Natural Heritage Trust and the National Action Plan for Salinity and Water Quality

Farm Forestry’s Role
As the Australian Government Minister for Fisheries, Forestry and Conservation, I am actively involved in the National Action Plan for Salinity and Water Quality (the NAP), and the Natural Heritage Trust Extension (the Trust Extension).

These programs promote the role of trees within the rural landscape to improve biodiversity, agricultural productivity and water quality, and reduce the effects of salinity. Farm forestry incorporates commercial tree growing in farming systems. It takes many forms, including timber belts, plantations, woodlots, wide spaced tree plantings and the sustainable management of existing stands of native vegetation.

The regional natural resource management (NRM) planning process of the Trust Extension and the NAP gives regional bodies the opportunity to embrace the multiple benefits of farm forestry. The Australian Government’s recent shift from national to regional investment of public funds for NRM empowers communities to work together to combat their environmental problems. Farm forestry development strategies have the potential to address many of the NRM issues a region faces, and also create an income stream for landholders who put them into practice.

However, the Trust Extension and the NAP have only limited funds. In many cases, landholders, the private sector and the wider community will need to make added investments to implement successful strategies to overcome identified NRM problems. The commercial returns from farm forestry make it an excellent NRM tool to leverage private investment.

I urge landholders, regional bodies and private industry to embrace farm forestry as part of the Trust Extension and the NAP. Through these programs, industry can work in partnership with the community to develop commercially viable industries that provide real environmental returns.

One example of this lies in the Narrogin region, in the Western Australian wheatbelt, where farmers are planting oil mallees to address salinity and water table issues, while at the same time creating new industries. In this region, the Oil Mallee Association markets wood and non-wood products from oil mallee farm forestry. The success of the project has been built upon matching multiple NRM benefits with enterprise development, with landholders having a commercial incentive to address land degradation issues. A combination of public and private investment has made this possible.

Farm forestry has an important role in helping tackle the land and water degradation issues affecting Australian agriculture, the environment and our biodiversity. Regional planning offers communities the opportunity to realise the multiple benefits of forestry and make it an integral part of managing the region’s unique natural resources.

This booklet supports the Government’s policy of communicating more broadly with its key stakeholders. I trust you will find it useful.

Senator the Hon. Ian Macdonald
Australian Government Minister for Fisheries, Forestry and Conservation
September 2003
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Purpose of this Booklet

This booklet provides a guide to the benefits of farm forestry as a natural resource management (NRM) tool, and outlines how regional NRM groups can maximise the potential of farm forestry.

Farm forestry as a natural resource management tool

Farm forestry incorporates commercial tree growing into farming systems, and includes plantations and native forests on farms. By careful planning and location in the landscape, farm forestry can:

- simultaneously address multiple NRM issues, making it a cost-effective public investment
- provide landholders with an alternative source of income from wood and non-wood products
- improve agricultural production by providing shelter for livestock and crops

Incorporating farm forestry within regional NRM planning and investment frameworks

Farm forestry offers a significant opportunity to leverage private investment in public-good natural resource management outcomes. To maximise its potential benefits, NRM groups need to incorporate farm forestry within regional NRM plans and investment strategies. This booklet provides guidance on the approaches and strategies that can be developed.

National Action Plan for Salinity and Water Quality, Natural Heritage Trust Extension and farm forestry

The programs of the National Action Plan for Salinity and Water Quality and the Natural Heritage Trust Extension can provide support for farm forestry activities. The booklet contains an outline of the programs’ requirements and their relevance to farm forestry.

Accessing farm forestry expertise and literature

The list of contacts and publications (pages 14-16) can help your NRM group maximise the potential NRM benefits of farm forestry in your region.

If you would like more information, contact

Farm Forestry
Web: www.affa.gov.au/forestry
Telephone: (02) 6272 5865
e-mail: forestry.contact@affa.gov.au

Natural Heritage Trust
Web: www.nht.gov.au
Telephone: 1800 065 823
e-mail: nht@ea.gov.au

National Action Plan for Salinity and Water Quality
Web: www.napswq.gov.au
Telephone: 1800 026 222
e-mail: napswq@affa.gov.au
Farm Forestry’s Role in Natural Resource Management

The Australian Government recognises the important role trees play in promoting sustainable natural resource management (NRM) in agricultural landscapes while providing real returns to landholders.

What is farm forestry?

Farm forestry incorporates commercial tree growing into farming systems. It takes many forms, including timber belts, plantations, woodlots, wide-spaced tree plantings and the sustainable management of existing stands of native vegetation.

Farm forestry is the result of a landholder’s decision to practise forestry. What it looks like and how it performs will depend on interests, resources and opportunities facing landholders involved and their ability to design and manage their forests effectively.

Key NRM issues that farm forestry can help with

• salinity
• water quality
• habitat restoration/revegetation
• soil management
• waste water management

With careful planning and management, farm forestry can play an important role in addressing all of these issues.

Why use farm forestry for NRM?

1. Capacity to address multiple NRM issues simultaneously, therefore cost-effective public investment.

2. Commercially viable NRM – encourages uptake with landholders, and therefore private investment partnerships in public-good NRM.

To realise this potential requires careful planning, management and implementation, and strategies developed through regional NRM planning.

Capacity to address multiple NRM issues

“We are now more aware that natural resource deterioration is best tackled on a catchment-wide basis. We also understand the value of trees and native vegetation in controlling water tables and erosion and their importance for biodiversity.”

Farm forestry is part of the revegetation/vegetation management spectrum. As with most revegetation/vegetation management strategies, farm forestry uses trees to address the environmental problems Australia is facing.

One of Australia’s greatest challenges is the way we manage our natural resources – our soil, water, plants and animals. Ensuring the ecologically sustainable management of Australia’s natural resources is a critical issue if we are to maintain the health of our environment, conserve our biodiversity and continue to be a major agricultural producer and exporter.

Commercially viable NRM

One of the greatest challenges faced by landholders is implementing NRM strategies that maximise their income.

Landholders face the challenge of carrying out NRM strategies that maximise their income. This is a significant challenge, as landholders operate in a world with increasing threats to natural resources and decreasing returns on traditional agriculture.

Farm forestry provides distinct advantages over other revegetation/vegetation management strategies. Landholders adopting farm forestry activities:

• address environmental problems (eg salinity or erosion)
• gain an income from this activity (eg from the sale of forestry products)
• improve returns from traditional agricultural products (eg increased production from shelter for livestock and crops)

During the past decade, landholders and community groups all over Australia have invested significant effort in planting trees and other plants in revegetation and forestry projects. The National Farm Forestry Inventory reports the planting of more than 65,000 hectares in farm forestry activities.

Farm forestry allows landholders to address environmental problems without taking land out of production, as required by many other management options.

In 2000, the Natural Heritage Trust funded Landcare and Farm Forestry, Providing a basis for better resource management, a research report, undertaken by ABARE. A survey undertaken for this report asked landholders with three or more environmental problems on their farms, what the main roles of trees were:

Planted trees

- 13 per cent were for commercial purposes
- 66 per cent were for environmental purposes

Native forests and woodlands

- 24 per cent were for commercial purposes
- 47 per cent were for environmental purposes

Many of the landholders who planted trees for an environmental purpose listed financial reasons as the main factor that would encourage an expansion in their farm forestry activities.

When revegetation/vegetation management is established with a farm forestry focus, the landholder can address environmental problems and generate income that can offset the cost of establishing and maintaining vegetation.

CASE STUDY

**Arresting the loss of farmland**

Farmers in Victoria’s Benalla region integrated farm forestry into their catchment strategy to arrest the loss of farmland to waterlogging and salinity, and increase longer-term agricultural productivity.

Much planning was undertaken to ensure a strategy was put in place that would see positive environmental results, as well as economical returns. The catchment has carried out break-of-slope plantings to intercept ground water, and created wide belts at the base of slopes to prevent rising saline water. Understanding the hydrology of the region was a key means of successfully integrating farm forestry.

The farmers believe the shelter and land protection gained from planting trees has already provided considerable benefits to their farm and neighbouring properties. These efforts have already reduced waterlogging, with water tables under areas of trees being lowered between one and six metres.

**Mallee as a large scale crop for the wheatbelt**

Development of mallee as a tree crop for the WA wheatbelt has advanced to the stage of operational testing of processing. An S8 million demonstration scale facility (20,000 t/yr of biomass) has been built at Narrogin, 200 km south east of Perth, to test the ‘integrated processing’ concept. A feasibility study showed the concurrent production of three products (eucalyptus oil, activated carbon and electricity) would open large market volume and strong revenues as well as pay growers a price for mallee feedstock competitive with other land-use options. Market analysis shows that 9 full-scale plants (100 000 tonnes/year) could be constructed in the WA wheatbelt.

The Narrogin plant is the culmination of a decades work. Mallee development was motivated by recognition that unless tree crops are commercially viable they will never be adopted on the scale necessary to control salinity. Farmers managed the field production side of the emerging industry. It attracted contributions from many sources, including the WA Department of Conservation and Land Management and the Australian Government Department of Agriculture, Fisheries and Forestry - Farm Forestry Program.

**Key Points:**

- Farm forestry is part of the revegetation/vegetation management spectrum.
- Farm forestry can address multiple NRM issues while providing an income source for the landholder.
- Careful planning and management is critical to realising the potential of farm forestry in NRM.
- The Australian government sees farm forestry as an important tool to address many environmental problems faced by Australia.
- The commercial aspect of farm forestry makes it an attractive NRM too for landholders, the government and investors.
- Farm forestry includes the management of plantations and native forest stands for commercial and environmental outcomes.
Maximising the potential benefits of farm forestry requires careful planning. Farm forestry needs to be incorporated within regional NRM plans and investment strategies to:

- Ensure the right trees are planted in the right places in the landscape to maximise their multiple benefits. Regional NRM plans provide the ideal vehicle to identify and develop farm forestry options to maximise environmental benefits.
- Support and encourage landholders to ensure the success of farm forestry activities. Like other NRM activities, farm forestry requires major investments of time, money and technical expertise. Regional investment strategies need to identify the support required to make farm forestry a success.

Farm Forestry in the Regional NRM Planning and Investment Framework

Farm forestry in regional NRM plans

How can farm forestry be incorporated within regional NRM plans?

To fulfil the requirements of the National Targets and Standards Framework, regional NRM planning will generally include analyses of land capability and resource condition. These regional analyses are an important part of the strategic identification of areas where farm forestry may have particular benefit as an NRM tool. Regional NRM groups need to call on farm forestry expertise to match potential projects to wanted NRM outcomes, and use the information in a regional context.

The Primary Industries Ministerial Council (PIMC) supports this approach of matching regional NRM information with potential forestry projects. At its 10 April 2003 meeting,

“the PIMC agreed on the need to identify areas with plantation potential and where revegetation would yield the greatest environmental benefit”. They also “supported work to identify how to confer value on (forestry) services, including how public funds might be used to leverage private investment”.

How can farm forestry be used to achieve NRM outcomes?

The following are examples of farm forestry projects that could be incorporated within regional NRM plans:

- Salinity mitigation from appropriately sited plantations, based on hydrological modelling and land capability analysis of the region.
- Alley cropping with nitrogen-fixing tree species to assist soil management.
- Development of firewood plantations to replace harvesting of native vegetation. Coppice management retains firewood plantations in the landscape for the long term.
- Development of medium-term rotation wide-spaced eucalypt sawlog plantations to extend native habitat for biodiversity.
- Use of farm forestry non-native species as ‘pioneer plantings’ in areas where revegetation with native species has been proven unsuccessful. The production aspect of farm forestry makes these plantings viable for landholders, encouraging uptake.
- Woodlots irrigated with wastewater to help with waste management.
- Growth of plantations for multiple non-wood products: e.g. oil mallees, biomass fuel and activated carbon to provide renewable energy.

Carefully designed and located projects, can provide multiple NRM benefits. For example, alley plantings assists salinity mitigation and soil management. Oil mallees have been widely and successfully used in the low-rainfall, salinity-affected region of the Western Australian wheat-belt for these purposes.

In most regions, key NRM projects will need to be carried out on private land. This means designing projects to meet landholder needs as well as deliver NRM outcomes.

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Supporting farm forestry through regional NRM investment strategies

Like all NRM activities, farm forestry requires investment in time, money and technical expertise to be successful. Once a regional NRM plan has identified strategies for placing trees in the landscape, consideration needs to be given to how to carry it out.

An investment partnership

Revegetation and management of existing native vegetation are critical parts of the solution to addressing Australia's environmental problems. To protect Australia's environment and the future of our natural resources, governments and the community must work together to put in place complementary strategies. By collectively tackling major issues such as salinity, declining water quality and biodiversity loss, Australia will not only reap environmental but major social and economic rewards.

Better management of our native vegetation requires a coordinated effort from all levels of government, private landholders, industry and the broader community. Farm forestry provides a viable means of realising these rewards.

Continued support for farm forestry is seen as critical. Tree crops can provide environmental benefits as well as economic returns, which can used to leverage private investment. This is one of the reasons why farm forestry is seen as an important element of the National Action Plan for Salinity and Water Quality (the NAP) and the Natural Heritage Trust Extension (the Trust Extension).

The Australian Government sees farm forestry as an important element of the NAP and the Trust Extension

The catchment/region level is the most effective scale to engage the community in addressing natural resource problems and priorities. Assistance to combat the identified problems and priorities is provided to local communities in the context of wider regional objectives through the NAP and the Trust Extension.

The benefits from effective and comprehensive farm forestry activities will accrue across society and the economy – including in the environmental, economic, cultural, scientific, agricultural and urban spheres – and will continue to increase for future generations of Australians.

Incentives for landholders

The 2000 study Landcare and Farm Forestry, Providing a basis for better resource management, recognised that one of the major factors that would encourage landholders to implement a vegetation management strategy is financial incentives.

Farm forestry establishment costs are about $1,000 a hectare and, in most cases, landholders will also need to invest in appropriate fencing around the plantation.

Access to technical support is critical to establishing effective farm forestry (see ‘Accessing Farm Forestry Expertise and Literature’ page 14, for more information).

Cost-effective investment

In a media release in October 2002, the Minister for the Environment and Heritage, Dr David Kemp said:

"60 to 80 per cent of some catchments may need to be revegetated because of dryland salinity. The scale of this task, not to mention the cost, is far too large to be covered by volunteer and publicly funded activities alone."

Australian Government funding to address environmental problems under the NAP and the Trust Extension is limited. For this reason, it is important for regions and landholders to implement solutions that represent the most cost-effective expenditure of available funds. This is consistent with the shift toward regional planning.

Because a single planting can provide multiple NRM benefits, farm forestry is a cost-effective option for regions considering revegetation/vegetation management to combat environmental problems as part of its regional natural resource management (NRM) plan.

Farm forestry enables the individual landholder to establish an additional source of income while implementing strategies to address environmental problems in the region. While income streams are most commonly associated with the production of timber-related products, farm forestry can also enhance income from traditional agriculture.

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Farm forestry is an essential activity to consider in regional NRM plans as it addresses environmental problems while providing economic returns.

For example, two shelter studies conducted in the Northern Tablelands area near Armidale have shown wool production increases in excess of 30% for sheep in sheltered areas. Researchers concluded that investment in windbreak development would thus appear to be justified economically on the basis of increased wool production alone.

Future trading opportunities

Market-Based Instruments (MBIs) are a promising new addition to the natural resource management toolbox. However, significant knowledge gaps have limited our ability to use MBIs. The National MBI Pilots Program seeks to increase Australia’s capacity to use MBIs in managing natural resource issues, especially to address the problem of salinity and water quality problems. Go to www.napsqw.gov.au/about/mbi.html for more information.

There are no substantial markets in Australia for MBIs provided by farm forestry. However, studies conclude there are opportunities in Australia to develop MBIs. The following are examples of markets that may be developed under the National MBI Pilots Program.

MBIs that farm forestry could potentially provide include: carbon credits, based on carbon sequestered by plantations; salinity credits, based on the positive impact of plantations on dryland and irrigation salinity; water filtration credits, based on farm forestry reducing salt, excess nutrients and turbidity in our waterways; and biodiversity credits, where farm forestry activities maintain and restore a region’s natural flora and fauna.

Credits produced by farm forestry could be traded as environmental services. Potential customers may include a manufacturer for the purchase of carbon credits, a downstream landholder for salinity credits, local government for water filtration credits and a philanthropic investor for biodiversity credits.

MBIs will play an important role in encouraging industry investment. They may use 'cap and trade' schemes, auctions to buy environmental services, and strategic information disclosure mechanisms to encourage improved natural resource management through market signals, rather than only through legislation or regulation.

In a joint media release in October 2002, the Australian Government Ministers for Fisheries, Forestry and Conservation, Senator Ian Macdonald, and the Environment and Heritage, Dr David Kemp, said:

“Australia’s farm forestry sector is showing how it’s possible to provide a valuable income source for investors and landholders, while at the same time helping to address many of Australia’s most serious, long-term environmental issues.”

Establishing trees on Australian farms has never had the support it has today. Past land-clearing practices put at risk farm productivity, water quality and Australia’s unique biodiversity. The risk has generated extraordinary government and community support for revegetation, highlighting the importance many Australians place on the environmental, economic and social benefits of revegetation.

<table>
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<th>Commodity</th>
<th>% of farm business</th>
<th>Potential client</th>
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</thead>
<tbody>
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<td>35</td>
<td>World market</td>
</tr>
<tr>
<td>Wool</td>
<td>15</td>
<td>World market</td>
</tr>
<tr>
<td>Timber</td>
<td>10</td>
<td>Specialty and world market</td>
</tr>
<tr>
<td>Electricity</td>
<td>15</td>
<td>Power company</td>
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<tr>
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<td>Salinity credits</td>
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<td>Catchment management authority</td>
</tr>
<tr>
<td>Water filtration credits</td>
<td>7.5</td>
<td>Urban water authority</td>
</tr>
<tr>
<td>Biodiversity credits</td>
<td>2.5</td>
<td>Philanthropic trust</td>
</tr>
</tbody>
</table>

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Natural Heritage Trust Extension

In the 2001 Budget, the Australian Government extended the Natural Heritage Trust for another five years. The Australian Government is negotiating bilateral agreements with states and territories to match their investment in the delivery of the Trust Extension.

Farm forestry is an eligible activity as it meets the goals of the Trust Extension Landcare program, as well as addressing Bushcare and Rivercare programs.

Following community and government consultation, the number of programs has been streamlined from 23 under the first phase of the Natural Heritage Trust to four core programs under the Trust extension. The investment programs are:

- **Landcare** – activities that contribute to reversing land degradation and promoting sustainable agriculture.
- **Bushcare** – activities that contribute to conserving and restoring habitat for the native flora and fauna that underpin the health of the landscape.
- **Rivercare** – activities that contribute to improved water quality and environmental conditions in river systems and wetlands.
- **Coastcare** – activities that contribute to protecting coastal catchments, ecosystems and the marine environment.

How does farm forestry relate to the Trust Extension?

“Farm forestry represents a unique opportunity for integration of agricultural and forestry enterprises with biodiversity conservation and the long-term protection and management of environmental resources…. Such approaches ensure integrated treatment of natural resource management and commercial production issues.”

Farm forestry is an effective strategy for meeting the goals of the Trust Extension, especially those of the Landcare Program:

- to improve land use by optimising farm productivity and direct returns
- to reverse land degradation through well planned planting
- to promote sustainable agriculture by integrating into existing farming systems the commercial and environmental benefits of tree planting

It can also contribute significantly to the aims of the Bushcare and Rivercare programs through its focus on the multiple benefits of tree planting and management, including biodiversity conservation, and alleviation of salinity and waterlogging at the landscape scale.

The Trust Extension has three overarching objectives: biodiversity conservation, sustainable use of natural resources, and community capacity building and institutional change. This is consistent with the Trust Extension’s fundamental shift towards more strategic investment.

Farm forestry activities can prevent the further deterioration of natural resources, and return previously degraded and unusable resources to a productive level.

Because of the multiple environmental, economic, social and natural resource benefits farm forestry delivers, it addresses each of the Trust Extension’s objectives. The following are some of the ways it relates to the Trust Extension’s objectives.

Biodiversity conservation

Farm forestry promotes the conservation of Australia’s biodiversity. It can be managed to create an environment that will encourage the return of native fauna, and promote the growth of flora in its understorey. Farm forestry also performs a water-filtration role, which will help to improve aquatic environments within the catchment.

Sustainable use of natural resources

Farm forestry contributes to the sustainable use of the region’s natural resources. It promotes the better management of native stands of private forests, and the strategic incorporation of plantations to address natural resource deterioration problems, such as salinity, erosion, turbidity and waterlogging.

Over time, farm forestry activities can help prevent the further deterioration of the region’s land and water resources, and reverse degradation effects, returning previously unusable resources to a productive level.
The shelter it provides can increase yields from traditional agriculture, such as livestock and crops, potentially providing higher returns from the land.

When developing strategies to combat environmental problems, regions should consider the multiple benefits that farm forestry provides over other revegetation/vegetation management strategies.

Community capacity building and institutional change

Farm forestry strategies and plans support individuals, landholders, industry and communities. Strategies and plans help develop the skills, knowledge, information and institutional frameworks necessary to manage farm forestry to promote biodiversity conservation and sustainable resource use and management within regions.

Trees have long been viewed as a non-economically viable option for farms. Government and industry are challenging this view by identifying the multiple benefits farm forestry can bring when incorporated into a farming system. In addition, government and industry are investing in research to investigate and establish markets for pre and post-harvest farm forest products.

The Trust Extension programs

Funds for farm forestry can be applied for through the Trust Extension. The following outlines the three levels of funds allocation that are part of the Trust Extension. For further information on the Trust Extension’s programs, go to www.nht.gov.au.

The Australian Government Envirofund

Farm Forestry projects will be funded by Envirofund, as long as the proposed project meets the guidelines laid down in Envirofund’s accreditation requirements. Individuals, incorporated community groups and sponsored unincorporated community groups can apply for funding for farm forestry projects up to the value of $30,000.

Regional investments

Regional investments are the main mechanism for funds delivery under the Trust Extension through accredited NRM Plans. NRM plans are developed by the region’s Catchment Management Board (or equivalent body) and use a ‘whole-of-region’ approach, drawing on expertise from various stakeholders.

Trees can address many of a region’s environmental problems. When developing the NRM Plan and Investment Strategies, regions should consider the multiple benefits farm forestry can provide over other revegetation/vegetation management plans. Farm forestry promotes biodiversity conservation, improvement of land and water quality, and the sustainable use of natural resources and, at the same time, provides an alternative source of farm income.

National/state investments

National/state investments will cover activities with a national or state focus, as well as those that cross over state and regional boundaries and are best dealt with on a broader scale. They also address matters of direct Commonwealth jurisdiction, such as Commonwealth land and water.

Several projects undertaken at a national/state level can help regions incorporate farm forestry into their NRM plans. For example, the Joint Venture Agroforestry Program (JVAP) has conducted extensive research into many aspects of farm forestry. There is also considerable investment being directed toward investigating market-based instruments, through projects such as the CSIRO’s Ecosystem Services Project.

The National Action Plan for Salinity and Water Quality

The National Action Plan for Salinity and Water Quality (the NAP) is a strategy to tackle salinity and improve water quality in some of Australia’s worst affected areas.

The NAP supports regional communities and landholders in carrying out targeted action in catchments or regions that are affected by salinity or at great risk. The Australian Government and state and territory governments endorsed the NAP in 2000 and committed $1.4 billion over the following 7-year period.

The scale of action needed to redress the salinity threat, or to make a meaningful difference in fighting it, is daunting. The National Land and Water Resources Audit found that about 5 million hectares of Australia’s agricultural or pastoral zone were at risk, and this figure could treble to 17 million hectares in 50 years.

Salinity and water issues the NAP seeks to combat include:

- Dryland salinity caused by the rising watertable in areas of over-cleared land.
- Irrigation salinity, which occurs when irrigation water soaks through the soil to where the plant roots grow, adding to the existing watertable, causing the underground watertable to rise and bringing salt to the surface.
- Excessive levels of surface water nutrients, which increase algae and pest plants that can choke waterways and severely disrupt natural ecosystems.
- Excessive turbidity levels that can affect natural aquatic ecosystems, increase wear on equipment and water reticulation systems, and make water undrinkable.

How does farm forestry relate to the NAP?

"Concentrated action by governments and communities needs to lead to land use change supported by the application of scientific advances in mapping salinity, targeted tree planting and new cropping systems to manage salinity and water quality, and selective engineering solutions."’

When strategically integrated into the farming system, farm forestry activities can help combat salinity and water quality problems, and also provide an additional source of farm income.

Historically, trees have been viewed as a less profitable option than traditional agriculture. For this reason, farm forestry – as part of a NAP region’s Catchment Management Plan – aims to:

- achieve the best salinity and water quality controls with the least displacement of valuable agricultural land
- maximise the profitability of pre- and post-harvest tree products

An underlying cause of Australia’s salinity and water quality problems is the change in water balance that has occurred in response to land water change. Past land-clearing practices have contributed to these problems.

Trees are most useful when strategically located in accordance with known landscape and groundwater flow attributes. In other words, forestry can be used for recharge management and groundwater interception when dealing with salinity and water quality issues.

Design guidelines for farm forestry activities for salinity management must first recognise the type of catchment-climate combination under consideration.

Based on knowledge of the type of local groundwater flow system, generalities about the interaction between trees, soil and climate can be used to recommend the type and scale of revegetation appropriate for controlling dryland salinity.

Where the causes of dryland salinity are linked to specific groundwater behaviour, strategic replacement of deep-rooted perennials may slow the spread of salinity and, in some cases, even mitigate damage.

Farm forestry plays an important role in land remediation, while providing an income for the landholder.

This means that trees need to be strategically planted to achieve multiple environmental benefits. To successfully integrate farm forestry into the landscape to combat salinity and water quality issues, it is important to:

- Understand the catchment-scale salt and water balance
- Assess the costs and benefits of the farm forestry activity
- Determine the optimal area, location and arrangement for revegetation
- Find commercially viable perennials
- Capture the multiple benefits of farm forestry

Farm forestry offers great potential for improving water and land quality in farming systems and catchments affected by, or at risk from, salinity and water quality issues. For this reason, it is important to consider farm forestry activities in a NAP region Catchment Management Plan.

**Key Points:**

- Farm forestry is an eligible activity of the Trust Extension, as it addresses the goals of the Landcare, Bushcare and Rivercare programs.
- Tree species used for farm forestry play an important role in addressing salinity and watertable issues as part of the NAP.
- Farm forestry has positive impacts on biodiversity conservation, promotes the sustainable use of natural resources and encourages community capacity building and institutional change.
- Funding is available for farm forestry through the NAP and the Trust Extension activities at local, regional and national levels.
- The Australian Government is investing in research and programs to enhance and develop markets for farm forestry activities.


*Stirzaker, Vertessy & Sarre, 2002, Trees, Water and Salt, Joint Venture Agroforestry Program, Canberra, Australia*
Funding programs - the Trust Extension and the NAP

When setting standards and targets for NRM plans they are developing, regional bodies are responsible for “Undertaking a process of NRM planning and target-setting which draws on relevant environmental, social and economic information and expertise as well as wide stakeholder consultation, existing targets and target setting processes, and includes appropriate and agreed regional solutions to NRM problems.”

Expertise

Since its inception in 1993, an extensive network has emerged of farm forestry groups and activities that are key sources of farm forestry environmental, social and economic information and expertise. Sources of information include:

**Australian Forest Growers**
Tel: (02) 6285 3833  
Email: national.office@afg.asn.au  
Web: http://www.afg.asn.au

**Australian Government Department of Agriculture, Fisheries and Forestry**
Tel: (02) 6272 5865  
Email: forestry.contact@affa.gov.au  
Web: http://www.affa.gov.au/forestry

**State Forestry Contacts**

- **Australian Capital Territory**  
  Tel: (02) 6207 2486

- **New South Wales**  
  Tel: (02) 9228 3880

- **Northern Territory**  
  Tel: (08) 8999 2316

- **Queensland**  
  Tel: 132 523

- **South Australia**  
  Tel: (08) 8724 2888

- **Tasmania**  
  Tel: (03) 6336 5300

- **Victoria**  
  Tel: 136 186

- **Western Australia**  
  Tel: (08) 9368 3333

Computer programs have been created, such as the Farm Forestry Toolbox developed by Private Forests Tasmania, which contain user-friendly programs and information to help manage farm forestry activities. For more information on the Toolbox, go to www.privateforests.tas.gov.au

Further Reading

**Rural Industries Research & Development Corporation, Joint Venture Agroforestry Program (JVAP) publications:**
Tel: (02) 6272 4539  
Web: www.rirdc.gov.au/fullreports

- Design Principles for Farm Forestry – A Guide to Assist Farmers to Decide Where to Place Trees and Farm Plantations on Farms (1997)
- Evaluation of the Agroforestry and Farm Forestry Program – An overview of all Projects, stage 1 (2003)
- Impact of Trees and Fodder Shrubs on Soil Acidification (1999)
- Innovative use of Farm Trees – Australian Marketing Experiences (2002)
- Making Farm Forestry Pay – Selling the Environmental Services of Farm Forestry (2002)
- Phase Farming with Trees (2000)
- Plantation Design and Biodiversity Conservation (2002)
- Practical Farm Forestry – Whole Farm Case Studies (1999)
- Socio-economic Research to Support Successful Farm Forestry (2000)
- The Farmers Forest – Multipurpose Forestry for Australian Farmers

**Other Publications**

- Getting Started in Farm Forestry  
  Available from Australian Forest Growers  
  Tel:(02) 6285 3833

- Landcare and Farm Forestry (2000)  
  Available from ABARE  
  Tel:(02) 6272 2000

- The Farmers Forest  
  Available from the Master TreeGrower Program  
  Tel: (03) 8344 5011

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Useful Contacts

National/Australian Government
Australian Government Department of Agriculture, Fisheries and Forestry
Forest Industries
http://www.affa.gov.au/forestry
Tel: (02) 6272 5865

Murray-Darling Basin Commission
http://www.mdbc.gov.au
Tel: (02) 6279 0100

Natural Resource Management
http://www.ca.gov.au/nrm/
Tel: (02) 6274 1111

Natural Heritage Trust (the Trust Extension)
http://www.nht.gov.au
Tel: 1800 026 823

National Action Plan for Salinity and Water Quality (NAP)
http://www.napsq.gov.au
Tel: 1800 026 222

National Dryland Salinity Program (NDSP)
http://www.ndsp.gov.au
Tel: (02) 6257 3379

National Land and Water Resources Audit
http://www.nlwra.gov.au
Tel: (02) 6257 9516

Plantations for Australia - Vision 2020
Tel: (02) 6285 3833

State/Territory Governments

New South Wales:
NSW Agriculture
http://www.agr.nsw.gov.au
Pathway: Natural Resources & Climate > Farm Forestry
Tel: (02) 6763 1100

NSW Office of Private Forestry (OPF)
http://www.opf.nsw.gov.au
Tel: (02) 9228 6437

State Forests of NSW
http://www.forest.nsw.gov.au
Tel: 9980 4100

Northern Territory:
NT Department of Business, Industry and Resource Development
Tel: (08) 8999 2316

Queensland:
QLD Department of Primary Industries
http://www.dpi.qld.gov.au
Pathway: Forestry Timber & Wood
Tel: 132 523

Forestry in Queensland
Tel: 132 523

South Australia:
Natural Resource Management Services
Department of Water, Land and Biodiversity
http://sustainableresources.pir.sa.gov.au
Pathway: Revegetation > Farming > Farm Forestry
Tel: (08) 8531 1420

Forestry SA
http://www.forestry.sa.gov.au
Tel: (08) 8724 2888

Tasmania:
Private Forests Tasmania (PFT)
http://www.privateforests.tas.gov.au
Tel: (03) 6336 5300

Natural Heritage Trust Unit Tasmania
http://www.nht.tas.gov.au
Tel: (03) 6233 3019

Victoria:
VIC Department of Sustainability and Environment: Forestry
http://www.dse.vic.gov.au
Pathway: Forestry > Private Forestry
Tel: 136 186

Western Australia:
WA Department of Agriculture
http://www.agric.wa.gov.au
Pathway: Environment > Farm Forestry
Tel: (08) 9368 3333

Forest Products Commission
http://www.fpc.wa.gov.au
Tel: (08) 9475 8888

Research & Development

Cooperative Research Centre for Sustainable Production Forestry
http://www.forestry.crc.org.au/
Tel: (03) 6226 7947

CSIRO: Ecosystem Services Project
http://www.ecosystemservicesproject.org
Tel: (02) 6242 1600

CSIRO: Forestry & Forest Products
http://www.ffp.csiro.au
Tel: (02) 6281 8211

Forest and Wood Products Research and Development Corporation (FWPRDC)
Tel: (03) 9614 7544

The National Market-based Instruments Pilots Program
Tel: (02) 9228 6254

Rural Industries Research and Development Corporation (RIRDC)
http://www.rirdc.gov.au
Tel: (02) 6272 4539

RIRDC Joint Venture Agroforestry Program (JVAP)

JVAP Agroforestry & Farm Trees Research Reports

JVAP Short Reports

Industry Organisations/Authorities

Australian Forest Growers (AFG)
http://www.afg.asn.au
Tel: (02) 6285 3833

Farm Forest Line
http://www.farmforestline.com.au
Tel: (02) 6232 7676

Greening Australia
http://www.greeningaustralia.org.au
Tel: (02) 6281 8585

National Association of Forest Industries (NAFI)
http://www.nafi.com.au
Tel: (02) 6285 3833

Plantations Timber Association of Australia (PTAA)
Tel: (03) 9859 2455

Forestry Tasmania
http://www.forestrytas.com.au
Tel: (03) 6233 8203

Private Forestry Development Committees (PFDCs)
http://www.affa.gov.au/forestry
Pathway: Plantations and Farm Forestry
Tel: (02) 6272 5865