

# Newsletter

Number 44

August 2010



Kangaroo grass (*Themeda australis*) showing adaption for surviving high levels of rest

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



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**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](http://www.stipa.com.au)**

Chief Executive Officer: Graeme Hand M: 0418 532 130 E: [graeme.hand@bigpond.com](mailto:graeme.hand@bigpond.com)

Project Officer/Administration: Kristine Mibus  
150 Caroon Lane, Branxholme Vic 3302  
T: 03 5578 6321 F: 03 5578 6370  
E: [kristine.mibus@bigpond.com](mailto:kristine.mibus@bigpond.com)

Chair: Annabel Walsh E: [annabelwalsh@moorna.com.au](mailto:annabelwalsh@moorna.com.au)

Treasurer: George Taylor E: [gandktaylor@activ8.net.au](mailto:gandktaylor@activ8.net.au)

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## From the Chair

### Annabel Walsh

Welcome to another edition of our Stipa newsletter. Rain has come to many parts of Australia and it is just fantastic to see the response, especially where graziers have well-established grazing systems in place - optimizing, rest and grazing to build soil health. The biological engine has been just idling through the dry period and the response to rain has been fantastic. A wander through the paddock reveals an abundance of native grasses, and shrubs have bulked up, giving a kaleidoscope of differing greens. One wonders at the resilience after so many hot, dry years.

An outstanding example of this is on Wyndam Station, just north of Wentworth in NSW, where Angus, Kelly and Mitchell Whyte hosted the Lachlan CMA farm tour. It was a wonderful tonic for us to experience and enjoy the detailed story that these pastures revealed in response to the early autumn rains.

On another note, I attended the no-kill no-till pasture cropping training session conducted in Berri SA by Col Seis and Bruce



Maynard. They had a very quiet and sceptical audience on the first day, but by mid-afternoon on the second day you could see that the penny had dropped. There was a sense in the room that the information conveyed by these two pioneers of non-conventional cropping systems was starting to be understood, and questions were flowing as to how these systems could be adapted to varying situations.

How we manage our pastures and cropping land reflects directly on the quality and quantity of water availability. 'Rain on the Rangeland' is the theme for this year's Australian Rangeland Society conference to be held in Bourke from Sunday 26 September through to Wednesday 30 September. Daryl Green and his committee have been working really hard to make this conference as inclusive as

possible, and to enable science and landholders to inform and be informed on the all aspects of landscape management. Please put these dates in your diary and check out the ARS website ([www.austrangesoc.com.au](http://www.austrangesoc.com.au)).

On the political front, the amazing turn-around on addressing the effects of climate change has left most of us gobsmacked. Full marks to Malcolm Turnbull for holding his course. Parking the issue won't make it disappear. Whether we are a climate change

sceptic or believer, the groundswell that was developing through the impending introduction of a carbon trading system was creating landscape management that looked beyond the muscle of conventional cropping and grazing methods and embraced the biological principle under which the natural system operates.

Fondest regards to all our members, hope to see many of you during September in Bourke, and fingers crossed for favourable follow up rains.

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## From the CEO

### Graeme Hand

In this report:

- Stipa project in the mid-north of South Australia
- New South Wales Communities in Landscape (CiL) project
- Stipa Victorian volcanic plain native grass regeneration trials
- Australian Rangelands Conference
- New staff member

### Stipa project in the mid-north of South Australia

This project has been completed and the report written. This project was very successful with the farmers involved demonstrating that management can create the soil conditions that promote the regeneration of perennial native grasslands. The feedback from this project was extremely good with some of the farmers saying the project was the source of some of the most valuable workshops and work that they have done - very practical and



also eye-opening to how quickly the land regenerates.

Stipa would like to thank Millie Nichols and Anne Brown for selecting Stipa to carry out this project, as well as for all their work throughout the project. The project was funded by a Federal Government Caring our Country grant.

### New South Wales Communities in Landscapes (CiL) project

Stipa is a partner in this project which has the purpose of “working with communities, individuals and other NRM agencies to integrate conservation and production across box-gum Woodlands to maintain and enhance biodiversity”. (<http://cil.landcare.nsw.gov.au>)

The part of this project that Stipa is involved with has completed all

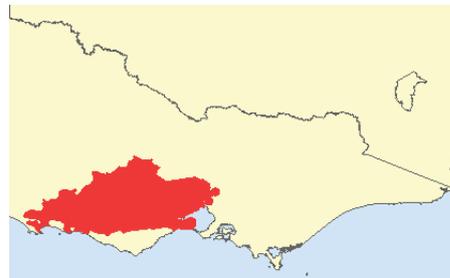
of the baseline measurements including farmer interviews and land monitoring. The results of the farmer interviews clearly showed that where farmers are actively regenerating part of their land, either grassland or woodland, that they were positive about the future and felt in control. This is a large project with many members and it is felt that Stipa is going to provide a really positive input to this project. A road trip with all the partners is planned for August to go around and look at farmers where the owners are regenerating grassy box woodland and native grasslands.

Stipa's role in this project is to provide workshops and assist farmers regenerate the grassland part of the grassy box woodlands. The Funding for this project is also provided by a Federal Government Caring our Country grant.

### **Victorian Volcanic Plain Native Grass Regeneration trials**

In partnership with the Glenelg Hopkins Catchment Management Authority (GHCMA) Stipa undertook to improve the management of 600ha of native grassland on the Victorian Volcanic Plain (VVP). The VVP

runs approximately west of Melbourne to Portland in South West Victoria. This area was large, highly diverse, natural temperate grassland that has been degraded by inappropriate burning, over rest, cropping and grazing to about 4% of its estimated distribution.



Victorian Volcanic Plain

(Source: [www.environment.gov.au](http://www.environment.gov.au))

The results of this project have been significant with over 1800ha now under improved management, more than 30 farm trial sites and the overall farm area represented by farmers involved over 25,000ha. This project has involved multiple individual farm visits to assist people interested in regenerating native grasslands. A focus on increasing diversity of species and promoting good healthy land function is expected to increase the environmental resilience as well as producing stable long term profits.

The on farm visits have clearly demonstrated that very significant grasslands still remain or are being regenerated on many properties on the Victorian Volcanic Plain. Stipa would like to thank the Glenelg Hopkins Catchment Management Authority for all their help and work in assisting with this workshop and providing the funding through a federal Government Caring for our Country grant.

### **Australian Rangelands Society Conference**

The next Australian Rangelands Society (ARS) Biennial Conference will be held in Bourke, New South Wales, 26-30 September 2010 (To register for the Conference go to [www.arsbourke2010.com.au](http://www.arsbourke2010.com.au)). Stipa is supporting a young farmer from South Australia to present at this conference. It is planned that the Stipa conference will run in alternate years to the ARS conference. The theme for the upcoming conference is 'Rain on the rangelands'.

### **Welcome Kristine Mibus**

I would like to welcome Kristine Mibus to Stipa.



Kristine Mibus

Kristine will be working a couple of days a week to write up projects as well as look after the book keeping and other administrative requirements for Stipa. Kristine is a keen sportswoman, particularly with regards to netball, and has a lot to offer Stipa. She will be a valuable member of the team.

To contact Graeme Hand call 03 5578 6321 or 0418 532 130,  
or email [graeme.hand@bigpond.com](mailto:graeme.hand@bigpond.com)

## On Farm Project series presentation

*As noted in previous Newsletters the On Farm Project presentations by the farmers of their results and possible future trials was very exciting. Here is another presentation from the On Farm Project series.*

### Project site

This project was carried out in two paddocks:

An 80 ha paddock with one watering point that was pasture cropped in 2006 with barley.

A 35 ha paddock with no reliable water that has not been cropped since the 1970s.

### What has changed

Both paddocks have been grazed as one. Since 2009 the lots now have been grazed in six paddocks.



1

### PJ Edwards, Tottenham

Grazed for one week from 4/10/08 to 12/10/08.

Rain at 6/10/08 was 14 mm and 12 mm at 14/10/08.

Rain from 20/11/08 to 28/11/08 was 45 mm. Rain from 22/12/08 to 27/12/08 was 39 mm. There was no rain in January

Rain event from 13/2/09 to 24/2/09 was 100 mm, and from 13/3/09 to 14/3/09 was 28 mm.

### Monitoring



2

ABOVE: Taken looking south now I have made the paddock into six with watering points, hoping for more even grazing.

LEFT: Paddock pasture cropped in 2006 season (barley). Grazed late January for three weeks, then photo was taken.



Taken looking north, 3 months after rain event.



Taken from the same site before second grazing in June.



The paddock was grazed from 1 May to mid-June, one week in each paddock with 700 pregnant ewes (2 DSE each 6 paddocks from 1, 115 ha)



20 ha paddock and the grazing density.



Perennial grass after first grazing. Taken from photo 1 site.



Watering point..

## **'Living Soils' in Tasmania**

**Graeme Hand**

In May, I was lucky to be invited to present at a 'Living Soils' workshop in Oatlands in Tasmania. This was a great workshop organised by NRM South (special thanks to Barry Hardwick, Fleur Gedamke & other NRM South staff for organising). Other presenters were Christine Jones, Col Seis, Ben Falloon and MC Declan McDonald from DPIPWE Tasmania. The workshops went very well and a

lot of the farmers were very interested in the potential of regenerating native grasses for grazing.

The most surprising thing I learnt was that many of the summer growing (C4) native perennial grasses are not present or have not been recorded in Tasmania. During breakfast discussions and walks Christine and I discussed possible reasons why this group of



Kangaroo grass showing adaptation to over rest. (Source: Graeme Hand, 8 July 2010)

grasses that are present in southern Victoria are not obvious in Tasmania.

One idea of Christine's that fits the evidence and is my favoured explanation (although, as Christine said, hard to prove) was that as the last ice age retreated people planted/ transferred summer growing (C4) native perennial grasses from further north but failed to get them established in Tasmania before Bass Strait was flooded.

Another idea that I have been working on and thinking about is based around the physiology of the only summer growing perennial native grass that is recorded in Tasmania - kangaroo grass (*Themeda australis*) - which is a lower successional grass that has the ability to survive large periods of over rest by being able to form growth points half way up its stem. The photo (left) shows this ability in kangaroo grass growing on our property in south west Victoria. This adaption to management is also present in grasses like bent grass (*Agrostis* spp.) and many of the *Aristida* species, an example of which is three awn grass or brush wire grass (*Aristida behriana*). Over

rest kills higher successional, more palatable species because the old plant material chokes their ground level growth points. Grasses, unlike trees and bushes, generally cannot drop their leaves and coevolved with herbivores. So this theory is based around losing the large herbivores earlier in Tasmania than in southern Australia.

If this theory is correct then there still should be seeds of other summer growing grasses in the soil seed bank. It would be good to see some work done on what is the viable soil seed bank on multiple areas to confirm that these grasses are not present at all in Tasmania. Grasses that I am thinking of that should be in Tasmania are red grass (*Bothriochloa macra*) and other higher successional natives grasses such as box grass and Warrego grass (*Paspalidium* spp.).

Let me know if you have any other theories on why the summer growing natives are underrepresented in Tasmania and we will include them in the next newsletter

## Green grass and grasshoppers

**Megan and Andrew Mosley**

It is Autumn already, and much has been happening on Etiwanda.

Most notably weather-wise would have to be the dramatic change in the season! For the year to date we have had 12 inches or 300 mm – we typically receive somewhere around 16 inches or 400 mm annually, so as you might well imagine the property is looking a picture. I wouldn't have to tell any fellow farmer what a sight it is for sore eyes after 10 long years of below average rainfall! On the 40,000 acres of fenced and planned grazed country we have had an explosion of soft seeded, broad-leafed, native perennial grasses and they are thick and vigorous. It is worth noting that we have never sown any of these native seeds. They have been sitting quietly in the soil waiting for the right conditions to be created for them to germinate – and it seems they are happy, because they are bouncing out of the ground all over the place! We have been working for the last 10 years to give our country every opportunity to catch the rain that falls through planned grazing,

animal impact and rest for the plants to recover. We are blown away by how the native grasses have responded to this rain – it seems the more it rains the cleverer we get!! Jokes aside, we have had tests done on our current carbon sequestering ability, and on the area we have developed we are sequestering five times more carbon than we are emitting – now there's a figure to think about. Just imagine if some or most farmers were doing this (and wouldn't it be great if farmers were paid accordingly!)... Global warming would be a thing of the past and we would all have a happier and healthier planet. Better look after this planet – good planets are hard to find!

Along with all that rain and grass comes about a B'ZILLION grasshoppers – we have become quite the expert at pressure washing the front of the cars and removing grasshoppers from radiators! We had a bus group here the other day of about 35 folks and the grasshoppers were particularly busy that day – one bloke on the bus asked us, "What

are you going to do about the grasshoppers?” and well, Andrew, not being a fan of chemicals replied, “Don’t worry about them mate, just keep fencing and grow more grass!”

capped soil, and turn it into a bounty of healthy natural grasses providing more feed right now than our stock can eat! I’ve got to tell you – when I first moved to the west from Armidale some 12 years



We are continuing to work on regenerating the country on Etiwanda each year and every year we reap the benefits through more feed, healthier land and happier people! We have endless opportunities in this western country. Firstly, there is so much of it! Secondly, for \$30-\$40.00/acre (on licensed country) you can take almost completely unproductive country, covered in woody weeds, growing next to no grass and suffering from very hard

ago or so, I wondered what on earth I had done. My first thought was – you got to be kidding me!! But with what we have learned over that time and by watching and trying different things, I now see that we have at our feet, the most amazing opportunity. Put White Dorpers into that equation and it looks even better!

*For more information on the Mosley’s property, Etiwanda, visit [www.etiwanda.com.au](http://www.etiwanda.com.au).*

## Supporting information for regenerating native grasslands

**Graeme Hand**

*Stipa members know that it is possible to regenerate native grasslands using management. Projects that Stipa has previously and is currently involved with have been focused on providing this knowledge to farmers. This knowledge is usually transferred by assisting farmers to set up a small trial area to explore if this management regenerates native grasslands on their farm. At times sections of the agricultural community struggle with this idea and what is possible. I wrote the following article to provide some of the research that supports these practices. Let me know if it is not clear.*

### Regenerating native grasslands

#### Stipa

Stipa Native Grasses Association (Stipa) was formed in 1997 by farmers to promote the profitable management and use of native grasses in agriculture. Many of these farmers had developed or adopted management practices that regenerated native grasslands on their properties. The practices discovered and developed by farmers to regenerate native pastures have been proven to work in many environments and have been scientifically corroborated. (Badgery et al. 2008, Thapa 2010). These practices have been confirmed by Stipa members throughout NSW, Queensland, South Australia,

Western Australia and Victoria, with trials underway in Tasmania. The management practices had the following in common:

- They promote 100% ground cover by growing leaf litter and trampling this litter onto the soil.
- They manage this litter cover with impact/ disturbance so that it is composting/ decomposing and providing germination sites.

Examples of these practices are Planned Grazing (Savory & Butterfield 1999) and Pasture Cropping (Cluff & Seis 1997).

## **Influence of management**

The impact of unmanaged grazing on native grasslands in the Wannon country south-west of Horsham was recorded by John Robertson in 1853. When he first arrived, Robertson counted 37 different species of perennial native grasses on his run. Sheep were often difficult to find in the long growth. Within two years, Robertson observed that bare ground caused by overgrazing gave way to numerous deep erosion gullies across his land, accompanied by the emergence of saline springs (Billis and Kenyon 1930, quoted in Jones 2009).

It follows that if unmanaged grazing was the cause of this degradation then managed grazing of native grasslands may reverse this degradation. The following description is the background for on farm trials to learn how to regenerate native grasslands using livestock.

## **Grassland regeneration**

As discussed, conditions need to be met for grassland regeneration. The first one is creating the soil surface condition of a stable decomposing litter layer with germination sites. The second is

the presence in the immediate environment of a viable seed bank.

## **Soil surface condition**

The soil surface conditions that promote this germination and establishment are complete litter cover and composting/decomposing litter at the soil surface. These soil surface conditions promote water infiltration and storage while at the same time inhibiting weeds (Tongway & Hindley 2004). Disturbance/impact of the soil surface is also required to create germination sites and to trample litter from fully recovered grass plants onto the soil surface.

The litter must be composting/decomposing to cycle nutrients (Tongway & Hindley 2004) and to increase the fungal content which allows native grasses to access nutrients. The management of the trial sites is based around increasing fungal biomass which creates the conditions that favour the germination and establishment of native grasses and has been shown to be a reasonable "...indicator of the overall health of the soil ecosystem" (McDonald et al. 2010, page 56).

Even where practices have deleted soil biological activity, management can quickly recover the required biological activity for regeneration. "...These soils are not biological deserts. They are far from dead and retain all of the essential components of healthy functioning ecosystems. All that is required is that they are treated a little differently" (McDonald et al. 2010, page 56).

Stipa's experience is that this is the primary, low cost, low risk technique to regenerate native grasslands. "...Without fungal-dominated soils, it can be very expensive, almost impossible to grow the native grasses" (Ross 2009).

These conditions can be created by livestock being pulsed at high density with long recovery periods. Management can recruit native grasses from very low populations ranging from 20-30% (Thapa 2010) to less than 5% of native grasses (Zollinger, pers. comm. 2010) to bare ground in cropped areas (Stipa, Newsletter 2009).

### **Seed bank**

Stipa has been involved with over 400 trials where the soil surface conditions described here have

been created and have not seen a site where a viable native grass seed bank has not been present. Previous seed bank work in Victorian grasslands identified numerous species that were not present in the vegetation (Lunt 1997). Similar work in NSW found "...a viable soil seed bank was present at all sites, and it was much larger than expected...There is much greater diversity in the seed bank than was detected in the vegetation surveys" (Lindsay & Cunningham 2009, page 11).

Management clearly influences what seeds germinate and establish. "Just as past and current management practices impact the current standing vegetation, they also appear to impact the capacity of seed bank to germinate" (Lindsay 2009).

### **Trial**

The first step to learning how to regenerate native grasses is to develop a small trial that receives the management described, i.e. high density pulse with animals and then long recovery and then repeat. Initially long recoveries are required to enable the native grasses to germinate and establish, especially where soil conditions are not optimal. "...The

native plants are growing and flowering much slower than most of the exotic species” (Lindsay 2009). For most environments, a recovery around 12 months will create the conditions described. As this is dependent on soil, aspect, season, etc these conditions can only be created by close observation and monitoring. The key is to produce the following soil surface rather than sticking to a formula of impact and recovery.

#### **Soil surface description**

The soil surface between the perennial grasses can be described as: “Extensive decomposition - litter has at least three layers or stages in decomposition ranging from fresh material on top to 20 mm or more of comprehensively humified (very dark, with no identifiable fragments) at the soil-litter interface; mineral soil may have significant organic darkening in excess of 10 mm” (Tongway & Hindley 2004).

#### **Weed control**

The conditions that need to be created for most annual weeds to germinate and establish in a pasture or grassland is overuse of the perennial grasses –

sometimes described as overgrazing (Savory & Butterfield 1999). The management described creates healthy, suppressive soils and highly competitive perennial grass root systems that out compete annual weeds when they try to germinate and establish. This is described by Roshan Thapa (Thapa 2010) where weed control is provided by management of perennial grasses to increase competition.

“...However through proper management, mature desirable perennial grasses have a role to play in managing weeds in permanent pastures” (Bowcher 2002). “Maintaining effective competition from useful perennial grass pasture species means that invasive weeds such as ... thistles and annual grasses can be restricted to a minor component of the sward (Kemp 2006)”. Badgery et al. (2008) found that *N. trichotoma* (serrated tussock) seedlings could be prevented from establishing if the herbage mass of desirable perennial grasses was maintained above 1.5 t DM ha<sup>-1</sup> through summer.

### Profitability

It is clear that in areas where introduced pastures do not persist for greater than 10 years, at a very high level of carrying capacity, that well managed highly productive native pasture is a low risk, resilient, profitable option.

“Highly productive native pastures can perform similarly well in the more productive parts of the landscape and even in less favourable positions. They also provide less financial risk, allow lower management input, and provide higher resilience to variable rainfall, low fertility and acid soils. These native pastures can be substantially more profitable than introduced pastures sown on unsuitable land and performing below expectations.” (Landford et al. 2004, page 56).

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Contact: Colin Seis on 02 6375 9256 or [colin@winona.net.au](mailto:colin@winona.net.au)

## **On Farm Change Workshop series—Mid North South Australia**

**Graeme Hand**

### **Enabling and supporting landholders to adopt Best Management Grazing on native grasslands in the Northern and Yorke District, South Australia**

This project, as outlined in the CEO report, was initiated and supported by the Mid North Grasslands Working Group and funded by the Federal Government - Caring For Our Country

The project was based on three farmer-led workshops.

The first workshop introduced the impact of grazing management (“current state of the land is due to the current management”) planned grazing (planning grass plant recovery periods and associated grazing times) and designing a low cost trial to explore these principles of regenerative management.

The second workshop developed design principles further as well as introducing land function monitoring and more native grass identification.

The third workshop included a practical session on land function monitoring and participants presented their results so far and options to be explored / trialled next.

This series of workshops went well with a lot of on-ground change and many of the farmers involved excited about future trials that they are planning. Many sites demonstrated that by applying animal impact and long recovery the native grasslands start to regenerate.

An example of the change is on the following page.

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The Weckert family hosted two meetings on their property near Orroroo, South Australia. The first meeting was in their hut during July 2009. The day was cold and wet but everyone seemed to enjoy the cosy atmosphere.



The Weckert's hut

The second meeting was also held at the Orroroo property. It was an eye opener to me when we were looking at monitoring around a gully how far everyone walked while looking at the land function.

The comment that sticks in my mind was that after the monitoring session Andrew Weckert stated that the cause of the gully was their management and not the result of water flowing off properties further up the catchment.

The final meeting to report on the trials was in a structured form and

is summarised in the following dot points for their Orroroo property.

- Goal – Build diversity & soil cover, reduce erosion, retain as much rainfall as possible
- Current situation – 80-90% bare ground, areas eroding, significant runoff
- Options trialled – Pasture cropping, planned grazing
- Early outcomes – Increased cover and diversity
- Future trials – Increase pasture cropping trials and planned grazing as well as hay on bare patches and water spreading techniques.



Monitoring land function

(More photos over page)

Thanks again to Millie Nichols and Anne Brown.



Pasture crop trial



Trial site



Regenerating grassland

## IXth International Rangelands Conference 2011

### Argentina

Annabel and I are investigating the opportunity of presenting and travelling with a group to the International Rangelands Conference in Rosario, Argentina, 3-10 April 2011.

More details are available at [www.rangelandcongress.com](http://www.rangelandcongress.com)

Let me know if you would be interested in this conference.

Graeme Hand

## Native grass regeneration at Coolangatta Flat

**Graeme Hand**

The following is an example of the individual farm reports prepared for the Stipa and Glenelg Hopkins CMA Native Grass Regeneration Project.

This report was prepared after two visits farm visits to Coolangatta, and includes photos, monitoring and possible future management plans.

### Summary

Property name: Coolangatta

Property size: 260ha

Area directly influenced by trial: 260 ha

Visit dates: 16/04/2010, 18/6/2010

Trial site name: Flat

Perennial grass species observed: Phalaris & Rye

Management trialled: Increased recovery and stock density

### Monitoring results

The graphs on the following pages indicate landscape function such as ground cover, soil surface, age of perennials, evidence of animals, annuals & soil movement/erosion, distance to the nearest perennials and its form.

Positive: The monitoring results showed some good results – with good plant density.

Areas to be improved: The monitoring shows that there is a lack of raw & composting litter between the perennials. Bare ground increased suggesting that either litter was insufficient before impact or that the animals were left in the enclosure for too long. Diversity is also low.

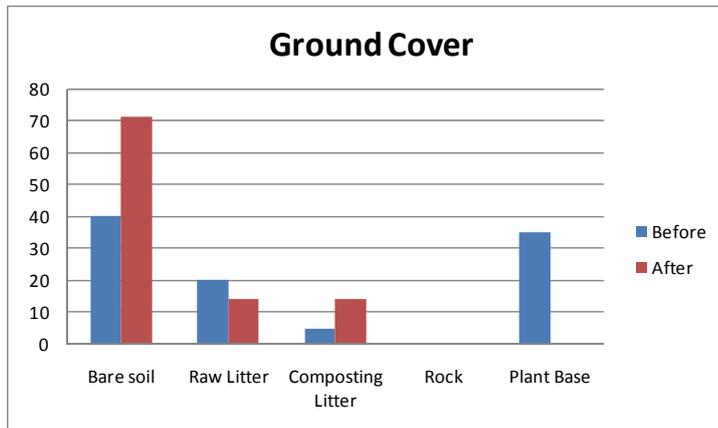
Corrective action suggested by monitoring: The monitoring results suggest that increased recovery is required before more animal impact. Once the litter has been produced high animal impact will

Keep up to date with Stipa activities at [www.stipa.com.au](http://www.stipa.com.au)

## Monitoring Before & After – Ground Cover

Date: 16/04/2010 & 18/6/2010

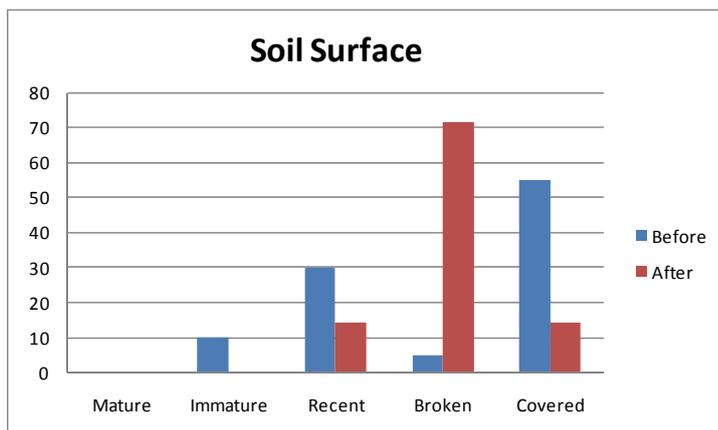
Site: Coolangatta Flat



## Monitoring Before & After – Soil Surface

Date: 16/04/2010 & 18/6/2010

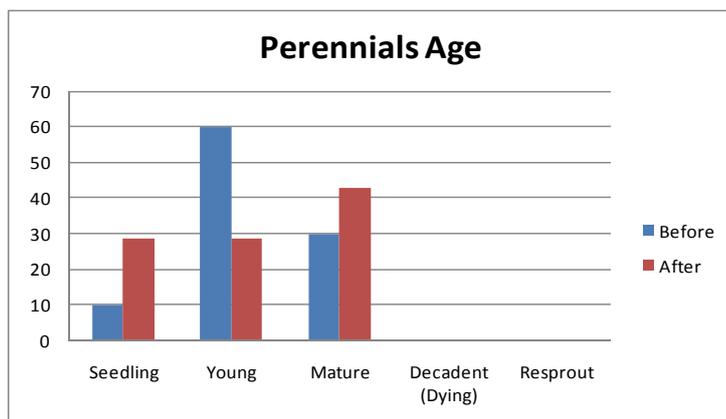
Site: Coolangatta Flat

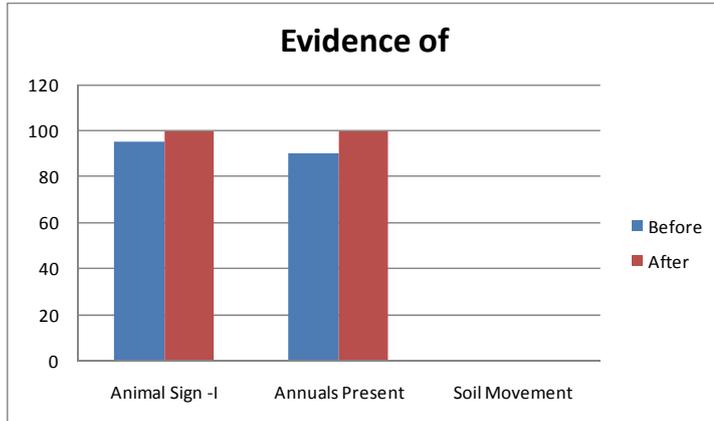


## Monitoring Before & After – Perennials Age

Date: 16/04/2010 & 18/6/2010

Site: Coolangatta Flat

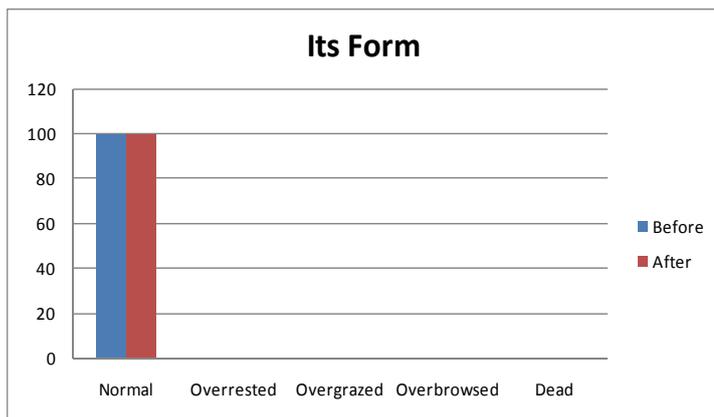




Monitoring Before & After – Evidence of

Date: 16/04/2010 & 18/6/2010

Site: Coolangatta Flat



Monitoring Before & After – Its Form

Date: 16/04/2010 & 18/6/2010

Site: Coolangatta Flat

create germination sites and increase composting litter required to promote nutrient cycling. Further diversity would also be obtained through longer recovery

**Management plans**

***Trial site***

It is suggested that the recovery period be increased to grazing once during the growing season

and again after seeding during the summer / autumn. By increasing the recovery greater animal impact would be created with the current paddock set up. This management plan should address the areas to be improved and monitoring should show an increase in composting litter and seedling and young perennials and decreasing plant spacings.

**Possible overall plan**

A possible management plan is to expand the management trialled to more of the grazing areas of the property. A summary of the type of management which would increase perennality and diversity follows:

Grazing management and monitoring requires a landscape goal to monitor towards.

The following would be a good starting point but may need some additions to pick up all your requirements.

***Landscape goal***

- Diverse mix of perennials; predominantly highly palatable perennial grasses
- Effective water and mineral cycles through 100% ground cover with actively composting litter at the soil surface
- Maximum solar energy capture – long growing season of winter & summer grasses, tight grass plant spacing
- Healthy waterways, clear run off, minimal erosion.

***Grazing management outline (adjusted with monitoring)***

- Long recovery periods typically grazing 2-3 times per year – adjusted for recovery of the highest successional grasses
- Each grazing period to be less than 3-4 weeks
- Rule of thumb is maximum stock density for the minimum time
- Timing will be influenced by management requirements with greater biodiversity developing by grazing in different seasons
- Area to be monitored daily while being grazed to ensure ground cover maintained and animals are not picking up litter.
- Animals to be monitored daily for gut fill to ensure performance.
- Number of stock and duration of grazing to be recorded.
- Maintain weed control as required

## **Monitoring**

Minimum of annual land function monitoring -usually in Spring (form available)

Direction of change will need to be analysed and the following questions answered to adjust grazing frequency, intensity, stock density etc.

- What are we trying to achieve here – landscape goal

- What were the main tools used and how were they applied since the last monitoring
- Does the monitoring show a change in direction towards the landscape goal? If not why not?
- What control or replanning steps are required?

Photos at Coolangatta Flat before (16/4/2010) (left) and after (18/6/2010) (right)



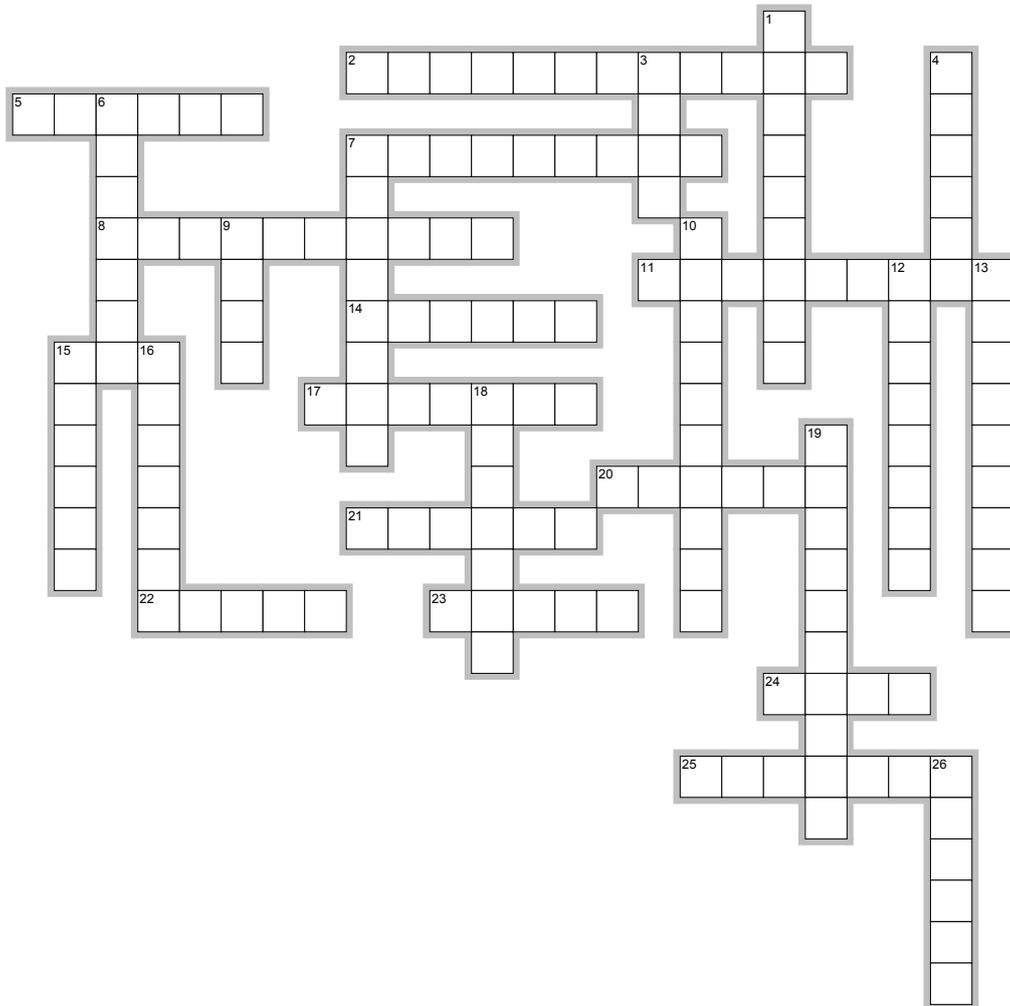
**Crossword****Christine McRae****Across**

2. The scientific name for redgrass, \_\_\_\_ *macra*
5. Animal \_\_\_\_
7. \_\_\_\_ Volcanic Plains project with Glenelg Hopkins CMA
8. The lemon grass genus
11. Another common name for three awn or kerosene grass
14. The best time of year to sow seed of *Microlaena stipoides*
15. Cation exchange capacity
17. These fix atmospheric nitrogen into the soil
20. The wattle genus
21. In which western NSW town will the 16th Biennial Australian Rangelands Conference be held?
22. These types of soil disperse when wet
23. Invasive native \_\_\_\_ may be the result of overgrazing
24. Which invasive exotic wheatgrass is often planted on saline areas?

25. Many broadleaf weeds have this growth form to 'claim the space'

**Down**

1. A type of stock handling designed to make life easier for both animals and handlers
3. The smallest mineral particle found in soil
4. *Eucalyptus* \_\_\_\_, white box
6. The grass family
7. *Hardenbergia* \_\_\_\_, a leguminous climber/shrub readily eaten by livestock
9. Queensland \_\_\_\_ grass, *Dicanthium sericeum*
10. Which native grass can exclude the uptake of soluble aluminium from acid soils?
12. The opposite of acid
13. Month in which the Australian Rangelands Conference will be held
15. *Sporobolus* \_\_\_\_, slender or western rat's tail grass, not to be confused with the exotic Parramatta grass (*Sporobolus africanus*)



EclipseCrossword.com

- |  |   |
|--|---|
| <p>16. Ian _____, principal of Native Seeds Pty Ltd</p> <p>18. Rick and Angus _____, innovative farmers from the Wellington district in NSW</p> <p>19. Communities in _____ (CiL), working together to integrate</p> | <p>conservation and production across box-gum woodlands</p> <p>26. Herd _____</p> |
|--|---|

*Solution over page*

**6th National Native Grasslands Conference DVD now available**

\$35 (postage included)

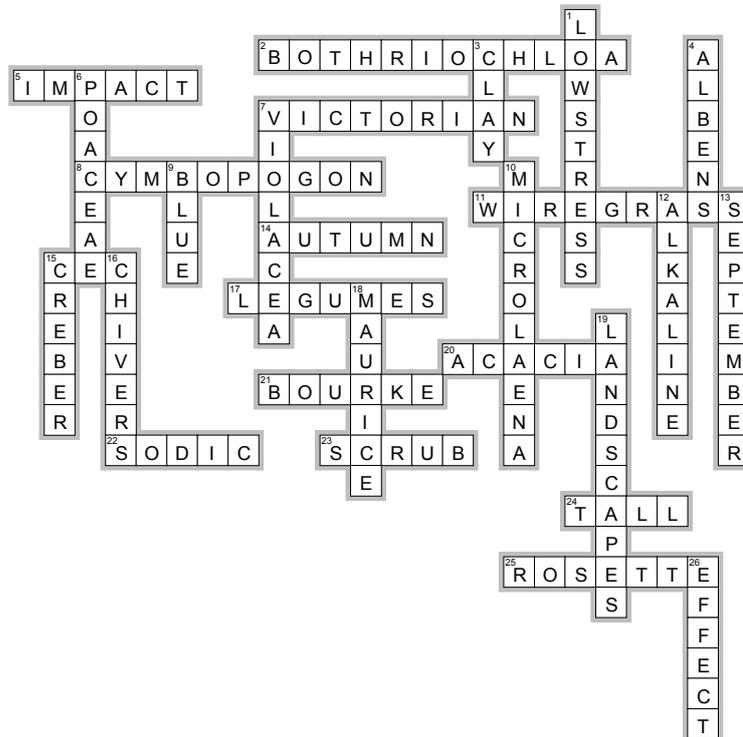


2008 Horsham Conference proceedings available on disc

\$30 (incl. postage)

To order your copy contact Stipa on 03 5578 6321 or [graeme.hand@bigpond.com](mailto:graeme.hand@bigpond.com)

## Crossword solution



## 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.

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### Contact Stipa

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

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- Direct deposit:** Deposit of \$..... made on ..... (date).  
Stipa Native Grasses Association account at Westpac BSB: 032 647 Account: 108 924  
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 Caroon Lane, Branxholme Vic 3302**

For more information contact Stipa CEO Graeme Hand on 0418 532 130, fax 03 5578 6370 or email [graeme.hand@bigpond.com](mailto:graeme.hand@bigpond.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.