



A CROP OF FORESTS

by Julia Berney and Andrew Rado

From Badgingarra to Esperance, farmers participating in Sharefarms Maritime Pine, launched by the Department of Conservation and Land Management (CALM) in 1994, are watching a most productive crop grow on even their least productive land—without incurring any financial burden.

Tree crop sharefarming is not new to CALM. The pilot scheme, featuring bluegum in higher rainfall areas, took off in 1988 with 1,551 hectares belonging to just 21 farmers. A decade later, after hundreds of farmers had joined, there were 100,000 hectares—a figure sceptics considered overambitious when first suggested—and bluegum had founded a multi-million dollar export trade (see 'From Blue Sky to Blue Chip', *LANDSCOPE*, Summer 1998–99).

With maritime pine (*Pinus pinaster*), the goal is half as much again—150,000 hectares in 10 years, supported by an \$18 million per annum contribution from the State Government. The drought-resistant maritime pine takes tree crop sharefarming into the medium rainfall (400–600 mm) zone, and although it will grow on fertile soils, it thrives on infertile sands—the very soils that have



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Maritime pine sharefarm two years after planting.
Photo – Michael James/CALM

Left: CALM field manager inspecting a maritime pine sharefarm for insects and nutritional requirements and to determine growth rates.
Photo – Andrew Rado/CALM

cost farmers dearly in previous efforts at improvement.

The pines play valuable environmental roles: decreasing erosion, lowering groundwater, combating waterlogging and salinity (see 'Halt the Salt', *LANDSCOPE*, Spring 1997), creating shade and shelter for stock or adjacent crops, minimising run-off,

reducing leached nutrients that pollute waterways, and aesthetically transforming barren tracts.

Today's superior maritime pine results from more than 70 years' breeding by CALM and its predecessors (see 'In Search of the Perfect Pine', *LANDSCOPE*, Autumn 1992). Recognising that this species had the fastest growth and best

CASE STUDY 1

Barry Clarke was 'over the moon' after collecting two awards in the autumn—Top Crop in WA for canola, and Highest Gross Margin for wheat.

'But I don't set out to win awards,' he declares. 'I just plant crops to make money, to support my family. Recently I've sold a heap of sheep and gone more into cropping, to be more sustainable in these tough times.'

Maritime pine, planted in 1997, is his latest crop. Obviously, harvest rewards are in the future, but he has already earned money by taking on the planting himself.

For 20 years Barry worked with his father, who has farmed outside Bolgart, north of Toodyay, for more than half a century. Four years ago, Barry moved onto his own 872-hectare property nearby. He feels his generation is more receptive to new ideas and changing traditional practices, and admits his father was initially sceptical about this venture.

'But we've had such phenomenal growth, with some pines already three metres tall, that Dad's had to eat humble pie,' smiles Barry. 'I think a lot of other people who said "What are you planting those for?" are now jealous because I got into the scheme so early.'

Barry had wanted to plant trees, but was uncertain precisely how to begin. Then he heard CALM was seeking sharefarming partners. He agreed without hesitation, dedicating 23 hectares to pine and other small areas to natives. One attraction was not having to outlay any money, but the urgent reason was that he was keen to contain the water table and ward off salinity.

'People say, 'But you're tying up your land!' Well, so be it. A big area was waterlogged and we had to address the problem. I couldn't have afforded to buy 40,000 trees or do the ripping, mounding and spraying. In 30 years' time I'll be ready to retire, so I see the pines as a Super fund. By then, I'm hoping my son Jarrod, now aged two, will sign another contract with CALM.'

Barry believes he has his priorities right. 'I've seen other farms degrading so quickly. Some farmers will spend hundreds of thousands of dollars on showy things like flashy machinery, but neglect their land. Then they'll buy neighbouring land because their own is taken up with salt. This is a nice little farm, and I'm going to look after what I've got.'



Barry Clarke with his son Jarrod.
Photo – Dean Irving/CALM

Right: Newly established maritime pine seedlings (six months after planting) on cleared farm land near Badgingarra, 230 kilometres north of Perth.
Photo – Andrew Rado/CALM



wood properties on medium rainfall sites, 1950s researchers collected seed and buds for grafting from the best trees in WA plantations and the Portuguese source forest.

Clones were grown, then the poorer performing ones culled, leaving only parents of the finest stock. Using the best original clones and second generation

selections, CALM established a nursery in 1989 at Manjimup that meets all WA's maritime pine plantation needs. Its seedlings produce straight trees with smaller branches, vigorous growth and stands of uniform quality, for efficient management and harvesting.

Maritime pine yields structural-grade saw-logs and timber for medium

density fibreboard, veneer, posts, poles, furniture and paper. With local demand strong and overseas markets expected to expand, the resource will increase.

FROM CONTRACT TO HARVEST

Under CALM's sharefarming scheme, originally developed with the

CASE STUDY 2



Dr Syd Shea (CALM Executive Director) and Dom Chris.
Photo – Andrew Rado/CALM

Benedictine monks established New Norcia 153 years ago. The community owns 8,347 hectares; just over half of which are farmed.

'I would like to claim we've been great conservationists for 153 years, but that might be gilding the lily a little,' says Dom Chris, Prior and Procurator. 'However, the early monks do seem to have cleared intelligently; they didn't bowl down trees everywhere.'

In fact, they left stands of up to 700 hectares. Although grazing spoiled some understoreys—a situation recently rectified by fencing—the retention of mature bush blocks doubtless explains why salinity here, though serious, is not yet disastrous.

Throughout its history, the farm's capacity has been optimised, since it is the community's biggest asset, funding monastery and town. But today's monks, aware of landcare needs, have adjusted accordingly. The new regime includes sharefarming maritime pine.

'Obviously, we have to look after our built heritage, but—heavens!—the farmland surrounding the town should be looked after similarly,' says Dom Chris.

Until recently, the farm comprised wheat, sheep and cattle. Cattle have now been dropped; there are still some sheep, but cereals are the focus. The site chosen for 60 hectares of maritime pine was light country with deep yellow sand, useless for cropping or grazing.

'We had in mind better production there and the need to ease the salinity, which would have continued right past the edge of the monastery's land if we hadn't done something,' says Keith Hunt, farm manager for the past 26 years.

'From drilling for water for the town 11 years ago, we already knew the water was salty. Even then we had a few bare patches which, when I first came here, we were actually cropping. But we realised we had a big problem when the grass disappeared almost overnight, on an area east of where the pines are now planted.'

Keith voices anxiety about erosion, another problem the pines will decrease. He has noticed that although storms are no worse today than many years ago, floods do far more damage to denuded land. He cites an area he planted with native seedlings, virtually all washed away in a single thunderstorm.

'If you're going to be successful and responsible farmers—maximising returns from your property while caring for your land—you have to make changes when you see what's happening,' concludes Dom Chris.



Left: Well-established maritime pine sharefarm (four years after planting) on cleared farm land near Cataby, 110 kilometres north of Perth.
Photo – Andrew Rado/CALM

Western Australian Farmers Federation, a landowner enters into a legal contract with the investor (CALM), allowing part of his land to be used for commercial tree crops. This document is called a Deed of Grant of *Profit à Prendre* (roughly translated as 'sharing profits'). No other tree-farming organisation in WA offers this option.

The landowner retains title to the contracted land. However, the agreement is registered on the title deed, so if the landowner sells his property, the investor's rights are secure. Commercial returns on the crop are divided between investor and landowner, proportionate to input.

While many farmers found bluegum

irresistible, maritime pine has the added attraction that all they need to contribute is their poorest land—and there's plenty of that. Parts of the Wheatbelt have been over-cleared, which has set the scene for some of today's environmental problems: rising groundwater, salinity and erosion.

Nevertheless, for many farmers the sharefarming concept involves a radical shift in attitude. Those who have never known anything but cleared land may have difficulty visualising it supporting a forest, let alone bringing returns.

When landowners wish to participate, CALM first evaluates soil on potential sites. Once sites are approved as suitable, landowners must ensure they

CASE STUDY 3

Brothers Grant and Colin Creagh and their father Frank, who has always been active on landcare issues, farm 2,500 hectares above the coastal plain south of Badgingarra. About 40 per cent is cropped—mainly wheat, with some oats and lupin (the rest is sheep pasture). They also have three plots of maritime pine.

The family contacted CALM after reading about maritime pine sharefarming in the rural press. Their trees, planted in the winter of 1997, have grown even faster than is usually expected.

'We did have a problem at one time with Rutherglen bug; the pines had to be sprayed three times and we lost a few, which CALM replaced,' recalls Grant. 'But once the bugs disappeared, the trees took off tremendously.'

The sharefarming venture suits the Creaghs. Although they chose to do some paid contract work themselves, such as planting and spraying, they find it reassuring to have expert advice from CALM field officers.

'Having that back-up, having someone who will come in and check the pines, is really good. It takes that full responsibility off us,' says Grant. 'I would recommend anyone who has unproductive areas of land to put the pines in. It's a long-term scheme, but it's enhancing the value of the land.'

Erosion was always the biggest problem here. The wind-blown sand is very fine and vulnerable, and does not hold moisture well. When the land was cleared back in the 1960s, the wind sweeping across the paddocks wreaked havoc, particularly in the early years, despite the fact that a few mature trees were kept.

'Since then we've changed our practices to reduce wind erosion,' says Grant. 'For example, minimum tillage and no till farming have helped, as they don't disturb the soil. Over the years, we've planted eucalypts for windbreaks, shade, stock protection, and for aesthetic value, but it's always been in our mind to try different things, like these pines in sandy valleys, which weren't any good for cropping or growing feed.'

So enthusiastic about the sharefarming scheme are the Creaghs that they intend finding a place for maritime pine somewhere on a recently-purchased second property to the south-east of their first.



Grant Creagh on his farm near Badgingarra.
Photo – Dean Irving/CALM

Right: Maritime pine sharefarming has been developed based on decades of research and plantation establishment and management.

Photo – Michael James/CALM

have regulation firebreaks and fencing to prevent grazing (although stock can enter once the pines are tall enough).

Seedlings are planted in blocks where they can exploit water, such as on sand plain seeps; or where trees will succeed better than traditional crops or pasture, such as on deep sands; or in belts between grazing and cropping areas. Maritime pine sharefarmers can also have 10 per cent of contracted land planted with native landcare species, such as sandalwood, York gum, wandoo, black wattle and swamp oak.

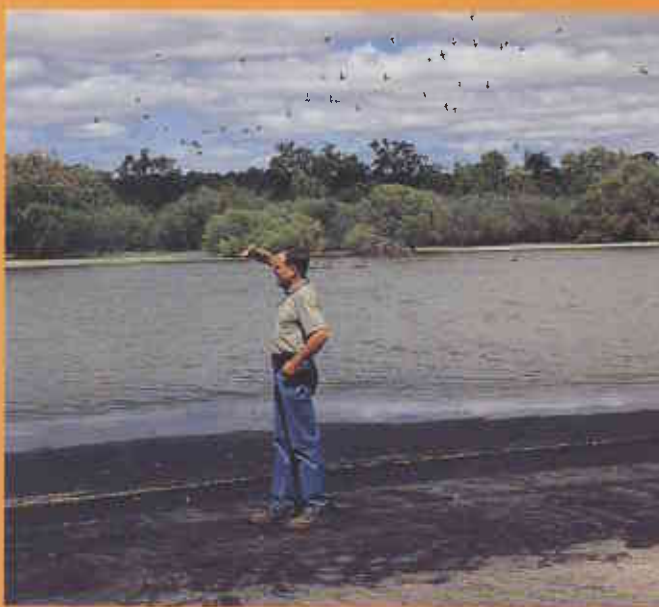
After contributing land, the owner can leave CALM to do everything else—preparing the land, supplying and planting seedlings, controlling weeds



and insects during the crucial first two years, maintaining fire risk management, managing and monitoring growing trees, thinning three times during rotation, arranging final harvest and haulage, and marketing timber. Dedicated teams of field officers check survival rates after planting; CALM replaces early losses.

Financial returns come from thinning at roughly 12, 20 and 26 years, and from clear-felling at about 32 years. After this final harvest, the landowner can either renew the contract and replant pines between the rows, or allow the land to return to its former state. Stumps rot after about six years, and, contrary to popular belief, land does not

CASE STUDY 4



Jurg Hauser.

Photo – Andrew Rado/CALM

Four years ago, Jurg Hauser set out to find a property where he could combine production and conservation—but conservation is the absolute priority. Outside Gingin, he found 1,000 hectares of cattle country that he feels should never have been cleared originally, as it was unsuitable for farming.

‘But for our purposes it’s superb, because it has a variety of soils and beautiful wetlands. For me, this is the main attraction,’ he says, pointing to a large lake where freckled duck, ibis, spoonbill, black swan and many other birds gather by the thousand. The bush around the lake has regenerated since it was fenced to exclude cattle.

Jurg and his wife Regula have similar land acquisition and conservation projects in several other countries, chiefly in their native Switzerland. There they liaise with a government department in much the same way they do here with CALM, which has helped them devise a management plan.

Their long-term vision is to bring most of the land back to a natural state. Less than 300 hectares have been reserved for grazing. Wildlife corridors of native vegetation are being established to link lake and bush areas. CALM has grown the seedlings of banksia, coastal blackbutt and flooded gum from seed collected on Jurg’s land, to maintain the genetic integrity.

But pockets of maritime pine also have a key role to play in Jurg’s project. He has taken great interest in the siting of the plantations, ensuring they fit around the best specimens of existing native trees. The immediate goal for the pines is to lower the water table, but in the future they will help to finance further conservation work.

‘The idea is that money from the maritime pine doesn’t go into my pocket; it flows back to the land,’ he explains. ‘I think people who can afford to do nature conservation should do it. Wealthy landowners have a responsibility to look at their land not for its commercial value, but as part of the means to find a generally acceptable way out of ecological disaster.’

While Jurg is clearly not a traditional farmer, he has great sympathy for those farmers now facing economic difficulties, and believes sharefarming is an excellent option for those struggling with unproductive land.

‘The poor farmers need an additional income, because for many, the situation is very bad,’ he says. ‘Diversity must be a good thing.’

CASE STUDY 5

Don and Moira McKinley farm 6,500 hectares outside Moora. Though primarily wool growers, and, like others, subject to the effect of current low wool prices, they have diversified wisely over the years. Their property now houses cattle, some crops, and special interests such as olives, a fat lamb enterprise and a Poll Dorset stud.

Although Don is only now considering CALM sharefarming, he is already a convert to the maritime pine cause. He began planting it six years ago, financing it himself, and has accumulated 200 hectares.

'We started planting because of rising freshwater tables on the sand plain. We have some sheoaks as well, but the bulk are pines and they're really doing their job,' he says. 'They took three or four years to make an impact, but two seasons ago, they'd dropped the water table by a metre in the one year, and they've held it at that.'

The maritime pine is planted mostly on deep white sand plains and catchment areas on valley sides. Although it occupies mainly poorer, unproductive land, Don also chose to turn over a little of what he describes as 'reasonable' sand plain country to yet more pine.

'We wanted to find a tree that would give us returns in the long run. The water table was the initial reason for putting in pine, and we did it for beautification too, but we were also looking at superannuation further down the line,' he says.

'We'd heard maritime was the only pine suitable for our temperatures. They're easy to grow, and apart from a little insect damage—Rutherglen and native bush bug—I've had no problems, except learning to prune and getting the time to prune. I think I was a bit optimistic about what I could do alone! They're quick too—according to the CALM coordinator, our growth rates are at least equal to those farther south.'

In the last four years, Don has noticed a big increase in the amount of maritime pine being grown around the Moora area.

'It's the answer to a lot of the problems with the west midlands country, I think,' he reflects. 'The way farming is at the moment, you need to diversify into things that have got potential.'



Maritime pine (*Pinus pinaster*).
Photo – Michael James/CALM

become more acidic as a consequence of supporting pines. Landowners can also earn money earlier if they opt to do their own establishment, like site preparation and planting.

There is another potential benefit from pine. The 1997 Kyoto Protocol allows industrial carbon dioxide

emissions to be offset by activities that absorb carbon, like afforestation (see 'Farming Carbon', *LANDSCOPE*, Spring 1998), so trading in 'carbon credits' looks promising.

Due to its majority input, CALM receives a larger proportion of returns, but total returns are so substantial that

many landowners view their proportion as retirement income. Farmers interviewed for this article unanimously praised maritime pine's performance. Those who sharefarm are satisfied with the system, and word of mouth—always the best recommendation—is spreading the message through the rural community. With diversification recognised as essential, the option of a new forest industry is welcome. Maritime pine's conquest of cleared land appears assured.

Left: Maritime pine is grown on cleared farmland to produce high-quality sawlogs. This provides a commercial return to landowners and lowers ground water levels.

Photo – Michael James/CALM

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In 'Photographing a Temperate Wonderland' (page 10), photographers Sue Morrison and Ann Storrie share their experiences.



In 'Those Spotted Things' (page 22), we see how fox-baiting and captive breeding continues to swell populations of this popular native mammal.



Snakes. You either love them or hate them, but how do we live with them? See story on page 45.



Many farmers and landowners are turning to plantation pine for a variety of good reasons. Five of them tell us why. See 'A Crop of Forests' on page 38.



As habitat changes, so do species populations. But just when does a species become threatened? See 'Healing the Land' on page 49.

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The magnificent gorges of Karijini National Park are a refreshing retreat from the arid plains above. They also have a fascinating geological history. See story on page 28.

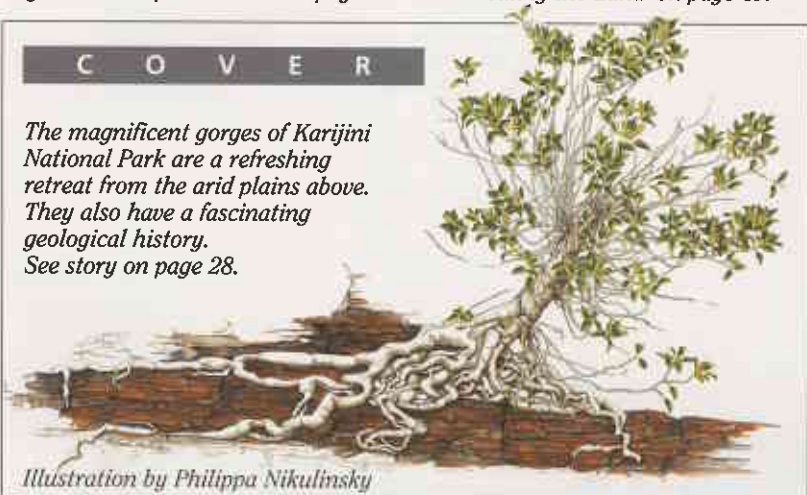


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