

# STTE

STRATEGIC TREE FARMING

GROWING A SUSTAINABLE FUTURE



## MANAGING STRATEGIC TREE FARMING



*Jon Bradshaw (right) discusses pest control with FPC forester, Andrew Robertson.*

“Most farmers recognise the problem of salinity and the effect that strategic plantings can have in controlling it, but on the whole private plantings by farmers have not been able to successfully tackle this issue. STF provides the opportunity for property owners to get into planting in partnership with the experts. This is not a move to cover the landscape with trees. The aim is for farmers to carry on their core stock and crop activities alongside strategically located tree crops.”

Jon Bradshaw, Deputy Chair,  
South Coast Natural Resource Management Inc.



*It is vital that salinity in the South West is contained.*

“Salinity management is one of our highest priorities and we urgently seek viable and profitable options to slow down its effects. Strategic Tree Farming is one option that we strongly support. Landholders who have adopted agroforestry are helping to contain salinity as well as diversifying their income sources. In the longer term as the farm forestry industry develops there will be positive benefits for the broader community.”

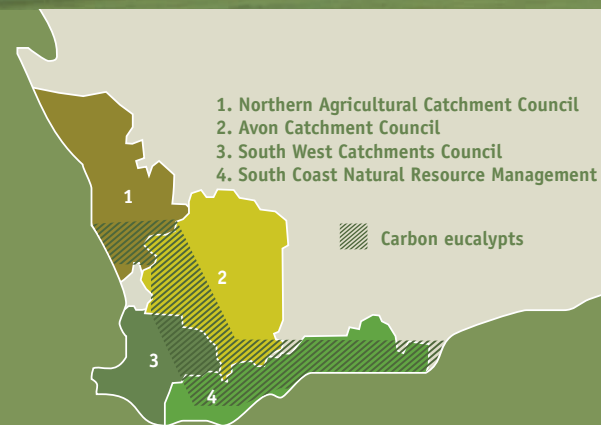
Damien Hills, General Manager,  
South West Catchments Council.

The Forest Products Commission (FPC) was established by the Western Australian Government in 2000 as a Statutory Authority responsible for managing the State's forest resources to maximise social, environmental and economic outcomes. The FPC is responsible for managing more than 112,000 hectares of plantations and tree crops throughout Western Australia.

In May 2008, *Western Australia's Strategy for Plantations and Farm Forestry: 2008 - 2012* was launched. The strategy focuses on the expansion of tree farming in Western Australia's medium to lower rainfall areas, which will help farmers diversify their practices. The FPC, as lead agency for the forest industry, has a major role in the successful implementation of the strategy.

The FPC uses public funds and works with the private sector to integrate commercial tree farms into farming operations, to address a range of environmental issues such as erosion, water quality, salinity and climate change.

FPC staff work closely with farmers to help select the right tree planting program to best suit their farm practices and location. Farmers participating in the FPC's tree farming programs have a choice of receiving upfront payments or annuities, and can also derive additional on-farm income by taking on certain aspects of the tree crop management.



Wherever possible, the FPC will target plantings to help achieve State and regional natural resource management (NRM) objectives.

# STRATEGIC TREE FARMING - AN OVERVIEW



Western Australia is feeling the effects of climate change and decreasing rainfall patterns. The State also contains more than 70% of Australia's reported dryland salinity and clearing of native vegetation has contributed to excess groundwater, soil salinity, water-logging and soil erosion.

Combined, these factors have serious negative impacts on land profitability, health of remnant vegetation, wetland systems and biodiversity.

The FPC offers tailor-made tree farming options for landholders designed to deliver environmental, economic and social benefits in rural areas, particularly for those in medium to lower rainfall areas.

## PROJECT OBJECTIVES



### **DRYLAND SALINITY:**

Integrated tree plantings in previously cleared areas will assist in managing the effects of salinity. Progress is monitored via bores located in planted areas and also in unplanted control areas in the same region, to produce comparative results.



### **WATER LEVELS:**

In areas not yet affected by salinity, the rise in the water table caused by extensive land clearing can progressively make land unusable through water-logging. Well designed plantings are aimed at reducing and managing the level of the water table.



### **CARBON SEQUESTRATION:**

Tree plantings are an effective strategy in offsetting the growing emissions of carbon dioxide and other greenhouse gases to the atmosphere. Trees store carbon and release oxygen through the process of photosynthesis.



### **COMMERCIAL OUTPUTS:**

Mature trees have a range of commercial uses, including timber for construction and furniture manufacturing, bioenergy, fibre for manufacture of paper and wood products such as laminated veneer lumber, medium density fibreboard, and other exotic uses such as the sale of sandalwood for incense and oils. The harvesting, processing and marketing of mature trees has the potential to create many jobs in regional areas.



### **FARM BENEFITS:**

Stands of trees provide windbreaks, shelter for stock, help reduce soil erosion, and can help protect fragile natural vegetation, as well as providing biodiversity and aesthetic benefits on-farm. And, importantly, the project provides options for an income stream - often from unproductive areas - to assist in the main business activities of the farm.





# STRATEGIC TREE FARMING IN ACTION

## MANAGEMENT

Will Owen lives away from his 800 hectare farm in Jingalup in Kojonup Shire, and a manager looks after the farm's core activities - sheep canola, oats and barley. Like all others in the area, his property is suffering from encroaching salinity, and this is a prime motivation for planting trees on the property.

The FPC has applied its detailed knowledge and experience to undertake a full assessment of the land, to ensure the right mix of tree crops has been selected for Will's situation.

FPC Forester, Andrew Bussau, says the planting program was very carefully planned with salinity control in mind. "We've gone for the more productive species - primarily Sydney blue gum (*Eucalyptus saligna*) - on the best land, with the more robust swamp yate (*E. occidentalis*) down to the saltline, and swamp sheoak (*Casuarina obesa*) into the worst affected areas. The first two will reduce hillside seep and the job of the third is to absorb the saline water and prevent the saline area from spreading," says Andrew.

Depending on the type of trees suitable for your farm, the FPC also provides a number of management options for tree farmers. If ongoing management is required, you may choose to let the FPC take care of it for you, or choose to undertake certain operations yourself such as site preparation, planting, pruning and spraying. Farmers taking on these options are not only able to generate extra income for their farm, but have access to the depth of experience the FPC brings to the table including relevant education and training, advice, assistance and safety inductions from qualified FPC personnel.

"Once I had decided to go this route it made sense to go to people who know what they are doing to set up and maintain the trees, providing action on everything ranging from pruning and thinning to parrot control, so I signed total management of the tree program over to the FPC," Will notes.

"It's mainly about the long-term value of the farm, but there are important short-term benefits, too - not the least of which is the cash injection for use of the land," he says.

1. Salinity poses a growing threat to many WA properties.
2. Gavin Hagboom takes pride in his results.
3. FPC forester, Andrew Bussau, discusses the pruning program with property owner Will Owen and his son Nathaniel.
4. Harvey Gillam showing a hands-on approach.



## FINANCIAL

Gavin Hagboom's 3,000 hectare property lies on the sand plains between Dowerin and Meckering. This windswept area has long suffered from waterlogging due to a rising water table - tough land to work, and a farm where every planting option has to be considered.

Gavin and his father Colin have pioneered tree plantings in the area since 1998, and the irony of this situation is not lost on Gavin, a very enthusiastic participant in tree farming activities with the FPC.

**"This farm has been in the family for five generations, with the first four clearing the whole area. The wheel has gone full circle and we're now restoring the trees."**

Gavin Hagboom

The Hagboom's 210 hectare plantings - primarily maritime pine (*Pinus pinaster*) with some WA sandalwood (*Santalum spicatum*), was motivated by both environmental and financial considerations.

First, there is the need to generate additional cash flows to supplement the farm's main wheat, sheep and pasture quality serradella seed production, and second, there is recognition throughout the area of the need to lower the water table.

"The FPC contracts my land, pays me to work it for them, and gives me a share of the income for good measure. It's the perfect 'win-win' situation," he says.

The FPC offers tree farmers a choice of different revenue models depending on the types of trees planted. Some offer payments up-front spread over two years, or an annuity over the predefined life of the tree crop. Farmers also have an additional entitlement to receive a share of the revenue derived from carbon trading and/or timber harvesting.

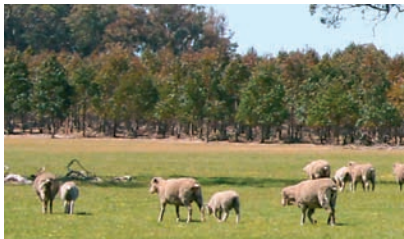
"The work provides an additional source of income but, more importantly, it gives us a real sense of ownership of the project. We take pride in what we do, because we're in charge, so I believe the end result is much better," says Gavin.

## STRATEGIC TREE FARMING IN ACTION



“Salinity in this area is a problem that is just going to get worse if we don’t do something about it, so that was probably the main driver. Coming a close second was a chance to make additional income from land that was basically unproductive. Put the two together, and it was a pretty easy decision to make.”

Harvey Gillam.



“In heavy rains after shearing last year we were able to drive the sheep into the trees for protection, and what we saved there alone made the whole business worthwhile.”

Will Owen

### ENVIRONMENTAL

When Harvey Gillam signed more than 35 hectares of his Tenterden property in a sharefarm agreement with the FPC in 2002, he did so for different reasons.

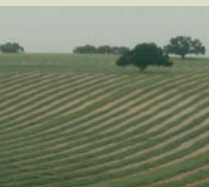
Salinity is caused by the removal of deep rooted natural vegetation and poses a major threat to the agricultural regions of Western Australia. It is estimated that up to 4 million hectares may be salinity affected by 2050, including all inland water supplies. Up to 450 species are at risk of extinction and apart from loss of farmland productivity there is also significant threat to infrastructure. Tree plantings of farmland through integrated farm forestry will help address this major problem.

Harvey says tree farming also works in well with his main business of sheep and cropping.

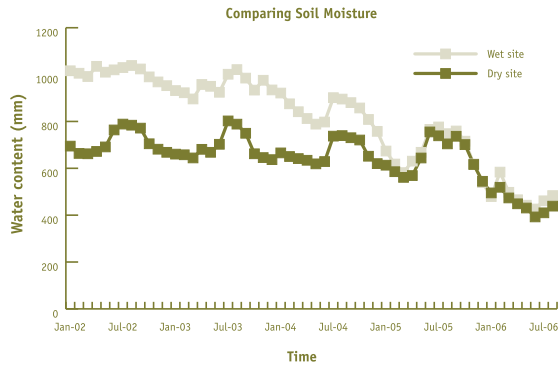
“Some fencing is needed at the outset to keep stock away from the young trees, but after three years they can be let in. That provides shelter from rain and frosts, there’s grazing between the rows and they can even help by pruning the lower shoots,” he says. Formal monitoring of the effect on salinity is ongoing and Harvey says visual evidence suggests the spread of salinity has definitely been slowed.

Tree farming is also an important strategy for offsetting emissions of carbon dioxide and other greenhouse gases to the atmosphere. Through the process of photosynthesis trees absorb carbon dioxide (CO<sub>2</sub>), storing the carbon in new growth and releasing oxygen. Around 50% of the dry weight of plant material is carbon.

“I’m confident we’ve taken an important step in the right direction to maintain the property’s long-term viability,” Harvey explains.



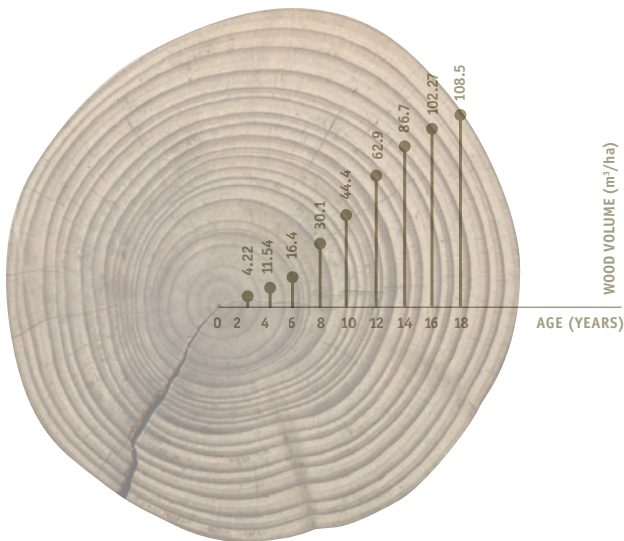
# THE SCIENCE BEHIND STRATEGIC TREE FARMING



## MONITORING WATER LEVELS

Research in the Dandaragan area into the effect of tree planting on soil moisture for both wet and dry sites has shown that the establishment of trees can reduce water volume after four to five years.

## TREE GROWTH



The growth of Sydney blue gum in the 550mm – 650mm rainfall zone between Kojonup and Boyup Brook is shown above. The trees were thinned at six years from 300 to 125 trees/hectare providing increased annual growth.

## Salinity

Salinity is a major problem in the agricultural regions of Western Australia. It is estimated that several million hectares will be salinity affected by 2050, all inland water supplies will be salinised, up to 450 species are at risk of extinction and apart from loss of farmland productivity there is also significant threat to infrastructure.

Salinity is caused by the removal of deep rooted natural vegetation and targeted replanting of cleared land will help address this major problem. Water quality in key water supply catchments such as the Helena and Denmark Rivers has been largely restored by tree plantings in parts of these catchments.

## Tree growth

FPC research staff have been monitoring the growth of various tree species in the medium rainfall zone of Western Australia for several decades.

The early research was based on wide-spaced plantings, aiming to integrate trees with agriculture and reduce competition for water.

While availability of water is still recognised as the key limiting factor for tree growth, current research is aimed at being more site specific and maximising yield by varying the timing and density of thinning operations on the basis of local soil and rainfall conditions.

## Carbon sequestration

Tree farming is one important strategy for offsetting emissions of carbon dioxide and other greenhouse gases to the atmosphere. Through the process of photosynthesis, trees absorb carbon dioxide (CO<sub>2</sub>) from the atmosphere, storing the carbon in new growth and releasing oxygen. Around 50% of the dry weight of plant material is carbon.

## Monitoring progress

The FPC will conduct ongoing monitoring of specific sites to measure the effectiveness of the program, depending on the objectives involved. These objects may include managing recharge and carbon sequestration.

Monitoring the impact of trees in terms of salinity is achieved by establishing transects of monitoring bores in planted and control areas, to provide a basis for comparison.

The FPC's team of scientific and technical staff are developing and implementing scientifically based systems for estimating carbon sequestration. As a result, the FPC is able to model carbon sequestration with or without tree harvesting.

## GETTING INVOLVED



### GETTING INVOLVED

If you would like to participate in - and benefit from Strategic Tree Farming with the FPC – you must be prepared to commit a minimum of 40 plantable hectares of land, suitable for one or more of the species on offer.

FPC foresters will assess the land and, if it is suitable, will develop a management plan in consultation with you, identifying the most appropriate species for your farm soil types and rainfall.

An offer will then be made for the use of the land, which will vary depending on the location and the range of available species options for that area. Depending on the package, you may have an option to receive an up-front lump sum or a regular annuity over the expected tree crop rotation, which will vary, depending on the species to be planted. You might also be offered a share of the profits of harvesting activities.

You have a number of options regarding the management of the tree farming operation. The FPC can take care of the management for you, or you can potentially take on certain operations, such as site preparation, planting, pruning and spraying yourself, which can provide additional income from the project.

Farmers carrying out operations receive training, advice, assistance and safety inductions from qualified FPC personnel.

After your initial commitment of land, you can apply to expand the areas allocated to tree farming on a year-by-year basis.

Essentially, the project has been structured to make it easy and profitable for landholders to participate, in the format best suited to their individual circumstances.

#### KEY POINT:

Many farmers who committed to tree farming in its earlier years have allocated more land to tree farming each year. If you are considering trees on your farm, we advise contacting the FPC early in your planning to arrange an obligation free appraisal of your land.

For further information please call the FPC's strategic tree farming infoline on **1800 241 688** or visit our website at **[www.fpc.wa.gov.au/stf](http://www.fpc.wa.gov.au/stf)**.

Alternatively please see the back cover to locate your local FPC office.

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FOR FURTHER INFORMATION PLEASE CALL FPC'S  
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