Newsletter

Number 49

December 2012

Native Grasses Association Inc

Desert to Native Grassland using management

Believe it or not, this is the same site. The photographs were taken 5 years apart.

This Grassland is being regenerated from a degraded soil surface that was almost completely bare only 4 years earlier. See inside for article describing this project.

Photographs courtesy of Chris Downie & Graeme Hand

www.stipa.com.au

CONTENTS

STIPA is not an acronym. The association was named after the *Stipa* genus of grasses, now *Austrostipa*. One of the *Stipas* is commonly known as spear grass. At its inception in 1997, the association aimed to spearhead a change in attitude to native grasses. As that change is occurring, Stipa continues to promote the use of native grasses to achieve profit from a healthy landscape.

Stipa Native Grasses Association (ABN 42 300 161 459)
www.stipa.com.au

Chief Executive Officer: Graeme Hand
c/- 150 Caroona Lane, Branxholme Vic 3302
M: 0418 532 130
E: graeme.hand@bigpond.com

Project Officer/Administration: Sue Ogilvy
M: 0419546079
E: stipa8@bigpond.com

Chair: Annabel Walsh E: annabelwalsh@moorna.com.au
Treasurer: George Taylor E: gandktaylor@activ8.net.au

From the Chair

Annabel Walsh

The year 2012 has been a real mile stone for the Stipa Native Grasses Association. There is a real sense of increasing acceptance and recognition by Government and Land Managers of the importance of native perennial grasses in grazing and cropping systems to improve their production and regenerate the landscape. This is very evident by how well our management principles fit with the funding grants for the Carbon Farming Initiative (CFI) and landholder's landscape and production aspirations.

With Stipa providing an effective leadership model to foster thinking and dialog to address predicted climate change plus the increase in communities' understanding of the benefit of grass fed as opposed to grain fed meat and farmers realizing the importance to reduce inputs into their cropping and grazing systems, Stipa is in a very good position to influence and participate in design and implementation of projects.

This shift has not come too soon for our early members who established the association to promote native grasses in farming systems. For Darryl Cluff,

Col Seis, Christine Jones, Bruce Maynard, Wal Whalley Sue Rahilly and George Wilson, just to mention a few, we acknowledge their vision and fortitude. The Stipa decision made recently by the committee to re-publish "Farming Without Farming" reflects that the knowledge and practices they developed and recommended so many years ago are still relevant and significant.

I would like to welcome Sue Ogilvy who has taken over from Debbie Milne. Deb did a wonderful job convening our Holbrook conference, preparing funding grants and writing reports, on behalf of the committee we thank you for all you achieved for the association.

To Graeme Hand our CEO your well directed enthusiasm and ability to pitch the Stipa message to varying audiences, in varying landscapes has contributed greatly to promote Stipa's image as a valued organisation by science, agencies and land managers. We thank you for your dedication and so look forward to fostering the contribution that you can make to landscapes and production systems across Australia.

This report comes with my very best wishes to all our members for Christmas and hope to see you all at our conference in early November 2013.

Best Wishes

Annabel

Save the Date!

Stipa Conference to be held in early November 2013

More information on the Stipa website early 2013.

Native Grasses Association Inc.

Coming soon to the Stipa Website .....

Farming without Farming

By Darryl Cluff

As a downloadable e-book.

From the CEO

Graeme Hand

Action on the Ground Project

The Action on the ground project – Demonstrating practices that increase soil carbon. Our Project sites have been set up and monitored. On the Stipa member farms that have been managed for native grasslands we struggled to find sites that would be easy to increase soil carbon storage. The project plan for the Department of Agriculture, Fisheries and Forestry (DAFF) has been accepted and soil samples are being measured at Sydney University. A small steering committee has been set up. Developing reporting for this project has helped clarify the landscape function and perennial grass diversity targets. Let me know your thoughts on the story in this newsletter

Profitability of native grasses – lowering risk

The first article, Risk & Agricultural Economics, in the June 2012 newsletter created a lot of interest and many of the comments were from people saying that this explained why even though gross margins suggested that people were making sound economic choices the business only became less profitable over time. I will try to clarify some of the previous comments and also give an example of the impact of weather risk on grazing in South West Victoria and what could be a better design. Let me know your thoughts on the story in this newsletter

Photo By Lucy Hand

Stipa article in Organic Producer Magazine, Spring 2012

An article from the Stipa newsletter has been rewritten and published in the Organic Producer Magazine. A copy of "Grass Comeback" will be available for download on the Stipa website.

Future Articles

I had these articles on the list for the December newsletter but they will now be in the June 2013 newsletter:

Soil carbon opportunities with native grasslands

Let me know if you have any other topics

Graeme Hand

Native Grassland regeneration results

'Before' 2006 (above)

Perennial Native Grass Regeneration

It is clear from the work NRM South is doing in Southern Tasmania that long recoveries are favouring the regeneration of perennial native grasses.

The couple of sites that have been very impressive both have had around 12 months recovery before grazing. The change has been very stark from bare ground to healthy functioning ground cover dominated by perennial native grasses.

Derwent Valley North Facing Slopes

In this area most north facing slopes are bare or very low in ground cover as the animals, usually sheep, spend more time there (I always say to get some sun). NRM South with funding from the Australian Government Department of Agriculture, Fisheries and Forestry as part of its Caring For Our Country program provide funds for fencing to allow changed grazing management by allowing for recovery and then animal impact to increase function, diversity and manage biomass.

The results as seen below have been pretty spectacular and the general principles are more evidence of the success of Stipa grazing guidelines.

Guidelines:

Recoveries were generally a minimum of 12 months (needs monitoring)

When grazing utilize the area well while maintaining good animal performance see NRM South Planed Grazing guide http://www.nrmsouth.org.au

Spear grass dominance managed by using high stock density to germinate better grasses between the tussocks (see Stipa Newsletter Number 48 June 2012 Serrated tussock control and Stipa Newsletter Number 46 June 2011 Never eat the weed and always let it seed).

'After' 2012 (below)

NRM SOUTH
NATURAL RESOURCE MANAGEMENT

Grassland regeneration results (cont'd)

Near Richmond Tasmania

This is another site that the owner manager wanted to regenerate native grasses from essentially bare ground.

The site now contains a good range of species including:

- Kangaroo grass (Themeda triandra / Themeda australis)
- Spear grass (*Austrostipa spp.)*
- *Weeping Grass (Microlaena stipoides)*
- Wallaby Grass (*Austrodanthonia spp.*)
- Tussock grass (*Poa labillardieri)*

Grassy Woodland Regeneration (below)

Kangaroo Grass Regeneration (below)

Poa tussock regeneration

(Poa labillardieri) (below)

Never take advice II.... Or why farm debt is in crisis

Graeme Hand

Article 2 Agricultural Federal Policy

In article 1 Risk & Agricultural Economics (in the July 2012 Newsletter, now available on the website) I tried to show that much agricultural enterprise design and input advice is flawed as it does not take into account risk. It is clear that a high production focus, with associated high risk, results in lower profits over time. Designing your grazing enterprise to reduce risk needs to be the first step to increase your profitability.

In this article the focus will be on the problems with federal government rural policy.

> The key points in the article are based on Ben Rees article Rural Australia: Crisis 2012 *Ben Rees, B. Econ.; M. Litt. (econ.)*

Key Points:

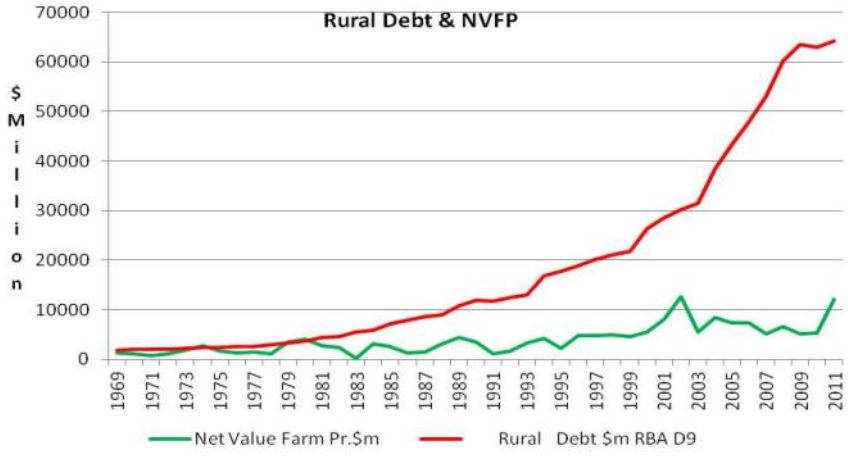
The financial difficulties farmers are having individually are reflected in the National figures that suggest that Rural Australia is experiencing a debt crisis.

Farmers taking loans based on equity and relying on enterprise design & input advice from technical resellers appears to be the cause of the debt crisis.

A lack of a Holistic (triple bottom line – socially, environmentally and economically sound) policy analysis and design process results in most policies failing or producing unintended consequences.

Debt & Rural Policy Problems:

The graph below from Ben Rees' recent paper[1] clearly shows that rural debt is out of control with the net value of farm production being basically flat and rural debt



Source: ABARE ; Agricultural commodity statistics 2011

increasing constantly.

This graph, says to me that, if rural Australia was a European country it would be Greece (apologies to Ben Rees)

Some of the quotes and reasons that Ben Rees discusses in his paper and also in a recent Radio National interview for this debt crisis are:

Rural debt is a symptom of low farm income *(low profit [income – costs] more clearly explains the cause GH)*

"There is little doubt that following deregulation in 1983-84 the banks, in pursuit of market share in the face of heightened competition, made loans based on security levels offered by existing equity but without sufficient regard to the capacity of clients to repay".

Policy makers are using an economic model that does not work in practice

The economic law that does work in practice (Engel's law) states that as the general population's income increases the percentage spent on food falls.

The advice to "get big or get out" cannot solve this problem as this idea is theoretically flawed as in reality rural industries operate under decreasing economies of scale.

As both suppliers and customers of agricultural commodities are predominantly oligopolistic (a few companies controlling markets) farmers are "raided" by both input suppliers and output buyers.

Ben Rees explains in his article banks started chasing market share and went to lending based on equity after deregulation.

*"There is little doubt that following deregulation in 1983-84 the banks, in pursuit of market share in the face of heightened competition, made loans based on security levels offered by existing equity but without sufficient regard to the capacity of clients to repay" (*Senate Inquiry 1994iv*)*

Debt

Personally our debt problem was not that the banks were lending on equity but that we made decisions to chase and accept these loans. What we would do is show that we had enough equity and then make up an inflated cash flow budget to show that we could make the repayments. We would start with standard industry figures and then inflate them and explain this away by stating that we would be managing in an improved way. As banks are in business to make profit it is unreasonable to blame them for decisions we made.

Profit

The low income problem discussed in this article, we have found, is also related to decisions we make. In fact, it's more helpful for us to think of this problem in terms of low profit rather than low income.

Simply put profit is income minus expenses. Income in a commodity market is set by the purchasers through the prices they pay for our products. To make a profit in a commodity market, we must continually reduce inputs, leakage and waste. This continual reduction can only be achieved by continually increasing landscape function and perennial grass diversity.

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There is some evidence that suppliers of inputs have provided advice based on selling their products rather than providing the best, most profitable advice for farmers. An example of this evidence is all the work going on with phosphorus tools such as MLA's Phosphorous Tool[4]. The quote below is typical of much of the marketing of these tools.

"By applying the new, predictive computer model to their 1,600ha property, 65km south of Cooma, Oliver and his wife, Jane, have cut their fertiliser bill by almost half while maintaining their stocking rate"[3].

We found that understanding that companies are making money from purchases we make can be helpful on taking or not taking advice.

References:

Rural Australia: Crisis 2012 *Ben Rees, B. Econ.; M. Litt. (econ.)*

http://www.mla.com.au/Publications-tools-and-events/Tools-and-calculators/Phosphorus-tool

http://www.mla.com.au/Livestock-production/Producer-case-studies/Five-steps-to-better-phosphorus-use

Policy Analysis and Design process

Graeme Hand

Policies are put in place to treat or prevent a problem. Unfortunately, our success with designing policies is low. Many have found that even a brief overview of this process shows that the majority of policies have no chance of success in the long run. I will give a summary and then try to explain this process by giving a worked example. Where policies are designed to treat or prevent an environmental problem diagnosis of is critical and will be covered in detail in later newsletters.

The steps in this process (from Holistic Management) are:

1. What's the cause of the problem the policy or project is addressing or trying to prevent?
2. Identify the whole being managed (get the right people involved)
3. Identify conditions that would exist if the problem did not exist.
4. Identify possible actions to address the problem or achieve objectives
5. Test policies or project actions
6. Modify policies or project actions or objectives
7. Create monitoring criteria
8. Determine how to market, educate, or engage resource base.

Policy Analysis and Design process (cont'd)

Graeme Hand

This failed MIS Bluegum plantation (above) which has been cut down & is ready to be burnt is an example of a policy that failed due to not addressing the cause of a problem (declining environment due to management decisions reducing landscape function and biodiversity) resulting in massive financial, environmental & social damage. Land is to be put back to high input cropping compounding original poor policy (even though made with good intent).

As an exercise, here is a worked example of how a policy might be developed.

Worked example - Serrated tussock (*Nassella trichotoma)*

Step 1 What's the cause of the problem the policy or project is addressing or trying to prevent?

Serrated tussock is a low successional perennial grass that likes the conditions created by grazing animals continuously grazing at low stock density. The cause appears to be this type of grazing management.

Step 2 Identify the whole being managed (get the right people involved)

Farmers, public land managers, government departments, researchers and public.

Step 3 Identify conditions that would exist if the problem did not exist.

Land would be high in landscape function, perennial diversity, biodiversity, resilience and with healthy soils and abundant fresh water

Step 4 Identify possible actions to address the problem or achieve objectives

Change management of grazing animals so that they only graze areas at high stock density with long recovery on a planned basis

Step 5 Test policies or project actions

Small trial initiated to test proposed action.

Continued next page....

Step 6 Modify policies or project actions or objectives

Need to feed back into current policies for serrated tussock.

Step 7 Create monitoring criteria

In the photo to the right, Perennial grass is regenerating in the inter-tussock space. Landscape function and perennial grass diversity monitored. Animal performance through gut fill and dung score and financial impact to be monitored to ensure rate of improvement is appropriate.

Step 8 Determine how to market, educate, or engage resource base

Possibly Stipa members could actively engage with farmers to assist them to control serrated tussock until researchers, Universities and governments have enough evidence to change policies and education

(Above) Perennial grass is regenerating in the inter-tussock space

References:

Holistic Management text

References for Article 3 pg 22

[1] Tim Hutchings pers comm Stipa Newsletter June 2012
[2, 3] Michael Coughlan pers com 2012
[4] Holistic Management text
[5] John O'Brien Correct phenotype is the key to sustainable profitability, Spring 2008 Australian Organic Producer
[6] De Deyn GB, Quirk H, Oakley S, Ostle NJ, Bardgett RD (2012) Increased Plant Carbon Translocation Linked to Overyielding in Grassland Species Mixtures. PLoS ONE 7(9): e45926. doi:10.1371/journal.pone.0045926
[7] Persistence of soil organic matter as an ecosystem property Schmidt et al 2011 doi:10.1038/nature10386
[8] Tongway, D. & Hindley, N., 2004, Ecosystem Function Analysis, Landscape function analysis: a systems approach to assessing rangeland condition, CSIRO Sustainable Ecosystems.
[9] Col Seis 2012 pers com
[10] http://www.malcolmbeck.com/articles/AirPollutionWaterShortageSoilErosion.htm
[11] Stipa Newsletter Number 48 June 2012, Never take advice or Why grazing native grasses is more profitable than re-sowing or cropping
[12] Stipa Newsletter Number 44 June 2011, Regenerating Native Grasses
[13] TOWARD A MORE SUSTAINABLE AGRICULTURE . Raymond P. Poincelot. AVI Publishing Co., 1986.

Behave Australia Course 2012

Bruce Maynard

Animals experimenting with a novel food at the Dubbo Behave course (above).

In August a number of Stipa members and friends from across the nation attended the first Behave course presented in Australia. This was a follow on from the 2011 Stipa Conference where Fred Provenza, Dean Revell and Bruce Maynard conducted a one day introduction to Behave.

The week was a chance to be introduced to new concepts in thinking about the relationships between people, animals and landscapes. The continuous change that occurs through life offers opportunities for managers of livestock and lands to affect both the amount and pace of that change. How this happens at a practical level can include some real life examples such as: increasing the variety of plants animals will eat, allowing animals to self-medicate, reducing over utilisation of sensitive areas, changed genetic expression through epigenetic triggers, avoiding poisonous plants and the rejuvenation of landscapes for wildlife using livestock as a tool. A long list of diverse benefits that are linked by one overriding factor- behaviour. The interaction of behaviour was examined from principles and processes to on ground practices.

(Above) Groups of sheep ready for their morning feeding demonstrations.

So how does this affect grasslands- in particular native or naturalised ones? Behavioural modification can affect the ways that animals satisfy their nutritional needs by allowing them to increase the number and quantity of plants that they can access and utilise. These new behaviours may emerge in flocks and herds by themselves but in other cases may never begin without positive interventions by their handlers.

A common statement from landholders is that “I know what they DO eat”. The intriguing question is “do you know what they CAN eat?”. The range of compounds in plants extends into the thousands for each plant species and every day animals are mixing those all together to optimise their individual growth and health.

Native grasses provide a wide range of compounds that can be beneficial for animals to utilise and detoxify the compounds in less desirable plants (weeds) in our production areas. This partly explains the effects of increasing diversity seen in grasslands that are being grazed in sophisticated ways. Animals can eat a wider

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range of foods than they experienced before and managers can be a part of changing that using behavioural principles.

At the Dubbo Behave course landholders, researchers and agency staff learned how to inexpensively and continuously transfer direct effects into their own catchments at the same time as reducing inputs of energy and resources.

The benefits that individuals saw from the course will be implemented in native grasslands across Australia in the coming years and it will be exciting to see the progress and new initiatives that emerge. The participants started an internet group to continue supporting and discussing their findings and ongoing trials.

There are two Behave courses planned for Australia next year to introduce and foster more behavioural approaches toward natural resources.

If you are interested in learning more about Behave, you can also visit the website at http://extension.usu.edu/behave/

Bruce Maynard, The Lazy Farmer?

Continued from page 15.

surface measures taken along a transect. I also took detailed measurements of perennial grasses on points on a transect. And I collected soil and roots for laboratory analysis.

I'm about half way through my research and am analysing samples from the first stage of fieldwork. Preliminary results from LFA indicate that in both Continuous and Planned Grazing, soil function is effectively the same – not surprising with the good fortune of 3 wet years and abundant pasture. There are more perennial grasses in Planned Grazing than Continuous Grazing; but teasing out the grazing effect will be challenging as the difference is likely to be due to multiple factors such as changes in pasture composition, plant lifecycle and grazing pressure as well as grazing method.

My initial observations of soil and roots makes me reasonably confident that I will find measurable differences in soil properties and root biomass, but there is a lot of laboratory work and data analysis in front of me before I have full results and can look for relationships between variables. Then, the next stage of research will be to test my findings further afield in mid 2013 and, if all goes according to plan, finish by the end of 2013.

If you have any questions or observations to share, I'd be pleased to chat to you. You can contact me via email: helen.king@anu.edu.au

Helen King PhD. Grazing, roots and soil:

interactions and implications for soil function and sequestration of soil Carbon'

Helen King is a PhD Scholar at the Fenner School of Environment and Society, Australian National University. She completed her Master of Environmental Science at the Fenner School of Environment and Society in 2009, and before that held senior management positions in a range of organisations in the private and public sectors, most recently as Deputy CEO of the Cooperative Research Centre for Greenhouse Accounting until its closure in 2006.

She is currently doing a PhD at Fenner looking at grazing practices, soil function and soil Carbon. This article describes her project and some initial findings.

As Stipa members are all too aware, a lot of research has been done on grazing over the years, looking at animal and pasture production, soil conservation, biodiversity, soil carbon etc; yet there is no scientifically recognized best grazing method. Research results on the effect of different grazing methods are varied and sometimes conflicting. This is not surprising when you consider the high natural and management variability of agriculture's socio-economic-ecological systems. Grazing methods differ widely in how they are implemented and adapted to suit particular goals and circumstances while scientific methods require statistical rigour. This conflict between the need for grazing management to be highly adaptable and the need for researchers to have verifiable phenomena to measure and analyse has been limiting the capacity of researchers to shed much light on the effects of grazing on factors like soil Carbon.

Through my PhD research I'm investigating whether and how different grazing methods affect soil function (soil health), the soil's ability to provide ecosystem services, including the ability to stabilise carbon. As the two ends of the grazing spectrum are most likely to show a difference if there is one, I'm studying Continuous Grazing where paddocks are grazed for extended periods, and Holistic Management Planned Grazing that mimics large herd migrations. The first stage of fieldwork from August 2011 to March 2012 is complete and samples partially analysed.

My research site is in Boorowa in south-eastern NSW. As I'm interested in grazing, roots and soil interactions and soil function, I employed a range of methods. Landscape Function Analysis (LFA) to derive soil stability, infiltration and nutrient cycling indices for soil function using soil

(Left) David Tongway assisting with bulk density measurements.

Weaning lambs on native grasses

Norm Smith—Glenwood Merinos

This article has been kindly submitted by Norm and describes his strategy for accommodating the weaning of merino lambs within their Holistic Grazing Plan.

Since being exposed to Holistic Resource Management in the late 1990's we have tried many different strategies to wean our merino lambs and still incorporate a Holistic Grazing plan.

The great thing about Holistic Management and what we have learnt is that it is not a rigid system and there are many ways to skin a cat, the important concept to remember is t

1. the tools we have learnt,
2. assuming that we may be wrong
3. monitoring the progress.

When weaning lambs the balance of the land, the animals, the people and the profit needs to be biased to the animals as the long term asset.

We have tried weaning lambs into one big mob, cross weaning, weaning early, weaning late and weaning into smaller mobs. The most successful and the least stressful for the lambs and us has been to wean into smaller mobs.

When weaning some points to remember –

- Wean lambs at 10-14 weeks of age leaving plenty of time for the ewe to recover to condition score 3 and get back in lamb
- Ensure lambs are a minimum 22 kg
- Split lambs into weight ranges if there is a large variation, be prepared to supplement or give preferential treatment to light lambs if needed
- Pre-empt and treat lambs against risk of disease, worm infestation and fly strike
- Use quality products, don't try and be cheap. It doesn't make sense to use poor drenches that lead to

worm resistance.

- Plan to have paddocks rested and fresh with a lower worm burden to wean lambs into.
- To start we have found weaning into small mobs easier and the lambs are happier.
- Take the time to check and walk lambs onto water and make sure water is clean and cold
- Use a slow rotation of available paddocks
- We have found Alpacas to be very useful in leading lambs around paddocks and onto water, also when moving lambs
- Sample weigh lambs to ensure weight gain
- Worm test every month to 6 weeks, as lambs are most at risk of worm reinfestation
- Put all lambs into one mob after about 4-6 weeks to again balance your land management goals
- Always assume you are wrong and monitor the progress.

Long term, this management that incorporates profitable regeneration of native grasslands and excellent animal welfare will take the business into the future where consumers and the public are looking for ecologically and ethically sound products and landscapes.

Articles written by Stipa members that share their knowledge and experience about profitably regenerating and managing native grasslands are very valuable contributions to the newsletter and website.

We thank Norm and Pip for taking the time to share their knowledge with us.

If you have an article you'd like to share, please contact Graeme Hand.

About Glenwood Merinos.

The Smith family has been breeding merinos at Glenwood since 1898.

Since 1996 the stud has used SRS® genetics with outstanding results. The breeding technologies developed by ex-CSIRO researcher, Dr Jim Watts, have accelerated genetic improvement, improved animal welfare and improved overall enterprise profitability exponentially. Norm and Pip live on Glenwood with their five children – Chloe, Amber Maggie, William and Daisy.

Glenwood is situated about 29 km East of Wellington on the Central West Slopes of NSW. The property is 600 metres above sea level and averages approximately 650 mm (26") of rainfall per year which is neither winter nor summer dominated. Glenwood runs predominately a merino breeding enterprise including 1300 stud ewes and 3000 flock ewes.

The pastures are dominated by winter and summer native perennials. Norm and Pip manage Glenwood in a holistic manner to balance outcomes for the landscape, the livestock, the business and the people. They are encouraging greater diversity of desirable perennials with time controlled grazing enabling short graze periods and long rest periods. Norm and Pip are managing the livestock so that they can minimise chemical use. They are lowering worm burdens by better grazing techniques and eliminating the need to jet for fly strike through genetics and management.

Through all of the above, Norm and Pip have lowered the cost of production and the inputs while dramatically improving the outputs.

GLENWOOD MERINOS

Action on the Ground Project Update

Demonstrating practices that increase soil carbon

In the July Newsletter, we announced Stipa's success in gaining funding under the Federal Government Action on the Ground program to show that managing perennial native grasses for landscape function and diversity will quickly improve soil health i.e water infiltration, nutrient cycling and resistance to erosion while increasing soil carbon storage. This project has now successfully passed its first milestones which included Site Setup and Baseline Data Capture. This article describes the Project Sites and the approach to setting a Landscape Goal and managing towards it.

If you want to learn even more, please email Graeme Hand.

Processes that store Carbon in the soil

Research has shown that increasing landscape function and perennial grass diversity increases carbon stored in soil. Recent research has suggested that it is complexity both above and below ground that retains soil carbon.

Landscape Function describes the ability of an area to capture water and nutrient resources into the soil and reduce losses from the system. Landscape Function Analysis (LFA) was developed by Australian scientists David Tongway and Norm Hindley. It uses visible indicators of plants, litter and soil surface condition that gauge how effectively a landscape is infiltrating

water, cycling nutrients into the soil and keeping the soil stable, healthy and productive.

In this project, we set perennial grass diversity and Landscape Function goals for soil stability, water infiltration and nutrient cycling to monitor towards and then apply Planned Grazing® and Pasture Cropping to shift the treatment area towards these landscape goals. The Landscape Goal is described below.

Landscape Goal

- Dense perennial grassland with high landscape function and biodiversity
- Deep, (>20mm) stable litter layer with visible fungal attack (LFA litter class 7lm)
- Increasing mature perennial grass plants (large bases)
- More than 30 perennial grass species with healthy age structure

Landscape Function Analysis

Landscape Function describes the ability of an area to capture water and nutrient resources into the soil and reduce losses from the system. Landscape Function Analysis was developed by Australian scientists, David Tongway and Norm Hindley ***http://www.csiro.au/services/EcosystemFunctionAnalysis.html#1*** .

It uses visible indicators of plants, litter and soil surface condition that gauge how effectively a landscape is infiltrating water, cycling nutrients into the soil and keeping the soil stable, healthy and productive. Although it was developed originally for mine site and Rangeland rehabilitation, we are finding it a very useful tool for this project. In this project, we are using Landscape Function Analysis to help us judge when and how to use Planned Grazing and Pasture Cropping to improve soil carbon storage.

The following sections provide an example report similar to the reports received by the project sites.

Example of moderate decomposition (m) (Below)

This site is striving for active decomposition with visible fungal attack (white fibres visible) as is shown in this picture.

Continued from page 19. The following table provides an example of a Landscape Function Report, it shows the target scores for Soil Stability, Water Infiltration/Runoff and Nutrient Cycling that this site is trying to achieve. Soil Stability is the ability of the soil to withstand erosive forces, and to reform after disturbance. Infiltration/Runoff is how the soil partitions rainfall into soil-water (water that is available for plants to use), and runoff water which is lost from the local system, or may also transport materials (soil, nutrients and seed) away. Nutrient cycling is how efficiently organic matter is cycled back into the soil.

Example Landscape Function Analysis Report

Score	Target	This report	Previous	Trend
Stability	87	67	-	-
Infiltration	65	40.4	-	-
Nutrient Cycling	63	37.8	-	-

These scores indicate that the soil surface is:

- Quite stable and only slightly vulnerable to erosion.
- Water infiltration is moderate but moderate to high rainfall events will result in runoff.
- Nutrient cycling is low and to achieve higher soil carbon will need to progress to next litter class.

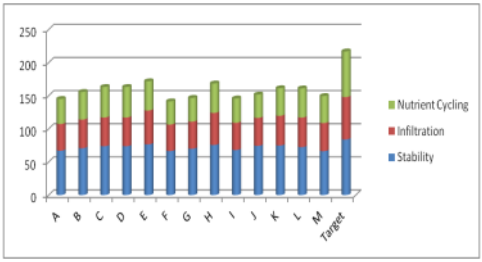
Litter class is a really important concept as it describes the quantity and degree of decomposition of litter. Litter that decomposes rapidly into the soil surface increases the nutrient cycling of the area and improves the availability of plant available nutrients such as nitrogen.

Results and next actions.

To increase these scores, this landholder has judged that he needs more plant material available for decomposition. To achieve 7 in the litter class, he needs to have enough plant material so that if the litter were pressed down onto the soil surface and all air pressed out, the pressed litter would be greater than 2cm deep. To make this happen, he needs a lot more plant material (refer to the photographs on page 21 for examples of litter). To make this happen, he's going to exclude livestock from the site until such a time as the plants have fully recovered from the last grazing. Then, he's going to bring in a large number of stock and contain them in the area until their feet and muzzle's have pressed the litter onto the soil surface so that as much of it as possible can decompose actively. When the litter is on the soil surface, the animals will be removed and again fully exclude them for a long enough time to allow the plants to fully recover again. For this location, we expect that it will take until the end of Autumn 2013 for the site to fully recover and for the animal impact on the site to only need two or three hours of impact to increase the litter class.

Project Sites:

There are thirteen Farms involved in this project. They have each set aside a part of their land for the treatment area for the three year duration of the project. The treatment areas have been carefully selected so they can be fenced off so that Planned Grazing and Pasture Cropping can be applied. The treatment areas are within or alongside paddocks that will continue to be managed as the farmer normally does. Areas within these paddocks (close to or alongside the treatment area) have been marked as "Control" areas. These Controls will be measured at the same time as the Treatment area so we can show the changes to Landscape Function and Soil Carbon that are due to the treatment. The Farmers will work very closely with both Graeme Hand and Colin Seis to assess the Landscape Function of the treatment area and to apply the treatments to increase Landscape Function Analysis and perennial grass structure, diversity and age class as appropriate for each individual site. This process will be produced as guidelines for Stipa members and others so that anyone has clear guidelines to regenerate native grasslands, soil health while increasing soil carbon storage.



Some results

LFA Score: Stability 67, Infiltration 40.4, Nutrients 37.8, Litter Class 5ls

LFA Score: Stability 75, Infiltration 48.5, Nutrients 37.8, Litter Class 6ls

LFA Score: Stability 42.9, Infiltration 27.4, Nutrients 18.8, Litter Class 2ln

Never take advice III

Graeme Hand

Article 3 Designing a regenerative, low risk, profitable grazing enterprise

Designing a profitable grazing enterprise is highly complex and as discussed in Article 1 in the June 2012 newsletter there are no right answers. I would like to restate the point that this is may be wrong for your farm so make sure to check for your self – "never take advice".

Key Points:

The key design factors for a profitable, low risk grazing enterprise all appear to be related to never running out of grass.

Never running out of grass

Recent work in South West Victoria has demonstrated Tim Hutchings[1] point that "… farm viability depends more on minimising losses than increasing production.." is hidden in small regular failures. The figures are based on interviews and business plans prepared for local farmers.

Last spring and summer were dry in this area and this resulted in many having to purchase feed and suffering production losses such as poor lambing with maiden ewes. When this is combined with the SW Vic 'drought' in 2006-2007 the consequence is that farmers need to put aside at least $10/DSE/year for low rainfall that results in running out of grass.

A simple model of current versus possible design for this situation shows that carrying 80% of the stock with the associated increase in gross margin and then using planned grazing to ensure that the risk of running out of grass is reduced results in a change in annual gross margin over that 6 year period from $166,000 to $240,000.

Gross Margin estimates

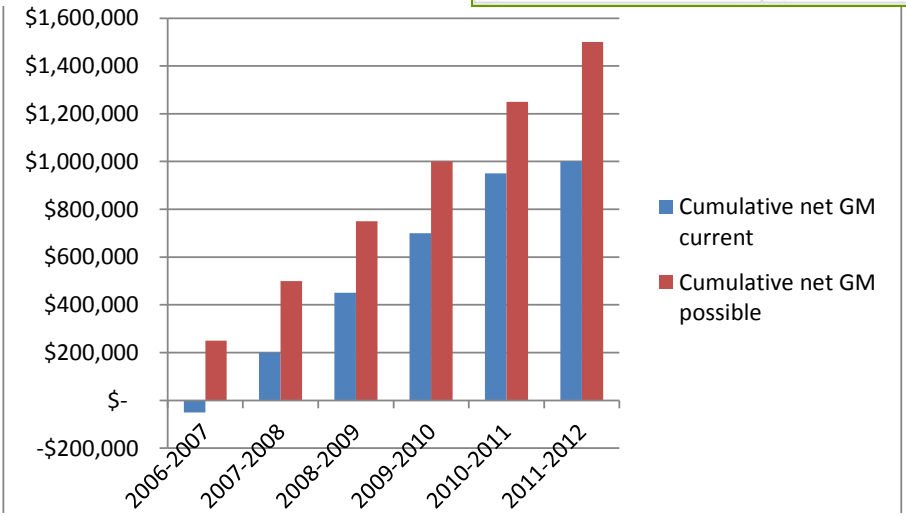
	DSE	GM/DSE	Total GM
Current	10000	25	$250,000
Possible	8000	30	$240,000

DSE—dry sheep equivalent

GM — gross margin

Estimated feed/DSE to get through rainfall shortages with current model

2006-2007	2011-2012
$ 30	$ 20



Design and management areas:

Financial
Enterprise
Regenerative management
Inputs

Financial design & management

High equity (>80%?[2,3]) seems to be a general guide although there are examples of farmers recovering from lower levels where they have good solid profit

Use risk adjusted cumulative cash flow[2] rather than static gross margins for selecting enterprises or design within enterprises

Plan a profit[4] – first expense is profit and then prioritise all other expenses

Enterprise design & management

Suitable animals – what you enjoy and selected to thrive on grass[5]

Stocking rate able to be adjusted at a profit (30-50% of carrying capacity) – usual design is to have dry stock such as steers, wethers etc. that are able to be sold at a profit when carrying capacity changes. Some sheep people trade some cattle and some cattle only farmers are keeping 'other cattle breeds' that are not there focus

One mob for most of the year[4] – a focus on one mob means that the ratio of grazing to recovery is maximised while simplifying stock moves. There is a trade-off between the problem of yarding large mobs versus reducing the need for yarding

Regenerative design & management

Use management that continually builds soil as "modern agriculture is producing more eroding soil than food"[13]

Diverse perennial grassland – increases biomass[6] and increases soil carbon capture and stability[7]. Plants grow whenever rain falls

Increasing landscape function[8] – to lower risk, inputs, leakage and waster we need to be increasing services provided by landscape function

Increasing grassland structure – healthy age structure as well as understorey and mid-storey grassland plants improves micro water cycle, insect diversity etc[9,10]

Long recoveries (6-12 months?) – to ensure that rainfalls are linked[11] and to allow the better perennials to germinate and establish[12]

Inputs

Proven on your farm – many practices or advice do not travel very well, due to variation in atmospheric moisture distribution/ brittleness[4], soil types, weather patterns etc.

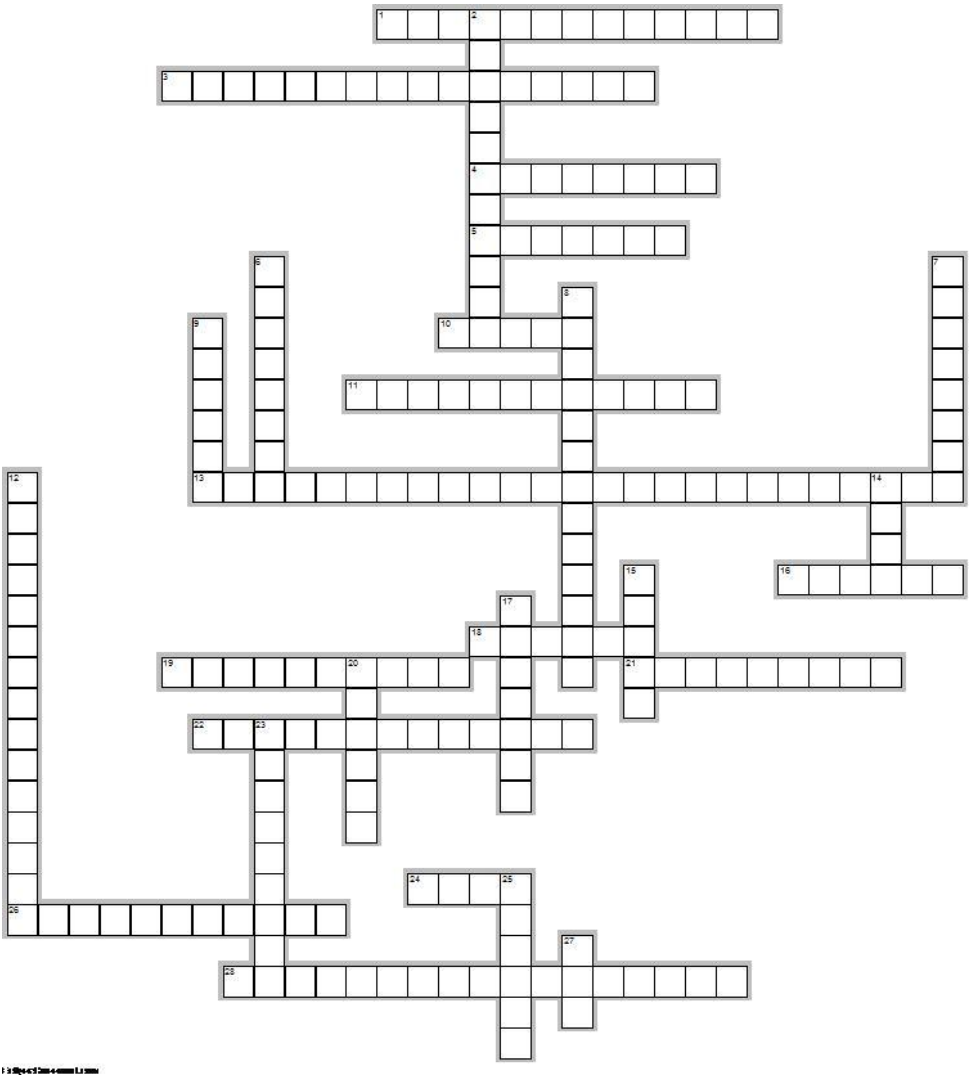
Increases biodiversity – inputs that reduce biodiversity generally do not address the cause of problems and can result in unintended consequences[4,9]

Builds infrastructure for easier regenerative management – fossil fuel based inputs such as fencing and water may be required to improve management

References

References for this article are listed on page 12.

Crossword



Across

1. What is the main summer growing (C4) grass in Tasmania?
3. Which types of plants are the most effective at achieving high landscape function (LFA) scores?
4. What is the name of the environmental organisation in Southern Tasmania?
5. One of the developers of Landscape Function Analysis
10. Soil Carbon is highest ..... perennial grasses.
11. The LFA indicator related to water
13. LFA is an abbreviation for?
16. What colour leaves are you looking for in the grass plant that tell you the plant is fully recovered?
18. According to Ben Rees, if rural Australia was a European country which would it be?
19. What soil resource will be measured in this project?
21. The LFA indicator related to soil erosion
22. What government Initiative is the Stipa Action on the Ground program operating under?
24. Low LFA scores indicate ---- of resources such as rainfall and soil, nutrients and seed
26. What are the two main indicators of animal performance?
28. What sort of material is the landholder trying to increase?

Down

2. What stage of the Perennial Grass lifecycle is the landholder trying to create the conditions for?
6. How many sites are there in the AOTG Project?
7. What are policies designed to prevent or treat?
8. Nutrient cycling indicates how efficiently which soil resource is cycled back into the soil?
9. In moderate decomposition, what sort of attack will be visible in the litter on the soil surface?
12. What innovative practice developed by Stipa members Darryl Cluff and Col Seis will also be used?
14. What farm resource will this project improve?
15. The livestock will be used to ----- the litter onto the soil surface
17. High soil stability is the ability of the soil to withstand ------ forces.
20. Low infiltration scores indicate that most rainfall will ------
23. What do you have to identify to have a sound policy?
25. Which University is helping Stipa with the project?
27. The target litter class.

Shrubs for Emissions Reductions and Carbon Storage.

Bruce Maynard

The SERCS Project is a nation-wide project trialling on farm the possibilities that Australian native plants have shown in reducing Methane emissions, anthelmintic effects, Carbon sequestration and medicinal qualities.

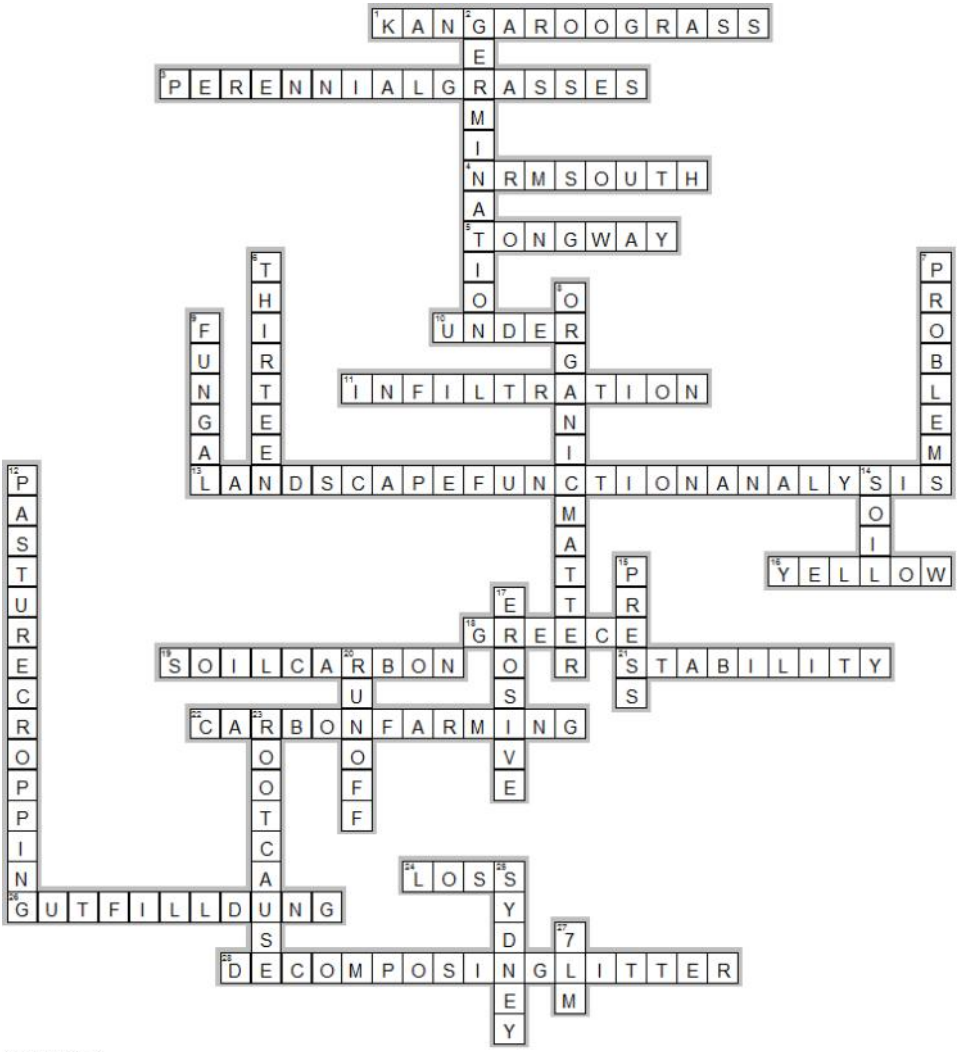
The findings from this have direct implications for native grasslands in that to maximise nutrient flows in the landscape shrubs and trees are essential components for long term health and functions. Grasslands do not function without interspersed woody vegetation types that recycle nutrients from deeper layers and synthesise secondary compounds in ways that grasses and forbs cannot. So judicious numbers of middle and upper layer plants within a grassland setting can add to forage quantity and also quality by widening the choice available nutrients for both livestock and wildlife to consume.

A variety of locally suited shrubs with proven forage potential will be trialled at 7 farms in multiple layouts. Sites will be grazed when the plants have grown sturdy enough to be used and the livestock will be measured for Methane reductions and the above and below ground Carbon storage.

The middle story layer in the landscape offers opportunities for production to increase vertically while building diversity structurally.

The Future Farms CRC Enrich Program researched the possibilities of Australian forage shrubs and after extensive testing and selection found that many showed huge potential to benefit both landscape and production values. The SERCS project is a wholehearted attempt to implement their findings in meaningful ways.

Crossword Solutions:



Membership renewals

Please note

Stipa is changing the way they renew memberships. We will endeavour to mail out your renewal tax invoice one month prior to your expiry date. If you would like to renew please mail us a cheque or EFT your membership.

Please remember to make reference on all EFTs and return cheques your INVOICE NUMBER (found on the top of your Stipa tax invoice).

Attention all members

To ensure that you continue to receive Stipa newsletters and updates, please remember to advise us of any change of address.

Also if you wish to receive emails about forthcoming events and other matters of interest, it is important that we have your correct email address.

Contact Stipa

CEO Graeme Hand

Ph: 03 5578 6321 Fax: 03 5578 6370

Email: graeme.hand@bigpond.com

Or

Administration

Sue Ogilvy Ph 0419 546 079

Email: stipa8@bigpond.com

Stipa
Native Grasses Association Inc.
ABN: 42 300 161 459

Stipa promotes and proves the profitable management of native grasses by motivated people in healthy landscapes.

(please keep a copy for your records) TAX INVOICE

MEMBERSHIPAPPLICATION/RENEWAL

Name: .....

Company or trading name: .....

Address: .....

.....

Town: ..... State: ..... Postcode: .....

Phone: ..... Mobile: .....

Email: .....

Annual membership (please select one – note that subscriptions include GST):

☐ ACT & NSW $75 ☐ Interstate $45 ☐ Student $30 ☐ Corporate $500

Payment options (please select one):

☐ **Cheque/money order** (to Stipa Native Grasses Association Inc.) for $..... is enclosed.

☐ **Direct deposit** Deposit of $..... made on ..... (date).

Stipa Native Grasses Association account at Westpac BSB: 032 647 Account: 136 924

Please include your surname in the reference field to help us match your payment to your membership.

Send your completed membership form (with your payment, if applicable) to:
Stipa Native Grasses Association, 150 Caroona Lane, Branxholme Vic 3302

For more information contact Stipa CEO Graeme Hand on 0419 532 155, fax 03 5578 6370 or email graeme.hand@stipagrass.com

Stipa Native Grasses Association aims to:
*promote native grass as pasture and for conservation * educate the community about native grasses * document pasture systems using native grass * distribute information to agencies and landholders * network with other groups with complementary activities.

November 2012