

Case Study — cropping and grazing

Not enough Sundays



Credit: David Fletcher, Wimmera Mail Times

KEY POINTS SUMMARY

- Reduced chemical use links production with natural environmental cycles.
- Native vegetation valued since family purchased property in 1937.
 - Extensive shelterbelt plantings.

Enterprise: CROPPING AND GRAZING

'Oaklands', Lubeck (Wimmera).
834ha; mixed farming.

Carl and Jan Loeliger. Les and Phyl Loeliger.

What triggered a reason to change?

The Loeliger's run a mixed farming enterprise in cleared cropping and grazing country outside Horsham. The farm has remnant areas of Buloke, Grey Box, Black Box and Yellow Gum vegetation. The brothers are the second generation of farmers on the property, their father had purchased the property in 1937. The early years on the property were tough, but Carl remembers family discussions about the importance of boundary plantings and an appreciation of the strong aesthetic landscape qualities of the surrounding region.

Carl and Les' parents had always valued trees; the Loeliger brothers have grown up with an appreciation of the remnant vegetation growing on the property. They have a conviction that there are links between



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“Once we started planting and saw the results we weren’t about to stop.” -

Carl Loeliger

vegetation quality and extent, and the health of the soil. This has influenced the way the family now operates the property, they have a strong commitment to maintaining soil health and a desire to leave the property in a better condition for the next generation of farmers.

What needed to change?

The family wanted to reduce the use of chemicals on the property, eliminating them entirely if they could. This wasn’t just because of economic reasons, it was linked to a personal conviction and concern about the way chemicals effected the ability of the farm to respond to natural cycles of drought and good weather.

The family sees the property as an important element in their life-long learning. They have recognised that over the last 50 years the quality of food has deteriorated and have linked this to a need to better understand the soil. Carl talks of some areas of farming practice that treat soil management more like ‘mining rather than farming’. He is interested in managing the soil for long term outcomes, and sees chemical use as a short-term fix.

Continued revegetation of paddock fence lines was seen as the solution for stock protection from cold winter winds and harsh summer conditions.

What’s changed?	What are the benefits?
20,000 trees planted, 12 – 14 kilometres of shelterbelts established.	<ul style="list-style-type: none"> • Moderation of cold winter and hot summer winds. • Improved property aesthetics • Improved working conditions. • Improved living conditions. • ‘Happier’ stock. • Improved cropping in paddocks with shelterbelts. • Habitats established for birds and small mammals.
Areas of regenerating vegetation protected.	<ul style="list-style-type: none"> • Feelings of goodwill and achievement. • Protection of rare species. • A great place to walk the dogs. • Protection of important habitat areas. • Increased understanding of the natural landscape. • Opportunities for learning and understanding of natural systems. • Re-establishment of understorey species.
Improved pasture management.	<ul style="list-style-type: none"> • Improved soil structure and fertility. • Increased disease control. • Reduction in weeds.
Reduced chemical use.	<ul style="list-style-type: none"> • Build up of good clover growth that suppresses weeds further reducing reliance on chemicals. • Increased natural nitrogen supplies from clover. • Satisfaction about reduced reliance on chemicals. • Funds available for other activities.

What has been gained?

Beginning in a small way in the 1960's, 12 –14 kilometres of shelterbelts have been established, with the benefits quickly seen and appreciated by, initially, doubting neighbours.

Some plantations have been established for timber and firewood production.

Uncertain as to the final number of trees established (they stopped counting some years ago!), an acceleration in planting activities in the early 80's has seen the brother's plant well over 20,000 trees on the property. The brothers estimate that at least 25 per cent of their time is spent planting or maintaining trees and consider this time well spent in production returns on the property. Carl argues that whilst plantings may be linked with increased farm production targets, most properties need tree plantings just to maintain current production levels.

“If we can maintain or increase our productivity while improving the environment, then this is a system we will gladly continue with.” -

Carl Loeliger

A Property Management Plan prepared in 1994 formalised their approach to farm operations, and included a reduction in paddock size, constant review of cropping rotations and establishment of perennial pastures. They currently have 125ha of perennial pastures at any one time and plan to increase this amount to provide consistent production yields in both wet and dry years.

There has been a concerted effort to plant species that create small bird and mammal habitat. The Loeligers like to dedicate Sunday afternoons to exploring and enjoying the property, and recently were excited to discover the nationally endangered *Scleroleana napiformis* (Turnip-fruit Copperburr) in a forgotten corner.

Future Plans.

Conditions during the last 7-8 years had seen an introduction of broadacre chemical spraying. In the past the Loeligers have used minimum chemicals (managed as a spot spraying regime) which had promoted the growth of healthy perennial pastures with strong clover establishment. The introduction of broadacre sprays, combined with continual cropping over the last four year, has lead to the decline in clover growth and reduced soil seed bank reserves of clover. They will review cropping cycles and return to minimal or incidental spraying to allow for clover re-establishment and self-maintaining and healthier soils.

A 'happy accident' has seen regeneration of Bulokes (*Allocasuarina luehmannii*) on the property. The Loeligers would like to experiment with property management to further understand the conditions that led to the regeneration and 'replicate the accident' to encourage additional areas of regeneration.

They will continue planting out all paddock fence lines, and will review earlier non-indigenous plantings for potential firewood sales.

They would like to increase the number of Sundays in the year.



Handy Tips

- Guard self-regenerating seedling Bulokes from hares.
- Always have unknown or strange plants identified by botanists.

Case Study — dairy

Less erosion, less stress



KEY POINTS SUMMARY

- 15% of property retired from grazing.
 - Increased stocking rate.
- Hilltops and gullies revegetated and linked with corridors.
 - Impressive production increases.
- Improved pasture performance linked to shelterbelt plantings.

Enterprise: DAIRY

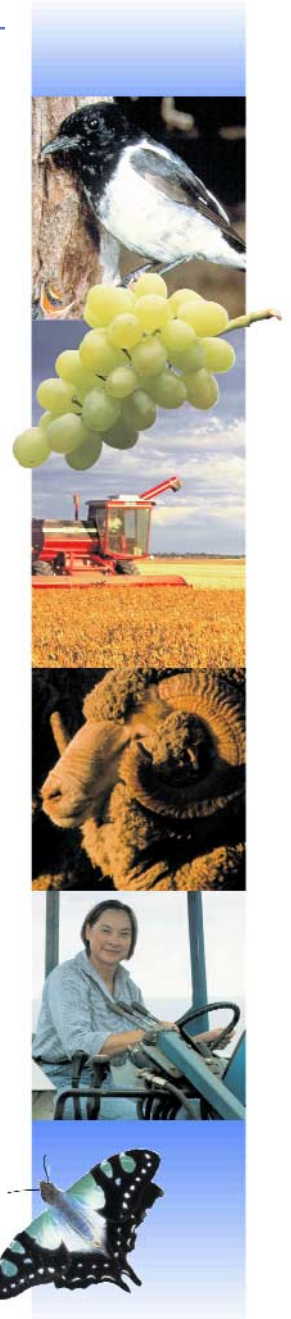
'Devon', Jeetho West (South Gippsland).
110ha dairy property.

Chris and Peta Loughridge
Tom and Sue Loughridge

What triggered a reason to change?

Jeetho West, in South Gippsland, is characterised by high rainfall, with steep, overcleared slopes. The stress created by waterlogged paddocks, icy winds and constant rain can result in stock losses and health problems – and not just for the stock but for people too!

When Tom and Sue moved to the farm in 1981 it was barren of tree cover, with areas being lost to tunnel erosion. As a young farmer, Sue's job was to check areas of heavy tunnel erosion for dead and dying calves. In one year four cows were lost in holes on the property! The distress she experienced was the key driver to repairing the land.



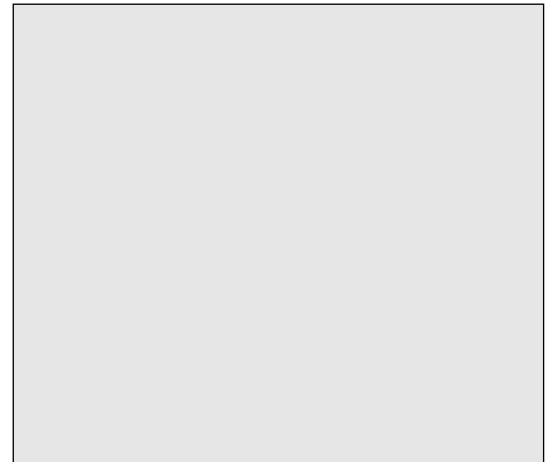
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What needed to change?

The Loughridges prepared a Whole Farm Plan that highlighted the need to control tunnel erosion and do something about providing shelter for stock and humans. With a fair amount of scepticism from some of the family and surrounding farmers, Tom and Sue started to plant trees. Within just three years neighbours were changing their opinion after starting to see the benefits.

“Trees were seen as waste of space by some neighbours who believed it was grass that put milk in the vats.”

Sue Loughridge.



What has been gained?

Planting has concentrated on the exposed and waterlogged areas of the property, with most of the hilltops and gullies being fenced and revegetated.

Since the creeks have been fenced, and tunnel erosion controlled, the property is a much safer place to work, with the added benefit of not having to pull dead and dying stock from holes in the ground. Certainly, the following generation of Loughridge farmers have never had to clamber through windswept paddocks with the dreadful expectation of finding dying stock.

There has been a concerted effort to use local plant species, even during the early years when local provenance plants were hard to come by. Growth rates in this part of the state have been amazing, with the local Blue Gum, *Eucalyptus globulus ssp. globulus*, capable of reaching 5 metres in the first year of growth.

Plantations have been linked with creeks, gullies and roadsides to create a network of wildlife corridors. There has been an increase in bird numbers, and with the maturing of the initial plantings, the odd koala, wombat and wallaby have recently been spotted in the corridor plantings.

Pastures have been renovated and refenced. The Loughridges were instrumental in founding the Jeetho West Landcare Group and 'Devon' has been a Land for Wildlife property since 1993.

Future Plans.

Tom and Sue have handed the property over to their son, the third generation on this site, and in recent years have constructed a rotary shed and upgraded or built infrastructure and sheds. The entire family is still planting trees and probably always will.

“Pasture performance is enhanced by the protection provided by the planted shelterbelts” — Tom Loughridge.

What's changed?	What are the benefits?
25,000+ (mostly indigenous species) plants established since 1982.	<ul style="list-style-type: none"> • Improved wind protection. • Improved property landscape and aesthetics. • Increase in bird populations. • Return of koalas, wallabies and wombats.
Tunnel erosion controlled.	<ul style="list-style-type: none"> • Safer working conditions. • No more stock fatalities.
Steep sites retired from production.	<ul style="list-style-type: none"> • Safer working conditions. • Soil stabilisation. • 15% of the property now under trees.
Shelterbelts established.	<ul style="list-style-type: none"> • Better working conditions for family. • Cows are less stressed in winter and hold their condition. • Summer shade means cows milk better than those exposed to the sun.
Improved stock health and production.	<ul style="list-style-type: none"> • Herd increased from 160 to 230. • Increase in butterfat production from 170kg per cow in 1982 to 240kg in 1999. • Increase in protein from 140kg per cow in 1982 to 180kg in 1999.



Handy Tips

- A long hose on the spray unit is indispensable for weed work in gullies.
- Don't scrimp when planting buffers along creek-lines, plant the largest areas you can, reduce costs by removing corners and unnecessary zigzags.
- Control blackberries immediately, don't wait for trees to establish.

Case Study — grazing Farming in harmony reaps rewards



KEY POINTS SUMMARY

- Extensive network of shelterbelts and windbreaks provides improved working conditions.
- Increased natural pest control from an increase in bird numbers.
- Reduced stocking rates and resource inputs, but productivity maintained.
- Substantial reserves of environmental capital to be used during times of extreme climate variability (drought, etc).
 - Pioneers in the field of agroforestry.

Enterprise: GRAZING

‘Lanark’, Branxholme (South West).
800ha; wool and fat lambs, some cropping and agroforestry.

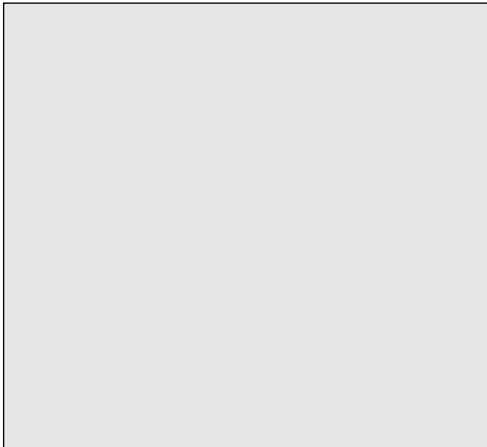
John and Cicely Fenton.

What triggered a reason to change?

Moving to the country at a young age, John saw the land with ‘fresh eyes’. He worked on a number of properties and developed a love of the land. ‘Lanark’ with its open, windswept landscape presented a contrast to John’s experience of his mother’s leafy garden. Early discussions with Johns’ future father-in-law proved a great motivation for John to improve the property and highlighted the need to do something about making the conditions more hospitable.



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Reading Rachel Carson's 'Silent Spring' caused John to give up sprays and substantially reduce the use of fertiliser. On the savings the family was able to take a holiday.

The property, like all others in the district, was badly affected by the 1967 drought and the ability for the property to recover from this major climatic event provided substantial incentives to change the way that the family managed the land.

The Fenton's personal quest to reconcile the demands of their own economic wellbeing with that of the environment has been a major driver since they purchased the property.

"If you want my daughter to stay with you on this god-forsaken place, you'll have to do something about it. John's future father-in-law and mentor (1954).

What needed to change?

The property had been extensively cleared and wetlands had been drained in the early years of European settlement. The Fenton's wanted to reinstate the natural ecosystems that had existed prior to settlement and establish a management style that worked in harmony with nature. They saw this as contributing to the long-term sustainability of the farm.

What has been gained?

More than 80,000 trees have been planted on 'Lanark' covering 11% of the property and 56 hectares of (7%) of the property (previously grazing land) has been restored to wetlands.

Having planted areas with native trees and shrubs and then left them alone for 35 years, a natural bush-like setting has developed with structural diversity.

This provides habitat for many different native animals including a variety of birds. From a total of 38 species of birds in 1956, there has been an increase to 159 in 1997. John and Cicely have estimated that a third of the birds returned because of bushland development and a third due to the re-establishment of wetlands. Today possums, echidnas, swamp rats, frogs and fungi are all flourishing on the property.

Through their kitchen window, they can now watch ducks, waterhens and Black Swans gliding on 'Lake Cicely'.

'Lanark' has the honor of being the first private property to support the release and continued increase of Eastern Barred Bandicoots, Victoria's most endangered mammal species. It was one of the first Land for Wildlife properties registered in the scheme in 1981.

The Fentons have approached farming with the underlying premise that a productive, profitable enterprise depends as much on balance as on total outputs. They use techniques that reduce material and time inputs, but have managed to show continued productivity and growth.

What's changed?	What are the benefits?
Extensive network of plantings (80,000 trees) and natural regeneration.	<ul style="list-style-type: none"> • Shelterbelts and windbreaks for stock and people. • Increased feelings of wellbeing. • No shelter = \$1110/ha (1998 Valuation). • Shelter = \$1970/ha. (1998 Valuation).
Plantings have established characteristics of natural ecosystems.	<ul style="list-style-type: none"> • Return of 90% of bird species absent in 1954. • Endangered Eastern Bared Bandicoot released on farm. • Buffer against climatic variability provided to 'Lanarks' production system and productivity. • Legacy for future generations.
Radical change in traditional farm practices.	<ul style="list-style-type: none"> • No insecticides or sprays used. • Low fertilizer use. • Freed up funds for purchase of other properties (over 20 –25 years). • Changes from grazing to farm forestry has increased the farm's profitability.
Extensive wetlands established.	<ul style="list-style-type: none"> • Firebreak. • Pleasing landscape, great for swimming. • Return of waterbird species. • Drought back-up. • Natural filtration provides cleaner water for stock and domestic use. • Ibis rookery on wetlands. • Natural pest control.

They and the many visitors to the property also benefit from the shelter provided by native vegetation. Working conditions in the yards have improved. The farm as a whole is a joy to work on, with views of grazing sheep and plantations into the distance.

In the last decade or so the Fentons have been planting species with utilitarian value and have been leaders in agroforestry practices. This diversification from the former traditional production practices is providing a new source of farm income. In 1999 income from trees equalled the wool clip. In the future, the Fentons may be able to manage without relying on income from cloven-footed animals, which is their aim.

Future Plans.

The Fentons ultimate aim is to increase tree cover on their property over the next 40 years to around 280ha, or 35 per cent. They plan to develop three types of vegetated areas, each with its own special conditions. One area will primarily be for native habitat, another for agroforestry and the third will be water bodies or meadows.

Currently two per cent of the property (16ha), and just under 20 per cent of the total tree cover, are managed primarily for wildlife. The Fentons aim to increase this area to about 10 per cent of the total area of the property (about 80 ha).



Handy Tips

- Running fewer sheep to the hectare results in less feed needed, no need to cut hay (which saves on machinery and labour), and very little superphosphate is used. More shelter is available to individual sheep. As a result, they are less stressed, there is reduced soil compaction and more energy goes into wool and meat production.
- Regular fox and feral cat control benefits both native fauna and lambs.
- Encourage habitats that attract native birds. Birds act as natural control agents for insect pests and a diverse bird community protects trees by consuming 50 – 70 percent of insects that attack trees, with pasture foraging birds eating major amounts of pasture grubs each day.
- If 10 per cent of the agriculturally productive areas are devoted to trees, the shelter provided will increase productivity by approximately 15 per cent.
- Differentiate between land that is best suited with being cropped and land that cannot. Develop management plans accordingly.

Sources: 'Renaissance on Lanark', *Wingspan*, Vol 9, No 1, March 99.
Land for Wildlife News 3(8), Department of Natural Resources and Environment, East Melbourne.
ABC Rural (Interview with Shane Mahony) 10.10.99, Australian Broadcasting Corporation.

Case Study — horticulture

Native mix for fruit orchard



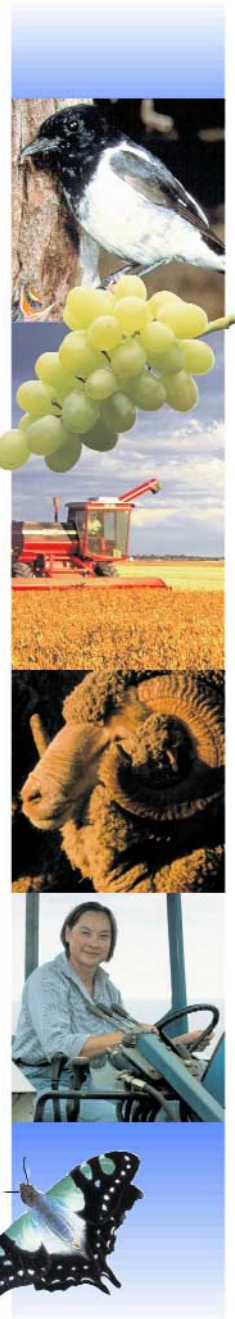
KEY POINTS SUMMARY

- Established native trees have not affected production.
- Remnant River Red Gums and native pines retained in new orchard development.
- Retaining remnant vegetation has no additional bird or insect problems.

Enterprise: HORTICULTURE

'Bunbartha Fruits', Shepparton (Northern Irrigation).
130ha; Fruit orchard.
300ha; Pasture.

John and Robyn Pettigrew.
Peter and Pauline Pettigrew.



What triggered a reason to change?

With plans to extend their existing peach, apricot and pear (plus a mixture of export varieties) orchard into adjoining land, the Pettigrews were faced with the dilemma of removing numbers of large remnant River Red Gums and native pines.

What needed to change?

Retaining the remnant trees would complicate the development and subsequent management of a new orchard. Orchard rows would have to be adapted and reconfigured to permit the existing trees to be retained.



“The trees are a valuable addition to the orchard.”

John Pettigrew

Traditional orchard practise had always encouraged the removal of any large trees in the belief they attract additional birds into the orchard that would damage ripening fruit. It was also believed there would be extra problems from insects pests.

What has been gained?

The Pettigrew’s have planted the River Red Gum area with native understorey species, mainly shrubs, to attract a wider diversity of mainly insectivorous birds.

Having a variety of trees and a dense understorey has helped to attract many natural enemies of insect pests, such as insectivorous birds, parasitic wasps, predatory insects and insectivorous bats.

Predatory native mites which help control undesirable insect pests do not like dusty conditions, so planting tree belts around orchards, particularly laneways, helps reduce dust, thereby making it more conducive for predatory mites to survive.

What’s changed?	What are the benefits?
Remnant vegetation retained and quality restored.	<ul style="list-style-type: none"> • Amenity of the area enhanced. • Additional shade provided for pickers. • Trees protected from wind damage. • Additional wind protection controls spray drift.

Future Plans.

The Pettigrews are planning to revegetate sandhills to the south west of the existing orchard with indigenous plants. When completed, this area of approximately 16ha will make a substantial contribution to watertable control and biodiversity in the area.



Handy Tips

- Wattles that are severely attacked by borers are generally the short-lived species. Selecting long living wattle species that are not susceptible to borers will reduce the likelihood of movement of borers into the orchard.
- Rows or clumps of tall trees around orchards will encourage birds of prey or magpies to roost and even nest, thus helping to deter cockatoos and starlings.
- A densely planted understorey which restricts ground visibility may discourage cockatoos from feeding on the ground.
- Starlings will be unlikely to be attracted to the fruit if pastures near the orchard are irrigated as fruit is ripening (which is generally the case).
- Avoid plants that produce large quantities of nectar or are berry producers.
- Dense prickly vegetation will deter many larger bird species and favour smaller, insectivorous birds.
- Borers are more likely to attack stressed trees than healthy ones, so it is important to establish plants well and keep them healthy.

Source: Sislov, A., (2000). *Native Vegetation and Stone and Pome Fruit Orchards*—draft discussion paper. DNRE, Tatura.

Case Study — specialised rural enterprise

Teaching from experience



KEY POINTS SUMMARY

- Self supporting property.
- Rotational grazing on small paddocks.
- Property is used as a model for workshops/training programs on self-sufficiency.

Enterprise: SPECIALISED RURAL

'Peppermint Ridge Farm', Tynong North (Port Phillip).
8ha polyculture of bushfoods, agroforestry for aromatic oils/woodlot, sheep, free-range eggs and Landcare Education Centre.

Julie Weatherhead and Anthony Hooper.

What triggered a reason to change?

Peppermint Ridge Farm was purchased in 1984 and was originally part of a larger holding that had been used for horse and cattle agistment for over 20 years. The land had been largely cleared, but significant remnant vegetation of eucalypts and wetlands remained.

Julie and Anthony wanted to develop practices that would allow the farm to work effectively without compromising environmental standards.

They see the property as one part of the jigsaw that makes up the catchments of the Cannibal Creek, Bunyip River and Western Port Bay. The proximity of the property to the Bunyip State Park has influenced land management and they see the property as a wildlife corridor and an important connection to Cannibal Creek.



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Wetlands were fenced off in 1990. The dam in the foreground was included to provide wildlife habitat in 1994.

“Without being too spiritual it’s some sort of commitment to the land. It is about making the home as self contained as possible.”

Julie Weatherhead.

What needed to change?

Because of their knowledge that, in a traditional farming sense, the land had a limited carrying capacity, Julie and Anthony planned to reduce livestock rates and increase native plantations for oil, bush food and timber.

Peppermint Ridge has been established to demonstrate sustainable living and farming practices that respect the region’s indigenous flora and fauna.

A Whole Farm Plan was developed that prioritised steps to achieve Julie and Anthony’s goal of environmental protection on a property that maximised self-sufficiency with financial goals.

What has been gained?

In 1996, Julie and Anthony established the Sustainable Land Management Education Centre to share their farm experiences with small property owners.

Courses have been held in a schoolhouse relocated to the property, with workshops including topics on sustainable property management planning, organic vegetable growing, free-range poultry and bush food. They also conduct a nationally accredited Certificate in Landcare.

“Most important is the satisfaction of contributing in a small way to healing the land.”

Julie Weatherhead.

What’s changed?	What are the benefits?
5,000 (mostly indigenous species) plants established.	<ul style="list-style-type: none"> • Increase in wildlife species. • Improved property landscape and aesthetics.
Fencing of 3 ha of significant remnants and wetlands.	<ul style="list-style-type: none"> • Erosion controlled. • Creek bank stabilisation. • Regeneration occurring. • Return of many wildlife species.
Move from monoculture to polyculture.	<ul style="list-style-type: none"> • The property contributes to lifestyle choices. • Self sufficiency.
Divided larger paddocks into smaller areas.	<ul style="list-style-type: none"> • Effective pasture management. • Accommodation for free range hens.
A free-range poultry flock of 300 hens.	<ul style="list-style-type: none"> • Reduction in flatweed and capeweed. • Control of codling moth in the orchard.
3,000 indigenous plants established in an Analogue Forest (mixed species).	<ul style="list-style-type: none"> • Wildlife corridor, and future windbreak.

Working as part-time TAFE teachers helped to keep them afloat during the development stages of the farm. Anthony has recently quit his teaching position, another sign that the property is operating at a more self-supporting level. Peppermint Ridge farm is a Land for Wildlife property.

Future Plans.

Julie and Anthony plan to further develop an indigenous permaculture practice that incorporates multiple land use with the maximum use of indigenous flora, including native grasses for pasture, bush foods for horticulture and larger tree species for Analogue Forestry.

There are also plans to increase the diversity of plantations by introducing native species for oil production and for medicinal uses.

All exotic species planted under an earlier permaculture plan will be eliminated.



Handy Tips

- Constantly revise plans to identify ways to integrate a variety of land uses with environmental protection and enhancement.
- Seriously assess the environmental weed potential of any exotic species before planting.

Sources: Permaculture International Journal, (1999). No 70 May, p21.
Personal correspondence: Julie Weatherhead and Anthony Hooper.