



Paul's Piece

Hello everyone. It is with some sense of occasion that I pen this final update for the year. We have this last month come to the end of our three years of NHT funding of the GGRP, and I think that although the project will continue (I'll speak more of this later), it is fitting that I take the time now to reflect and say thanks to those who have enabled it to succeed as it has. It would be wrong to say it feels like yesterday that we were over the moon at the thought of receiving three years National Heritage Trust support to undertake this project. In truth it feels like more than three years ago we set out to investigate if it was possible to reinstate or reconstruct complex grassland on agricultural sites. Quite an ambitious idea at the time, having got the strength of conviction to start from earlier work I had conducted at small plot scales.



*Last year's sowing (2006) at The Pyke's property, note the wonderful *Austrostipa mollis* tussocks.*

Some thank you's ...

However, it is fair to say that Ron Dodds and I have been blessed throughout this project to have had the support and input of so many willing and dedicated people (I estimate up to eighty). At the Greening Australia end I'd like to thank all the Victorian staff who have bent over backwards to ensure our project the best chance of success (in particular Carl Carthy our CEO). I can't proceed any further without thanking my colleague Jess Gardener.

Jess has been a great support over the life of the project. Her ability to manage all aspects of our western sites from monitoring sites, to organizing site activities to spending time with landholders and volunteers has been outstanding. Jess is a real people person, and has not once shied away from any of the tasks I've sent her way, no matter how awful they might have been.



Sowing our third year area at Will and Proo Pyke's Property at Laharum in Nov 2007.

A number of GA staff assisted in undertaking extension efforts to help bring learning's from this project to restoration practitioners. I'd like to thank Nat and Anna and former members Kate and Bec for their invaluable roles facilitating field days or in the production of our beloved electronic news letter the Grassy Gazette.

Our field days have been I think resounding successes due in no small part to the skill of these organizers. I

especially liked the field days as they allowed us to show people the real life progress of our sites close up. All were well attended by a range of people interested in grassland restoration. Indeed, attendees came from local regions, throughout the state and a number came from interstate to attend.



People wandering through the 2006 sowing at Claire and James Dennis's site as part of one our recent GGRP field days. It is fair to say the attendees were more than impressed that this was bare ground twelve months before.

The GGRP has also been fantastically supported by the landholders and land managers associated with our sowing sites. It has become more than evident to me over these three years that research of this type is unlikely to succeed without the type of support we have received from this great group of people. I thank them sincerely for offering their land to work on, and for the effort each has made to ensuring things went to plan at their respective sites.

The need for seed...

Of course, to re-seed grassland we needed large volumes of provenance based seed. Again, I believe the GGRP has broken new ground in demonstrating that containerized seed production systems can provide important sources of supplementary seed to that harvested from wild remnants. To John Delpratt from Burnley, who pioneered this approach to seed production, and to those wonderful people Kerrin, Liz, David & Ron, Steve & Rhonda, Marlene & Jason, Phil & Julie who took on the management of our six production sites I also express my thanks. Our knowledge and confidence in regard to growing grassland plants for seed has progressed some considerable way in a relatively short period of time with our production sites. We now have a body of experience that will be valuable I hope to our growers and to our project in enabling us to further refine our seed production activities.

The plants grown in these seed production sites were grown from seed harvested from wild remnants linked to each sowing site. Our seed collectors took a great deal

of care to harvest seed that would best represent the genetic characteristics of our remnant populations. This required a committed effort by a number of very dedicated people. Indeed, working with the large number of species that we did (approximately 250) I think all of us increased our capacity to recognise a wide range of grassland species and to more efficiently harvest seed. My thanks to all our collectors, both field and production. Those readers who have undertaken this work will know that it can be a thankless, hot and tiring activity at the best of times.

The project received crucial technical support, both in Melbourne and at regional sites, from a number of talented people including volunteers, students and academic colleagues. We conducted a number of seed focused activities including purity testing, germination trials and so forth. The data from these works will be critical to fully examining and understanding what we have been seeing in our field sowings, and for this I thank you all.



Last years sowing at Darryl Barbers Minyip property. What a lovely site. A great sward of Austrostipa and Austrodanthonia with many forbs contained therein.



A plot sown two years ago at Darryl's still containing a fine cover of annual daisies.

At a governance level I would thank Bernie Dunn the chairman of our steering committee and to all committee members for the support they have shown

me and the GGRP these past three years. Their inputs have meant that we have continued to successfully focus on meeting milestone obligations of our major funding stakeholder (NHT) during the life of the project.

Finally I'd like to thank Ron Dodds our GAV southwest regional manager. Ron has been unerring in his support of this project from day one. Ron is a skillful manager and has an intimate knowledge of farming systems and natural resource management. All these talents he has freely shared with me in the undertaking of this project to my great benefit. Also to Mary Dodds, many thanks for the hospitality both you and Ron have extended to me on my many stay over's while in Horsham (not to mention the early morning hits of the golf ball from Ron's back yard to the paddock below...).



Austrodanthonia gone wild at Neville Oddie's Chepstowe property. This sowing is twelve months old. Within this sowing are a large population of the nationally threatened Leucochrysum albicans subsp. albicans var. tricolor (among other species).

Summarising the science ...

So, in summary, how did we get to this point so quickly? I'm not sure. But I do feel we all have some cause to be proud of our efforts. Prior to our project there had been very little investigation of the reconstruction of grassland communities at field scales. I think we have very much pushed forward the knowledge on this topic. In the next year I will be writing up findings from our initial two annual sowings at our thirteen sites. Further, I am overwhelmingly happy to report that three of our fantastic CMA supporters, the Wimmera, Corangamite and Glenelg Hopkins have recognized the value in monitoring longer-term outcomes at our sowings. They have committed funding support to undertake long term monitoring, management of our sites. I also believe our sites will prove valuable in examining the question; will other trophic levels colonize our reconstructed sites? As you may know, I have contended from the beginning that incorporating diversity into our sowings would not only increase the likelihood that they are able to more efficiently utilise available resources (through

mechanisms such as complementary and niche separation), but they may also provide the complex structure necessary to support other trophic levels (e.g. soil biota, invertebrates, reptiles, mammals, birds). I'm pleased to report we have already initiated an invertebrate study in conjunction with Amanda Kobolt and Alan Yen of the DPI and I expect to initiate a number of other similar collaborative studies in the future. On the strength of the GGRP, GAV has also initiated other grassland reconstruction projects. Two exciting examples are ones in East Gippsland and at Point Henry near Geelong. Both will further increase our skills and understanding of this form of restoration. In particular, the Point Henry Project, conducted in partnership with Alcoa, will be groundbreaking in that we aim to reconstruct 100 ha of Redgum/Themeda grassland over a ten year period on agricultural land buffering the Alcoa smelter.

I am happy to close saying that the Grassy Gazette will continue into the future. I hope it continues to be interest to the many readers who now subscribe to it from Victoria and interstate. As you will note we have a number of items of interest to report regarding the development of GGRP sites and the undertakings of our new projects. I will finish by leaving you with a selection of pictures of the larger scale sowings of 2006 one year on (*throughout this article, ed*). They indicate the consistency of outcome we've had across our sowing sites. As you would know, this is the first time we have been able to show results from large scale direct sowings. Each of these images is between a third and a half a hectare, and bear in mind that these were sown during one of the worst droughts in Australia's recorded history.

Regards, Paul

Grasslands Restoration workshop at Beeac

An enthusiastic group of thirty came along to Beeac Hall to hear Paul Gibson-Roy talk about the latest from the Grassy Groundcovers Research Project, and visit field sites to see the results.

The audience included locals, environment groups, DPI, DSE, VicRoads and Brimbank City. Paul's presentation really engaged the audience, and there were plenty of questions about the application of the research to different revegetation and restoration projects on the Victorian Volcanic Plain.

After a gourmet lunch, we visited the research sites at Beeac Cemetery to see the effects of different treatments such as scalping on a restoration site, and wandered over the plot counting newly emerged seedlings. We look forward to a return visit to Beeac to follow the project's progress.



The outcomes at the Birregurra site (on Claire Dennis' property) were even more dramatic. The older plot had grasses that were almost waist-high and we were able to observe a diverse range of forbs and herbs in flower for a spectacular display in the spring sunshine!

Dr Anna Carrucan, Greening Australia (Vic) Colac

EverGraze Low Input

- on native perennial grasses in harsh environments to improve profitability, sustainability and biodiversity

DPI is funding a new research project to utilise native grasses in harsh environments such as steep hills for improved profitability, sustainability and biodiversity. 'EverGraze Low Input on native perennial', is part of the national EverGraze program, which aims to increase farm profitability by 50% and considerably reduce recharge.

The project has been developed based on research findings from the 'Sustainable farming systems for steep hills' undertaken by DPI researchers in central Victoria over the past five years. A series of deferred grazing strategies were identified by the steep hills project, which can significantly increase groundcover by perennial (mostly native) species and reduce water and nutrient runoff. Key results include increased perennial grass population (>60%), increased groundcover (>50%), reduced annual grass population (>90%), reduced runoff and improved soil health and pasture quality when deferred grazing strategies were

implemented. Deferred grazing involves no defoliation (e.g. grazing) of pasture for some months to encourage seed set of desirable perennial native grasses.

The objectives of the new project are to maintain a high level of perennial (mostly native) pastures through a combination of grazing and other management techniques (e.g. deferred grazing, rotational grazing, set stocking etc.) and to maximise pasture utilisation by grazing animals. Maintaining high levels of perennial native vegetation is also critical to sustain the ecological balance in these marginal land classes.

For further information about this new project contact Dr Zhongnan Nie or Reto Zollinger at DPI Hamilton Centre Phone 55730900.



The hill country around Ararat has some real hidden "jewels" of native grassland on private land.

Unfortunately they are under threat from changing land use such as cropping, Blue Gum plantations and more recent plans to produce Bio-fuel using Mallee-type plantations

Zhongnan Nie and Reto Zollinger, DPI Hamilton

Odds and Ends ...

We are all currently observing the germination and growth of the third sowing carried out as part of the GGRP Project. As the owner of one of the project sites, I would like to acknowledge the work and dedication of Dr. Paul Gibson Roy and his entire team of researchers and support staff. It has been a privilege to be connected with this exciting research project, and we all look forward to the results of this work, and the implications for landscape management.

It seems that the variability of the seasons during the project have been extremely challenging at a practical level, and have probably raised more questions than

have been answered at this stage. Perhaps I can venture a few observations – these should not be taken as comprehensive or as being anything other than supportive and constructive.

1. Farmers make great research partners!

We have the time, the interest and the commitment to make a significant contribution – and we are on-site. Research teams might consider involving key farmers more substantially in projects investigating a wide range of matters such as species recovery, landscape management, and the implications of climate change – to name a few. Many farmers have relevant qualifications and, while happy to volunteer their support, would appreciate some financial contribution being built into the project funding applications to cover their time. Then you would have an even better partnership!

2. I was concerned about the timing of

operations, particularly for preparing and sowing the sites. It seemed that weather conditions were tricky on more than one occasion this year leading to major difficulties in getting heavy machinery onto sites at the times required. I know that rescheduling some operations to an earlier time such as the autumn is now being seriously considered as part of the solution. This demonstrates the need for an adaptive approach to deal with variable seasons. Maybe some key triggers can be identified for major management decision points.

3. This year there has been an explosion of

growth in our area generally, and on the GGRP revegetation site. Sowing in October 2006 was followed by no rain until New Year’s Eve when we received about 75 mm of rain. This was enough to bring about germination, and apart from some recalcitrant weeds, the *Austrodanthonia* and the *Leucochrysum albicans* seemed to jump out of the blocks. Indeed, it seems there has now been two generations of *Leucochrysum albicans* since January 2007. This view is supported by the fact that there was a heavy seeding of this species from those individual plants which germinated in January and grew quickly to maturity. The vigour of all plants in the revegetation site is astounding, and far greater than the same species in an adjoining area of remnant grassland.

4. The growth of the various species

on the revegetation site has required some careful management of the vegetation on adjoining buffer areas, particularly with a view to reducing the potential for exotic species to set seed and add to seed loads invading the revegetation site. These buffer areas also carry some native species occurring sparsely in the area. This poses a challenge to retain the native species whilst

reducing the exotics. A whole new area for research effort, perhaps? Whilst carefully mowing the buffer area with a heavy duty lawn mower, it was obvious that different species – exotic and native – were at different stages of maturity. This suggested that, if research could establish growth trajectories for specific plant species, together with key visual seasonal indicators, then key management activities such as mowing or spraying (if appropriate) could be more successfully targeted to favour those species preferred in the sward.



5. There is a collection of interesting and connected projects

on my property looking not only at grassland flora, but at grassland fauna as well. It seems that the researchers for one project do not always know what the others are up to. Need for greater communication and sharing of knowledge! Also, researchers should take care to provide results of their work to the landholders they are working with – too often assistance is given by the landholder and they are left out of the information loop at the end of the project. Best wishes to one and all for the year ahead

Neville Oddie, Snake Valley

Gippsland Grassy Groundcover Project

While the initial grassy groundcover projects in Western Victoria are starting to near completion another project in Gippsland has been started and is now in full swing.

The site where we are hoping to establish the grassland is three hectares in size and is made up of “improved” pasture. On two of the hectares we are hoping to establish just native grasses while on the other hectare we’d like to establish both grasses and forbs. In the area that we are going to establish just native grasses we’d like to trial several different management techniques including the use of selective herbicides for weed

control. In the area where we are establishing both grasses and forbs we'd like to use a grader to scrape half of the site and just use herbicides to treat the other half of the site so we can compare the two.



Maffra seed production area

So far our site preparation has consisted of spraying the site twice – once in Autumn and again in early spring. We are hoping to spray the site several more times before we sow in Autumn of '08 and we'd like to give the site a tickle up with a harrow to initiate a new flush of weed germination before we spray again.

We are also currently in the midst of collecting seed both from grassland remnants in the area and from a seed production area that we have established in polystyrene boxes out the back of the office in Maffra. The seed production area has been really useful not only to produce seed but also to give an indication of how ripe the seed is out in the bush.



The landholder (right hand side) and I (left hand side) on site

All in all, the project is going well and I am really looking forward to seeing a vegetation community established that is now quite rare on the Gippsland Plains.

Andrew Wolstenholme, Gippsland Grassy Groundcover Project Officer. Ph: 51472688

The Grassy Gardner

Hi everyone,

I can't believe how fast the year has gone and that we are almost 3 years into the GGRP. At nearly all of our sites we have completed sowing down a hectare to a complex and highly diverse mix of grassland species. Many of our sites are actually larger than a hectare and to avoid management problems in the future in most cases we had enough seed to sow the remaining area to just grass to be managed with a broadleaf specific herbicide.



We are really happy with the seed bed the aerovator seeder is creating at sowing. As you can see in the photo above, the machinery creates quite a diverse range of niches and microclimates. Seed is either buried, lies on the surface or falls into the little holes created by the spikes and then the roller presses the seed in allowing seed surface contact. We still don't know the exact seeding requirements of all the 250 species used in the project so allowing a diversity of sowing depths and arrangement allows for a diverse result.



Red gum in 1st year plot – Moyston'

Recently I have completed a round of monitoring on the 7 Wimmera and Glenelg-Hopkins sites. These sites are now 2 years old from the date of sowing and I'm quite excited by the changes they have gone through over time. Many of the first year sites are now completely weed free (bearing in mind no grazing has occurred within the rabbit and kangaroo free zone) however I'm excited about the natural regeneration of tree and shrub species occurring in the grassland plots.



Black box in minyip-dirt

Natural regeneration of the upper storey species is most likely to occur where there is a nearby seed source eg. Adjacent to remnant vegetation. However our site preparation techniques involving cultivation also stirs up the seed bank. So given that some of these sites were originally grassland woodland EVC's, I think we're well on the way to achieving that through naturally regeneration and succession.

Jess Gardner, Grassy Groundcover Research Project Officer

Want to know more about the GGRP?

Contact:

Paul Gibson-Roy
Research Project Leader
9250 6885
roypg@unimelb.edu.au

Jess Gardner
Project Ecologist
5362 2250
gardnerj@unimelb.edu.au

Would you like to subscribe to the Grassy Groundcover Gazette?

Please email:

Natalie Cook
ncook@gavic.org.au

or for more information about Greening Australia:

www.greeningaustralia.org.au



Greening Australia, growing the future together with the University of Melbourne

