



**wheatbelt**  
natural resource  
management

Issue 17 Summer 2012  
**newsletter**  
Kambarang - Birak

## SPRING BIODIVERSITY ON SHOW AT KORRELOCKING



*Above: Participants at the Korrelocking Bioblitz.*

Over spring Wheatbelt NRM has been providing opportunities for the Wheatbelt community to enjoy and learn more about the amazing biodiversity of the Wheatbelt through a Bioblitz event.

More than 50 volunteers including local families, scientists and wildlife enthusiasts gathered at the Korrelocking Townsite Reserve, just east of Wyalkatchem on the 22nd and 23rd September.

The weekend was part of a 24-hour search to identify as many species of plant, animal and fungi as possible in the 320-hectare patch of remnant vegetation.

Organised by Wheatbelt NRM, the Bioblitz resulted in more than 250 species being identified. Previously the area was only known to have about 180 species.

Wheatbelt NRM's regional landcare facilitator Mick Davis said the Bioblitz was about raising awareness of the diversity of life in our Wheatbelt backyards and engaging with local community members.

"The Korrelocking BioBlitz was about having a massive



*Above right: Scorpion collected by ecologist Michael Curran*

search for what is out there and then using that information to inform and assist the community," Mick Davis said.

"Some exciting discoveries over the weekend included the square tailed kite, a bird never found in this area before, a fat tailed dunnart and we're following up a sighting of a southern brown bandicoot," Mick Davis said.

"People that have been observing wildlife in the area for more than a decade were still making new discoveries."

The weekend's activities were funded through the Australian Government's Caring for Our Country program.

Armed with this new information, Wheatbelt NRM will prepare a report for the Wyalkatchem Shire Council and community to consider.

The plan will identify recommendations for future management activities, including pest control and fire management priorities and provide the community with a blue print to ensure this special patch of bush is protected for future generations to enjoy.



CARING  
FOR  
OUR  
COUNTRY

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# Talkin' Soil Health Conference

## Nyungar Seasons

**Kambarang**  
October - November

Rain decreasing

**Birak**  
December - January

Hot and dry with easterly winds during the day



### INSIDE THIS ISSUE:

- 2 Talkin' Soil Health Conference
- 3 New Strategic Plan Launched
- 4 Yilgarn farmers see live seeding demonstrations at Bodallin Field Day
- 5 Community small grant with millenium Kids
- 6 Weeds of National Significance Project (WoNS): Redmile Creek update
- 7 Wheatbelt NRM supports local action in the South Mortlock
- 8 Big paddocks, big skies and red soil!
- 10 Sub tropical perennials stabilise sandy soils and provide a foundation for pasture cropping in Wongan Hills

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Designed, edited and produced by Wheatbelt NRM



**Talkin' Soil Health**  
*Invention and innovation in soil management*  
26th and 27th March 2013, York WA

### Soil Health in the Wheatbelt

26 - 27 March 2013

York Town hall

Internationally renowned groundcover and soils ecologist Dr Christine Jones and Principal Research Scientist and leader for agribusiness systems in CSIRO's Sustainable Agriculture Flagship, Dr Michael Robertson will join a host of other speakers for a two day soil health conference in March.

Hosted by Wheatbelt NRM, the presentations, panel discussions, interactive Q+A opportunities and practical hands-on workshops will cover topics such as soil biology, management techniques to address soil degradation processes, soil building techniques and the future of agriculture.

This event will be a unique opportunity for farmers, extension officers, researchers and support staff to share soil management stories and learn from practical and shared experiences.

Mark the date in your diary now! We'd love to welcome you to York in March. Registration information available shortly.

For more information please contact David Grasby on (08) 9670 3108 or [dgrasby@wheatbeltnrm.org.au](mailto:dgrasby@wheatbeltnrm.org.au)

[www.talkinsoilhealth.com.au](http://www.talkinsoilhealth.com.au)

# New Strategic Plan launched

By Cec McConnell, Deputy Chairperson



Scan this QR code with your smartphone to view the Strategic plan in your browser.

Aboriginal knowledge into NRM

- Ensure WNRM has a strong relationship with community with a particular focus in this strategy on youth,
- Support industry practice for sustainable use of Natural resources
- Actively input to government policy in respect to NRM
- Secure funding and new business opportunities to further enable NRM in the wheatbelt

In achieving these objectives we value highly and will actively maintain a focus on strong governance and effective business systems.

We believe that we bring a regional focus for funders from the Australian Government, State Government and the corporate sector to build projects with our community and to link our community into the objectives of these funders.

We also bring science and professional capacity in project management. Through our last planning cycle we have built a significant knowledge base underpinned by a culture of continuous improvement.

The 2010- 2012 strategy had an objective around business development – I highlight this as whilst we made progress we didn't hit our target. We believe this strategy is still important and have negotiated with the Australian Government to develop a plan to address funding diversity. An outcome of this strategy will be a broader scope of revenue options resulting in a strong organisational position to drive choice of action for the NRM priorities of the Wheatbelt.

Within this strategy area we have now established a public fund enabling us to now give tax exemption for donations.

There has been a lot of hard work by the staff in particular to develop a range of new and ongoing programs to meet the key strategy areas and our Operations Manager will go through these shortly.

Overall, we hope that this strategic plan will enable member organisations, associates, Board Directors, staff and all other stakeholders to clearly understand our role in Natural Resource Management in the Wheatbelt and the steps we will take to meet our goals.

2012 has been an exciting year. We have had the chance to look at what we have achieved through our efforts of the last three years, how we tracked against our intended outputs and outcomes and look at the ongoing relevance of our strategies for the future.

In reviewing our past strategy, Board and staff worked closely together to examine the lessons learnt and the feedback we have received from the Wheatbelt Community as key inputs into our strategy development for the next three years. This was a collaborative process lead by Board and supported by the capacity that exists within our growing organisation.

Our successes and learnings have helped us look forward with anticipation and we felt strongly that community was still fundamental to our future.

We have developed a new succinct strategy statement that over arches our strategic objectives for 2013-2015 and clearly shows our focus. Our statement is this:

**'By 2015 to have 3,500(10%) members of the Wheatbelt community actively engaged in improving the environment of the Wheatbelt through our regionally-focused, multi-disciplinary, high quality strategies and programs'**

It emphasises that we are about this community of the wheatbelt and that we want to do what it takes to get them (you) to be active in NRM.

### Our strategic objectives for 2013-15 will:

- Deliver NRM programs that protect and enhance the Wheatbelt
- Create opportunities to actively incorporate



## Yilgarn farmers see Dry Seeding Demonstrations at Bodallin Spring Field Day



By Marilyn Temby

### The Dry Seeding Demonstrations, (Funded by Wheatbelt NRM):

Wayne Della Bosca's site on Yilgarns heavy dry red soil was suffering from a severe lack of rain. Ed Barrett-Lennard explained that, with 1000 years of salt accumulated in the top 30 cm of soil, a dry year like this would mean wheat plants are struggling with a pretty salty brew, unlike in a wet year when the solution is diluted.

At Mark Granich's site the group was able to compare a dry sown crop with a wet sown one side by side. At this stage the dry sown crop was more advanced, with the wet sown crop needing a good soaking to reach its potential. The variation between different speeds of sowing was less easy to see.

### Yield Prophet Sites (Funded by GRDC, DAFWA & Wheatbelt NRM,):

David Watson, of AgAsset, discussed the September Yield Prophet reports, in particular, their accuracy when ground truthed against the actual stage and potential of the crop. Over all, the Yield Prophet program seemed to be fairly accurate on the light soils but needs some adjustments, particularly regarding rooting depth, on the heavy red

soils of WA. At Granich's the Yield Prophet program recommended more nitrogen be applied so this was done in a supplementary trial.

### Saltbush plantings at Glen Nicholson's (Funded by Wheatbelt NRM):

Glen has planted some 30,000 seedlings over the last two years. Ed Barrett-Lennard discussed the sheep feed value of saltbush when used in conjunction with stubble and the breeding of new saltbush cultivars that mark the beginning of domestication of the saltbush.

## Community small grant with Millenium Kids

Catrina Aniere and Simon Cherriman running "Millenium KidsLife for Environment" with local school students.



Millennium Kids is a not for profit organisation based in Western Australia, run by young people between 10-25 years of age, which promotes improving the environment by constructive action. In 2012 they applied to Wheatbelt NRM for a Community Small Grant to run a series of workshops "Millennium Kids-Life for Environment." They conducted a number of site visits to locations and set up meetings with teachers and local young people to develop the program for 2012. Key young people, teachers and community members assisted in the development of the program partnerships.

On Sunday 5th August they held The Sustainable Sunday at Duidgee Park on Avon. Millenium Kid friends from the Wheatbelt in Toodyay, Calingiri, Bakers Hill, and from the City of South Perth and the Western Suburbs were joined by international friends from Indonesia. They participated in a series of fun workshops including a hands on reptile experience with Vanessa Paget from Bush Wisdom. "The non venomous snakes were awesome" said one local boy. "I came because I had heard there would be snakes and I love all reptiles. It was great." While one group looked at reptiles the other group went for a work along the Avon River bank with the Toodyay Friends of the River Inc. On the walk they talked about birds and weeds, and came up with ideas about how they could help the river in the future. After lunch in the parks the participants went on a visit to a patch of river revegetated by the Toodyay Friends of the River, and the kids asked questions. They were then joined by 86 year old Ted O'Sullivan who grew

up on the Avon River in Northam. He told stories about the swimming holes and collecting mushrooms from small islands in the middle of the river. The kids talked about helping to revegetate the area near the pathway and helping Toodyay Friends of the River in the future. At the end of the day they tallied up sightings of 27 birds.

On Wednesday 19th of September, Millennium Kids held a Sustainable September in Boshack with West Northam PS students. They arrived at Boshack and fed some animals. After morning tea they had a welcome to country conducted by Trevor Walley. Trevor then talked about Aboriginal history with the students, telling stories of his childhood, and sharing Nyungar names of plants and animals. The students then broke into two groups, where one group did art about Trevor's stories, and the other group went boomerang throwing. After a while the groups swapped over. Before lunch, the kids all went on a walk through the paperbark forest, where they saw yabbies, heard motorbike frogs and got stalked by a goat! After lunch the two groups went on separate walks, one group surveyed for birds, and found lots of little bleating frogs, while the other group learnt about the problems with the rising water table and salinity.

At the end of October the incursions occurred, where Millennium Kids visted Avondale PS and West Northam PS, with two workshops being conducted with each class, "Scats and Tracks" and "Birds and Nests".



## Weeds of National Significance (WONS) Project: Redmile Road Update



*Tamarix roots and branches dug up at Red Mile Road.*

**By Rachael Major**

Wheatbelt NRM has spent the last twelve months working steadily on a project that is addressing Weeds of National Significance in the vicinity of the Avon River. These weeds are Bridal Creeper - a climber or creeper that grows from an amazingly efficient underground network of rhizomes and tubers which form a dense, almost impenetrable, mat five to ten centimetres below the soil, and Tamarisk - an evergreen or deciduous shrub or tree growing to 1–18 m in height and forming dense thickets.

Wheatbelt NRM has been busy conducting surveys for Bridal Creeper (*Asparagus asparagoides*) and Small flower Tamarisk (*Tamarix parviflora*) along the banks of the Avon River between Beverley and Toodyay. This new data has identified over 2,500 occurrences of these WONS within the project area and enabled Wheatbelt NRM to prioritise the most severe infestations and begin on-ground control efforts.

Redmile Road in York, located near the confluence of Blands Brook and the Avon River is one of four priority sites. This location was selected because of the extreme density of the Tamarisk and the presence of Bridal Creeper. The Tamarisk at Redmile Rd is contributing to the ongoing spread of the weed, with a significant number of plants recorded downstream during last year's surveys.

Control work has proven to be challenging at the Redmile Rd site because of the density of the thickets. However, a hazard reduction burn provided easier access and



*Tamarix infestation*

reduced the size of the bio-mass. A front-end loader was required to pull-up roots and stockpile the larger trunks and branches. Despite this attack the remaining Tamarisk roots vigorously re-sprouted a mere 3 weeks later.

'It indicates how important it is to remove as much of the Tamarisk root mass as possible' says Greg Warburton, Project Officer at Wheatbelt NRM.

To combat the regrowth, WONS project staff and the landholder are undertaking photographic monitoring and ongoing chemical control at Redmile Rd. Revegetation of the site will occur in June 2013 to stabilise the cleared area and return biodiversity values.

Vigilance will be required to ensure all the hard work is not undone, however the Wheatbelt NRM team is confident with ongoing management this area can be rid of these invasive weeds and this section of the Avon River can be returned to its natural state.

*Continued on next page*

## Wheatbelt NRM supports local action in the South Mortlock



*Kerry Horan, Mick Davis, Judd Davis, Mike Rathbone, Greg Warbuton, Rachael Major, Angus McGuire and Alisha Ashworth.*

Two fledgling groups in the South Mortlock catchment of the Avon River Basin recently received funding from the WA Government State NRM Program for projects to tackle erosion and weed issues in their local area.

The applications were initiated by Mr Mike Rathbone, from Quellington, who has been increasingly involved in protecting his private bushland, which spans a stretch of the South Mortlock River near Quellington.

'I had heard stories from some long time residents about how the river used to be before erosion and salinity took hold, and was keen to undertake some local rehabilitation works' said Mike. 'I was aware of a new grant series that offered an opportunity to do some significant work in the catchment.

That's when I contacted Wheatbelt NRM for some information about the catchment and was very excited to find out that a study and management plan for the catchment were already complete,' he recalls.

Wheatbelt NRM helped Mike organise a local meeting to discuss how the group would tackle their local environmental issues – weeds and erosion – and from there the groups decided to apply for funding from the State NRM Program to get the job started.

Now the funding has been approved the Quellington Restoration Group and the Meenar Catchment Group will be planning restoration works for the South Mortlock catchment, starting from the top of the catchment and working down.

'We wanted to take a strategic approach to tackling our catchment's environmental problems,' explains Mike 'and starting at the top of the catchment is the best way we can do this'.

Brendan Imms, Wheatbelt NRM's Waterways Officer, is excited about the new group's success.

"Increasing community participation in NRM through the establishment of new community groups is a great way for Wheatbelt NRM to support conservation work in the region and is extremely effective when undertaking waterways work."

"Wheatbelt NRM's main role was to provide technical advice to the groups, but in the end we also agreed to sponsor the application, as they were not yet incorporated" Greg.

Wheatbelt NRM is keen to form partnerships with any community group trying to establish themselves and develop projects for their local area.

*Continued on next page*



# "big paddocks, big skies and red soil!"

By Dr Elizabeth Kington

What do the Wheatbelt community think of their environment? I'm not talking about just the natural world, but the social environment they live in... and... how do they think it is changing?

These were questions put to the regional community by Wheatbelt NRM Program Manager Liz Kington during 2012 as part of the Regional Natural Resource Management Strategy Review.

This article provides some of the feedback from conversations held with over 150 individuals, many of them meeting as community groups. Part 1 will explore what the community said about themselves and why they stay. Part 2 (in a future newsletter) will explore the future 'drivers' that people saw influencing the social and natural environment of the region.

## Part 1: Who we are and why we like it here

The Wheatbelt community people described themselves as *"practical...with common sense, accommodating and open to volunteering"*. However, from a more diverse population 50 years ago, it seems that nowadays *"the people who live here want to be here... they are a core group"*.

The community is made of two types of people ... *"those that have been here forever and those that move in and out"*. Wheatbelt newcomers were welcomed, but they did not always contribute, it was suggested. In recent years, the region seems to have seen an increasing number of fly in and fly out workers. To one individual it felt like *"there had been a halving of the population over the past decade"*

One individual summed up the situation in the region in the following way; *"There is an aging population in this region. Many of our young ones now have city residency... a turn-key mentality and a good lifestyle. We are losing our ability to do things – the 'drivers' have become 'global'. Most of these city people are not going to care much about our issues. Others are just busy trying to earn a living"*. The Wheatbelt's relative low profile with outsiders (particularly Perth city residents) was seen as most influential.

The region was described as predominantly an agriculture and service industry economy, with some businesses servicing mining. It was described by one individual as;

*"a most unusual landscape where you have a superficially homogenous area of land with a sprinkling of settlements*

*and a relatively hostile climate, within a remarkably close proximity to major centres"*.

From another perspective... the landscape was described as... *"trees and biodiversity and fields of crops integrated with a brilliant blue sky"* where there was an *"increasing diversity and richness of people"*. To another the landscape was summarised as *"big paddocks, big skies and red soil!"*

As a prominent group of people in the region, Wheatbelt farmers were more educated these days, it was suggested, but getting a lot busier. They were heavily 'geared' and quite often because of this under considerable stress. It was pointed out that while farmers were all trying to make a quid they were not making excess money and while they were very efficient ... *"farmers could control only about 50% of things, and they did not have the reliability of weather anymore"*. The WA Wheatbelt farmers were described as *"the best in the world"* and farming these days was more a business than lifestyle – with the banks changing how they were measuring things... and going more on profitability.

From the industry perspective, farming in the region was being driven by soil type and also rainfall and topography. Economies of scale were growing and farmers were farming much larger properties, with the associated risks having a bigger impact. Agricultural weeds were seen as a growing problem and weed resistance was worsening. There was a growing concern amongst the community about the impact of wall to wall cropping year in year out and associated chemical use. One person pointed out that there were *"at least 5 agents selling agricultural chemical in town"*.

For the farming community ...*"farming is tough and farmers have to work hard and long hours. They have times when they don't need to work, but management and timeliness were essential"*

One farmer summarised it this way... *"We follow the weather to sow; we lamb the same day every year. This dictates the rest of the year. There are scheduled times for shearing and the cropping side is the same but dependent on rainfall"*.

A concern was raised also about the loss of people from the region ....*"Knowledge is being lost .... When I started farming I didn't know anything and I was lucky to learn from a guy who had been farming since the 1920s. Even government agencies don't have long tenure – and this is a real weakness"*.



From the natural landscape perspective it was commented that the remaining biodiversity seemed to be more plant based as the region had already lost a lot of the animals. East of the region the natural landscape was largely intact and uncleared, but across the Wheatbelt today's sensor cameras were capturing mostly rabbits, foxes and cats! It was apparent to the community that *"the fox and the cat are not under control"*.

## What keeps you here?

Country people enjoy the country lifestyle. The safety people felt, their involvement in the community and feeling of self-determination were important values – such as *"being my own boss"* suggests a farmer. Many people expressed no desire to 'join the city rat-race'.

The region is also attractive to the older generation. It was noted that *"you can even go to bed and leave the front door open... and this feeling of safety is appealing to the older age group"*. Many suggested that ... *"You feel like an individual (not a number) if you stay here when you are older"*.

Access to good services ... *"basic health care is better in the bush by a long way"* someone noted. In the region you have land and housing affordability, not being in traffic, hearing the birds, feeling the sunshine. Another town resident felt there was nothing better than being able to walk to work and mix with all age groups.

It was felt that the Wheatbelt provided a healthy lifestyle, and this should be promoted more. For example... *"bringing up children in the bush ... gives them a really good start"*

It was proposed that...*"here you can make a difference. This brings out the best in people and they feel more valued"*. *"There are still lots of positive people here"... but, that "people are time poor – most are wearing many hats"*.

The community was asked what would make them leave the region. Many felt that the absence of suitable work, medical care and affordable housing would do it. *"Withdrawal of services (e.g. health and education) impacts on people's ability to live in the community long-term"*, it was suggested. For others, education for their children was important and school changes were splitting families.

For some of the farmers in the region, they would not leave ...*"until the bank tells me to go"* or when they retired because their sons would not be coming back. Other community members would leave when *"there was no one to talk to"* and it was noted that "perhaps a key issue is isolation for women" in the region.

One interviewee noted that... *"if the climate changed that much, you wouldn't be able to live here"*.

Overall, the response from community was one of strong commitment, passion and resilience in the face of some worrying trends and big future challenges.

Scoping how the community see themselves and their environment assists Natural Resource Management organisations in building a strategy that will work with them, adapt and move forward in maintaining and improving the environmental system.



# Sub tropical perennials stabilise sandy soils and provide a foundation for pasture cropping in Wongan Hills

By Natalie Hogg, DAFWA



Peter Sadler inspecting the plot of Evergreen Northern Mix in February 2012

## Demographics

<b>Names</b>	Peter, Kathy and Michael Sadler
<b>Farm name</b>	Leahurst
<b>Location</b>	Kalguddering East Road, Wongan Hills
<b>Catchment group</b>	Gabby Quoi Quoi
<b>Rainfall</b>	325mm
<b>Farm size</b>	2766 hectares
<b>Enterprise mix</b>	85% crop, 15% sheep
<b>Soil types</b>	Loamy sand over gravel
<b>Species sown</b>	Rhodes grass Gatton panic Siratro

**Heritage Seeds Evergreen Northern Mix:**  
(60% Gatton panic, 10% Callide Rhodes, 10% Katambara Rhodes and 20% Bore signal grass)

## Key messages

- Sub-tropical perennial pastures showed good establishment on sandy soils, on which subterranean clover and serradella failed, and show potential for use in a pasture cropping system
- The sub-tropical perennial pastures provide summer/autumn ground cover, protecting the soil from wind erosion and increasing the grazing potential from unproductive paddocks
- It is critical to consider pasture variety, seeding method, weed control and ground cover when establishing sub-tropical perennial pastures

## Perception of adopting sub-tropical perennial pastures

The Rhodes grass, Gatton panic and Northern Mix pastures all established well, however the Siratro had a disappointing germination with the resulting plants being few and far between. "The Siratro seed may have been sown too shallow," Peter suggests.

Two knockdowns were applied pre-sowing (late winter) to control annual ryegrass; however the soil disturbance from seeding resulted in a large spring germination, which would compete with the perennials during germination and establishment. After seedling emergence, an across-plot strip was sprayed to target melons. "The herbicides successfully killed the ryegrass, and knocked back the perennials; however the perennials recovered", said Peter.

Due to the large ryegrass burden, the Sadler's have decided to wait until 2013 to sow wheat into the perennial pastures. This will allow them to minimise the ryegrass problem, and reduce the competition of wheat with ryegrass for soil moisture and nutrients.

## Prediction for the future value of sub tropical perennials

In the immediate future, the Sadler's plan to trial pasture cropping by sowing wheat into their existing perennial pastures in 2013, following ryegrass control in 2012. Longer-term, they aim to increase the area of their farm sown to perennials to 300-400 hectares, and if pasture cropping works in their system, cover crop most of this area with cereals, lupins or canola.

The perennial pastures will provide for an increased stock carrying capacity, a higher pasture nutritive value and year-round grazing options. To maximise the utilisation and benefit from the perennial pastures, the Sadler's intend to build up their sheep numbers. "This will allow us to more effectively graze the perennials before seeding in annual crops, as at the moment we don't have enough sheep to do this", said Peter.

## Background of perennial pasture systems

Sub tropical perennials have been trialled as part of the Evergreen project in the Northern Agricultural Region, which promotes the uses of perennial pastures in production systems. Two grasses, Rhodes and Gatton



Siratro plants demonstrating an early (left) and late (right) germination.

panic, and one legume, Siratro, have proven to establish and persist in deep sandy soils, even in years of severe drought.

Perennials have several potential benefits to farming systems on unproductive, sandy soils and provide year round ground cover, protecting the fragile soils from wind erosion events. They are able to utilise out-of-season rainfall, increasing livestock carrying capacity during summer and autumn. Even during winter and spring, they persist and grow better than annual species in these sandy soils.

An emerging farming system in the Northern Agricultural Region of WA is pasture cropping, which involves sowing an annual crop into a summer active perennial pasture base; this is a more widespread practice in the Eastern States. Early trials in northern broad acre areas of WA have demonstrated good perennial establishment in our soils and climate, and comparable annual crops yields in pasture cropped paddocks compared to in conventionally cropped paddocks with no pasture base.

## Adoption story

The Sadler's have areas of unproductive sandy soil which is prone to wind erosion, due to light soil type and low ground cover. Planting perennials is an option to increase year-round ground cover, both for the management of wind erosion, and to provide a pasture base for the future application of pasture cropping. In addition, the Sadler's have adopted a biological farming approach, and believe perennials will play an important role in increasing soil fertility through greater biological activity, soil aeration, increased soil carbon and increased soil water holding capacity. All of these factors will contribute to increasing the productivity and sustainability of the Sadler's farming system.

"We tried unsuccessfully for two years to establish Serradella on some of our lighter, sandy country where clover wouldn't grow", explained Kathy. This area is unproductive as an annual pasture, and is at a high risk of wind erosion, due to low ground cover. After seeing Rhodes grass successfully established in sandy soils in the Northern Agricultural Region, it took the Sadlers 1-2 years to decide in 2010 to sow a perennial pasture mix

(Evergreen Northern Mix) into a 36 ha paddock that had been pasture previously. This pasture established well, and with little grazing over summer the ground cover greatly increased.

The Sadlers were concerned about the erosion risk of a bare paddock in spring between seeding the perennials and pasture establishment. "We tried seeding some barley seed with the pasture mix to provide quick ground cover. However, the barley provided too much competition with the germinating pasture for water, particularly in a drier spring", said Peter. It was decided that ground cover was necessary during pasture establishment to protect the soil, but this was best provided by sowing the pastures into a previous crop stubble.

In 2011 the Sadler's set up a trial to compare the Evergreen Northern Mix with monocultures of Rhodes grass, Gatton panic and Siratro, with the ultimate aim of over sowing the established perennial pastures with wheat in 2012 to trial pasture cropping. Each of the four pastures were sown in 22 ha plots on September 1, using a DBS/Nichols bar narrow point airseeder with 12 inch spacings; this results in deep ripping to aerate the soil while disturbing a minimal amount of topsoil.

## Major changes to the farming enterprise

The Sadler's currently run a crop-dominant system, with continuous cropping over the whole property. Their cropping rotation has historically been wheat-wheat-lupins, though other rotations have included wheat-barley-lupins, wheat-canola-lupins and continuous wheat. Currently only one paddock is in a pasture phase, and this is solely for ryegrass control. The Sadlers use a minimum till approach to cropping, as this creates less soil disturbance, and results in less germination of weeds. Though sheep graze the stubbles, they retain stubble to protect the soil from wind erosion.

In the first summer since the establishment of the perennial pastures, the Sadlers have had no problems with wind erosion in these paddocks. The Siratro plot had a very low germination rate, and was at the most risk; however above average late spring rainfall of 60mm has brought up enough summer weeds to provide some ground cover. In mid-February 2012, there were lots of



smaller Siratro plants evident among the weeds and larger Siratro, so they may have had a second germination later in spring.

One of the key attributes of a biological farming system is the use of mineral-based fertilisers instead of traditional acid-based fertilisers. This maximises microbial activity in the soil, and the mineral-based fertilisers provide longer-term nutrient availability to plants. Peter commented that “nitrogen fertiliser rates have been reduced by about 50% over the farm, with the same crop yields achieved”.

For the last three years, the Sadlers have been using microscopic examination and laboratory testing of soil and plant root samples to try and quantify the differences in soil biological activity between paddocks farmed biologically compared to those farmed conventionally. As part of the trial, soil carbon levels will be measured and compared between paddocks with an annual pasture base, the previously established perennial pasture paddock and the newly sown perennial trial plots. This alludes to another benefit of perennials; the ability to biologically sequester carbon, providing a practical option for removing carbon dioxide from the atmosphere.

### Costs associated

The main costs for establishing this system include:

- Pasture seed - the Sadler's already had the Evergreen Northern Mix on hand, valued at \$14.50/kg; the Rhodes grass, Gatton panic and Siratro were purchased for respective costs of \$8.90, \$13.40 and \$20/kg. This equated to a range in seed costs from \$53.40/ha for the Rhodes grass, sown at 6kg/ha, to \$116/ha for the Evergreen Northern Mix, sown at 8kg/ha. The Gatton panic and Siratro were both sown at a rate of 4kg/ha. For future pasture sowing, the Sadlers do not intend to harvest their own seed, but purchase more.
- Fertiliser - the Western Minerals fertiliser used is alkaline-based, which is a biological alternative to contemporary acid-based fertilisers. The total fertiliser cost was approximately \$40/ha.
- Herbicides – a double knockdown of 1.5 L/ha Glyphosate and 1L/ha Gramoxone was applied pre-sowing, at an approximate cost of \$14/ha. The post-emergent application of Garlon, Gramoxone and Ester 680 was only used on a trial strip, so this cost is not included.

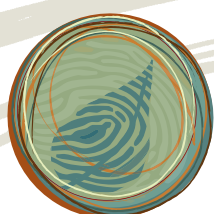
### Dos and don'ts when planting sub tropical perennials

The Sadlers outlined several key things to know before growing a sub tropical perennial pasture:

- Appropriate pasture variety for the area
- Optimal time of sowing to benefit from soil moisture availability
- The expected weed burden of the paddock and chemical choices for pre-seeding and post-emergent weed control
- Pasture variety-specific information such as seeding depth and insect control

Seeding depth is a critical factor for optimising germination and survival of sub tropical perennials. “If sown too deep, the soil is not aerated enough; and if sown too shallow, the soil dries out too quickly around the seed”, explained Peter. Michael stated “to maximise seedling germination and establishment, we targeted an ultimate seeding depth of 12.5mm”. This was based on their previous experience with sowing sub tropical pastures, and advice given about recommended seeding depth. Before seeding, Michael mixed the seed in with the alkaline-based fertiliser on the floor of the shed using a front-end-loader bucket. “Having the seed mixed in with the fertiliser encouraged an even feed of the seed through the seeder”, he said.

Peter firmly believes that sub tropical pastures should not be sown into bare paddocks, and preferably sown into stubble. “Having adequate ground cover protects the soil from wind erosion; this is particularly important if the perennials have poor establishment and there are large gaps in the pasture during summer and autumn”, he said. Peter suggests selecting a small paddock for the initial trial of the pasture species as an important strategy to minimise the risk and cost of a potential pasture establishment failure.



**wheatbelt**  
natural resource  
management

PO Box 311  
Northam WA 6401  
[www.wheatbeltnrm.org.au](http://www.wheatbeltnrm.org.au)

Phone 08 9690 2250  
Fax 08 9690 2255  
[info@wheatbeltnrm.org.au](mailto:info@wheatbeltnrm.org.au)