



Extension note 1

Farm businesses, wool production and biodiversity



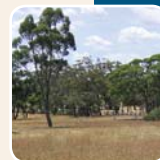
More than half of woolgrowers in Victoria have native vegetation on their land. Most native vegetation is in the form of native bush, isolated paddock trees and scattered native grasses (results from a 2004 survey undertaken by the Land, Water & Wool Benchmarking project). Many woolgrowers already manage this vegetation and its value can be improved through simple changes in management.

Recent research undertaken by the Victorian based Land Water & Wool project indicates that hill country with native grasses can be managed to produce more wool as well as better biodiversity.

The case study farms involved in this project demonstrate how biodiversity and more profitable agricultural production can occur together. Detailed financial, vegetation and agronomic assessments were a key part of the project.

...“This project has to fit in with the farmer’s personal, productivity and profit goals. First and foremost, the research has to consider maintaining a commercially viable wool growing enterprise that meets the needs of the family and the next generation of wool growers”...

Jim Moll,
‘Farm Business, wool production and biodiversity’
Project Leader.



“
the farm has to be
sustainable in every
sense of the word ...
hopefully if the next
generation wants to keep
farming, it is available
as a truly sustainable
enterprise.

Mathew Allen

Byawatha/Springhurst
woolgrower

”



Can farms still be profitable if they are managed for biodiversity?



YES, according to results from 14 wool growing properties in central & northern Victoria (including farms at Broadford & Violet Town, which were involved in a related project, with similar results).

Great opportunities are available to achieve significant biodiversity gains within profitable farm businesses.

Property management can be fine-tuned to improve both biodiversity and wool profits. This can be practically implemented through the following management strategies:

1. Deferred grazing of hill country over summer months (refer to Information Note 2. How can managing hill country be more profitable?).

Deferred grazing can conservatively increase stocking rates by between 25% and 50% within 3 years on hill country currently carrying less than 8 DSE/ha. Stocking rates have also known to be doubled under deferred grazing regimes. If the carrying capacity was increased by 50% on hill country, farm profits could increased by over 30%.
2. Intensive rotational grazing of productive paddocks (refer to Information Note 2. How can managing hill country be more profitable?).

Stocking rates may be increased on the most productive paddocks to offset the cost of managing native vegetation on the more 'marginal' (low stocking rate or unstocked areas) of the farm. Undertaking a whole farm planning exercise will help identify the best paddocks or parts of the farm for adopting intensive rotational grazing, which was identified as a strategy in the 'Broadford Grazing Trial' (a long term research project aimed to demonstrate techniques to increase farm productivity).
3. Targeting soil nutrient deficiencies (refer to Information Note 2. How can managing hill country be more profitable?)

Fertiliser application (phosphorous in particular) has been shown to decrease the overall condition of native vegetation. It is therefore critical to carefully select which paddocks are to be fertilised to avoid undesirable impacts on native biodiversity. Parts of the property with native vegetation in good condition should not be fertilised. In addition, care needs to be taken with fertiliser application, especially in paddocks adjacent to waterways and areas with high native vegetation condition. However, overall biodiversity benefits are possible if targeted fertiliser application is balanced with appropriate management of native biodiversity on other parts of the farm.

The production benefits and higher stocking rates from correcting soil nutrient deficiencies on the most productive paddocks can offset costs from enhancing native biodiversity on 'marginal' parts of the farm.

4. Establishing stock shelter through natural regeneration (refer to Information Note 3. Using natural regeneration to establish shelter on wool properties).

Shelter is assumed to reduce lamb mortality by 5% per year, and off-shears mortality by 0.5% per year. DPI research has also shown that sheep require 10% less pasture to maintain body heat in cold conditions. The combined effect of these benefits is expected to generate on average an extra \$0.93 per DSE per year.

What is biodiversity?



Native vegetation contributes to water quality, landscape values and long term productivity of the land. Healthy, diverse, farming systems may be more resilient to change. A diversity of plants and animals is necessary to support the natural and the human environment. This diversity is often referred to as biodiversity.

What does biodiversity mean? How do you define it? Ask around, and it doesn't take long to realise that there are many different definitions of biodiversity.

Australians have a low awareness of the term biodiversity and a poor understanding of the concept. Biodiversity is a new term and one that we all need to be familiar with, as it affects us all and is a fundamental part of our lives and all agricultural production. Maintaining biological diversity is much more than just protecting wildlife and their habitats in nature conservation reserves – it is about improving the balance within a farm business.

Biodiversity contributes to many aspects of our lives including our health and wellbeing, our relationships with family and friends and the farm bottom line. Native vegetation and therefore biodiversity is an important aspect of land management.

Biodiversity or biological diversity is: 'the variety of life forms: the different plants, animals and micro-organisms, the genes they contain, and the ecosystems of which they form a part.'

Victoria's Biodiversity Strategy (1997).

Biodiversity is usually considered at three levels:

- genetic diversity
- species diversity
- ecosystem diversity.

Species diversity

This is the most common way people think about biodiversity, and it describes the variety of different plant and animal species in an area.

Genetic diversity

This describes the variety of genetic information contained in individual plants, animals and micro-organisms.

Ecosystem diversity

This is related to the variety of habitats and ecological processes, as well as the tremendous diversity present within ecosystems in terms of habitat differences and the variety of ecological processes. The provision of clean water, renewal of soil fertility, even the pollination of crops is all based on an understanding of ecosystem diversity.

What value is put on the services provided by nature?



Is it possible to put a value on native vegetation, water or soil? We know these components contribute to on-farm activities and recently research has been undertaken to fully quantify their contribution. These contributions that are provided by nature are called 'ecosystem services'.

Landholders are both beneficiaries and suppliers of ecosystem services. People are probably aware of the value of products such as timber that are harvested from nature. But a number of other benefits derived by having land dedicated to forests can also be identified.

The dot points below are based on a summary of the priority ecosystem services identified during an inventory of ecosystem goods and services for meat and wool properties in the Goulburn Broken Catchment. The ecosystem services listed were categorised as being critical to the future of the catchment.

- Biological control
- Erosion control, sediment retention
- Genetic resources (Genes for resistance to plant pathogens and crop pests)
- Habitats for local species (e.g. Integrated pest management)
- Nutrient cycling
- Raw materials (fodder)
- Soil formation
- Waste treatment
- Water supply

What is the replacement cost if any of the services were to be lost?

Some may appear to be free but in reality they contribute billions of dollars to the economy.

The Land, Water & Wool project has identified that farms with good cover of scattered healthy trees are

more likely to support regeneration, and that the regeneration potential is a key ecosystem service that these landscapes can offer.

Current research also suggests the loss of isolated paddock trees may be as high as 1.25% per annum. This doesn't sound a lot, but this loss can mean that over quarter of all paddock trees will disappear in the next 20 years, which can have a large impact on the health of a farm. The sooner regeneration areas are established the better, as incremental loss has the potential to considerably reduce natural regeneration opportunities and increase future costs of tree establishment.

In addition by encouraging the persistence of native perennial pastures in hilly landscapes a number of different ecosystem services (e.g. erosion control, sediment retention, nutrient cycling etc.) can be provided without expensive management techniques (e.g. sowing and fertiliser application).

“
we look after the trees and the trees help look after us ... Working in harmony with the environment is the key. We have to be responsible as the soils here are quite fragile.
”

Shane Dellavedova
Maryborough woolgrower



What are the major barriers farmers associate with having native vegetation on their property?



When talking to woolgrowers about the benefits of having native vegetation growing on their properties there are a number of issues that are commonly raised as to why native vegetation is a potential problem to farm operations.

These barriers (or discussions) tend to identify three main concerns:

- fire risk
- pest animal harbour
- weeds control and spread.

All three of these are usually linked to worries about increased levels of vegetative material, which in turn leads to an increased potential for fire and pest plant and animal spread. Central to any discussions should be the concept that areas of native vegetation should not be locked up for all time, but rather they need to be actively managed as part of general property management - with their condition monitored on a regular basis.

By adopting farming practices that incorporate native vegetation woolgrowers can work towards sustainable production and continue to reap the benefits of a healthy and productive farm.

Some practical farm operations that may reduce woolgrower concerns (fire, weeds and pest animals) and lead to well-managed properties that includes healthy native vegetation communities include:

Fire risks

- strategically graze remnants to reduce rank growth of phalaris and other dense exotic grasses and weed species
- incorporate access gates in fenced remnants
- plan for fire risk fencing remnants and establishing shelter belts
- encourage lower biomass native grasses that stay greener over summer.

Fox, cat and rabbit harbour

- be involved in community fox and rabbit baiting programs
- strategically graze fenced areas to reduce rank growth of phalaris and other dense grasses.

Weed harbour

- be proactive in weed and disease control
- look at the advantages of grazing, herbicide and burning to control both weeds as well as encourage growth of native species
- an important strategy in reducing weed harbour is strategic grazing – i.e. a couple of days a year of crash grazing (high stocking rates) for very short period of time to knock down dry grass and help prevent fire risk as well.



Are there any legal obligations for managing native vegetation?



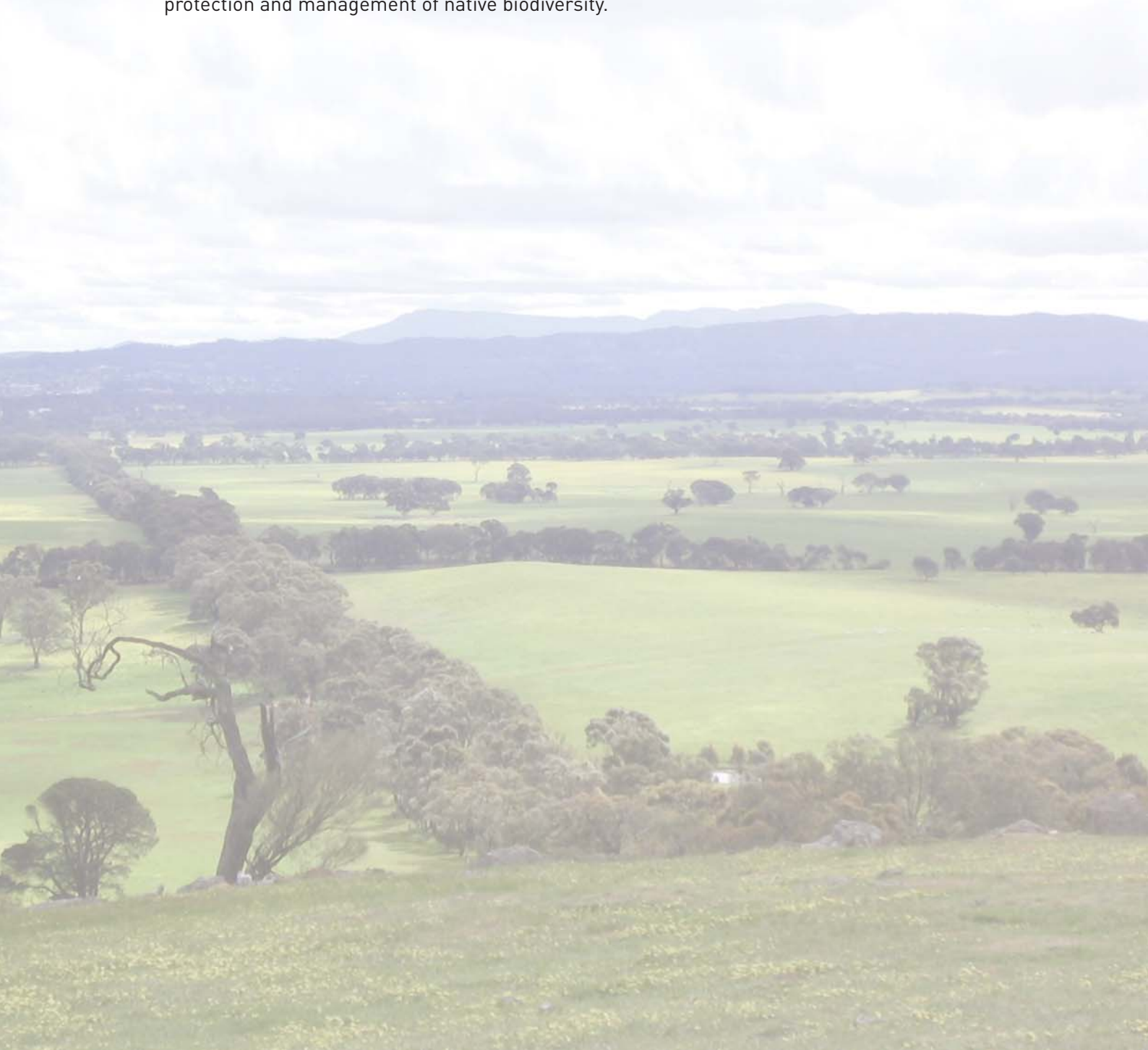
Woolgrowers (like all Victorian farmers) have a number of legal obligations for managing native vegetation on the farm, this is no different from other requirements to manage water, soil, chemicals, waste pollution, weeds and pests.

Woolgrowers need to check whether any action they wish to take, that may affect native biodiversity, is likely to have legal implications.

International, national, state and local legislation and policy has requirements for mandatory and voluntary protection and management of native biodiversity.

For more details please refer to Fact Sheet 6 Victoria's Legislation and Policies – native biodiversity in the 'Environmental Management in Agriculture: native biodiversity resource kit'

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The project



Two projects have supported the development of this extension note.

The Victorian-based Farm businesses, wool production and biodiversity project has identified productive, practical solutions for native vegetation management, incorporating the commercial aspects of wool growing and sheep breeding. The project is funded by Land Water & Wool, which is a joint investment between Australian Wool Innovation Limited, the wool industry's peak research and development body, and Land & Water Australia.

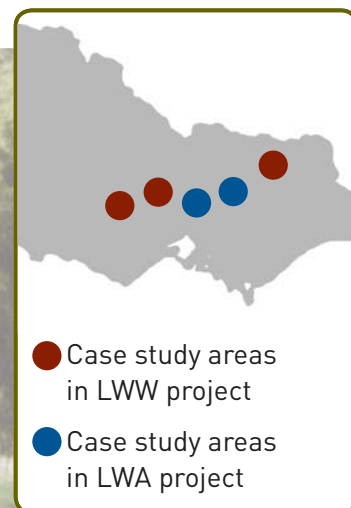
The **Managing landscapes to meet public biodiversity and farm business goals** project, funded by Land & Water Australia.

Guiding principles of these projects are that landowners will want to:

- pass the farm on to future generations in a better condition
- manage their farming systems to achieve financial, environmental and other family goals

→ be confident in knowing that farm business will not be limited by better management of biodiversity.

The research project involved seventeen case study farms throughout Victoria, including the Springhurst, Upper Goulburn, Mid Goulburn, Maryborough/Lexton, and the Ararat Hills districts. The study area is characterised as being foothill country consisting of hills, low hills and some flat country. The soil types are generally fragile or light and the substantial land clearing in the past has contributed to some large areas of soil erosion and low productivity. Native pastures and vegetation occur in much of the hill country.





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The Native Vegetation and Biodiversity sub-program of *Land, Water & Wool* has five major regional projects across eastern Australia that are bringing woolgrowers and researchers together.

For more information on these projects contact **Land, Water & Wool - Native Vegetation and Biodiversity National Coordinator,**

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- Extension Note 1** Farm businesses, wool production and biodiversity
- Extension Note 2** How can managing hill country be more profitable?
- Extension Note 3** Using natural regeneration to establish shelter on wool properties

