animal species remain. Meet the rest of them on **page 47**.

HILLS' BELLES



When Perth looks out its backdoor in spring the Hills are ablaze with colour. Your field guide to some of our glorious wildflowers starts on **page 4**.

ATTENTION ADULTS!

Sick of taking the anklebiters to the same old national parks and camping spots? Put them to work for you. If they enter the kids' competition on **page 63** they could win two beautiful books on all the best picnic and camping spots between Perth and Eucla.

GATHER NO MOSS



The trouble with lichen is that up until recently it wasn't protected flora. Now lichen and their relatives - mosses, liverworts and algae - have joined the rest of the State's flora. See **page 54**.

RIGHT ON TRACK



Is a high-tech wilderness trek a contradiction in terms? Find out how 4WDs and conservation can co-exist peacefully on **page 12**.

Cover Photo



Magpie Geese take off from the Ord River.

Photo: Richard Woldendorp.

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