Beyond Sustainability

For the

Australian Pastoral

Industry

Improving Profitability for the Family Farmers

In the Rangelands

A report

By Graham Finlayson

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Foreword

The world is currently undergoing a huge financial crisis which will eventually exacerbate the preceding, and ongoing, world food shortage afflicting almost a third of the world's population. During my travels I realised that most farmers worldwide underestimate their ability to control their own destiny to a far greater degree by looking to those things that *are really within our circle of influence* to address our own financial position and also increase our ability to produce far more.

Particularly as livestock producers on the rangelands we clearly have an opportunity to break free of the mentality that ties us to the belief that we are just a "Merino breeder" or a "cattleman" rather than consider ourselves businessmen on the land. Economic necessity through drought and low commodity prices in recent years, as well as a certain level of heightened environmental awareness has already driven the need to diversify and be more proactive with the use of our total resource base in all areas.
However, the uptake of the terrific educational opportunities and new information for landholders now available is slow to progress in the dryer environments, and even though many of these courses receive generous government funding for participants the flow on effect to landscape and business change is unfortunately slow.

Now more than ever the world needs ***agriculture*** to take on a broad scale and fundamental paradigm shift, and move towards truly ecological and regenerative farming practices that enhance our ecosystems, communities, health and profitability. Merely 'sustaining' the current situation which will eventually be untenable is not an option any more, and with the benefit of hindsight should never have been.
Whether our core business is livestock, cropping, vegetables or chickens our goal should be to nurture an agricultural industry that utilises and harnesses the complexity and resilience of nature that our children will optimistically want to be a part of, and the urban population also fervently embrace.
When we collectively do this I believe agriculture, and indeed the world, will enter into a new era of hope, optimism and prosperity that will far surpass the fickle benefits of fluctuating commodity prices and boom / bust scenarios that leave many people, as well as the environment, suffering.

Real wealth can only be measured through the health of our ecosystems, all else is secondary and “What we focus on will expand”, so with that in mind I travelled with the intention of visiting and studying practitioners of long term successfully regenerative agriculture. Many with varying enterprises and all with positive attitudes for the future, and a focus on being proactive and innovative rather than reactionary towards perceived problems such as disease, pests, weeds, drought or even commodity prices.

My study topic included looking at regenerative grazing on rangeland, diversity of enterprise mix, breeding philosophy, marketing grass and the opportunity of “Carbon” in improving soil health and creating new and alternative cash flow through trading.

I felt the overarching theme that either created blockages or developed opportunity in all areas was the **attitude** of landholders towards education, learning and decision making, and throughout my travels around the world and at home I’ve tried to understand why people react so differently to seemingly very similar circumstances.

Contents

Executive Summary

The inequities and inefficiencies in the distribution, management and use of the world's finite natural resources are increasingly creating major environmental and production problems for the complex life support systems that sustain all life on Earth.

These "problems" manifest themselves in many ways through calamities and disasters like floods or drought, incessantly unending wars, terrorism, disease and famine, overflowing gaols and hospitals, the general breakdown of law and order in society, global warming, and now inevitably the (almost) collapse of the world's dubious financial systems.
As Allan Savory, founder of Holistic Management International says "All decisions must be considered in the light of being part of a 'larger whole', taking into account the ramifications on the ecology, economics as well as community / social impacts simultaneously for both the short and long term".
This cannot be done by utilising any particular ***system or technology alone,*** as it requires flexible management dealing simultaneously with multiple factors that can cover all rural land environments including biological processes, as well as social and urban population requirements.
Many previous civilisations going back through history have risen and inevitably fallen because of a lack of understanding about the impact that seemingly well intentioned decisions have on the whole, because they only took account of, and/or focussed on a small part of the puzzle.

My personal belief, backed up by extensive travel and study is we can have:

- far more profitability generated from the existing land or resource base
- greatly improved ecology
- many more livestock on the land
- populated rural areas with more vibrant communities throughout the rangelands
- increased adoption of creative thinking and diversity of enterprise

Unfortunately, most current governmental and scientific reductionist thinking is dictating that vast tracts of potentially productive rangeland throughout Australia and overseas are being simply "locked up" with the aim for it to be held in some sort of pristine condition for antiquity, mistakenly believing that were a "goal" worthy in itself, or the only viable solution.

Even though agricultural land is a finite resource, the best arable lands are turning into real estate or being degraded and an estimated third of the world's population are starving. We surely have a moral, ecological, economic and social obligation to utilise our landscape towards its highest value possible. And through knowledge gained on this scholarship and personal experience on my own country I intend to maximise my influence for positive change on policy makers and landholders.

Utilising nature's complexity and creating diversity in enterprise builds resilience into a business that withstands the vagaries and anomalies in seasonal condition, rather than the impossibility of supposedly "drought proofing" farms.
Focussing on profitability rather than solely production goals which can be misleading, and using a disciplined approach to decision making allows us to maximise the potential of the critical livestock / pasture / money balance needed for success.
Regenerative landscape and livestock management embraces and enhances conservation outcomes without the need for sacrificing productivity at all, **if done well**. The financial implication of a farming system that actively sequesters carbon and promotes diversity of flora and fauna through their normal management practices also has a global benefit that society may pay well for in the future. I encourage all landholders, in whatever environment, to step outside their comfort zones and embrace regenerative management techniques and diversity of enterprise that are capable of creating true abundance and resilience in our lives, business, communities and landscapes.
My report although rangeland based, is not "enterprise or issue specific" and is centred around the underlying belief that all of agriculture has much more to gain by focussing on ***management intensive principles and values that are flexible and resilient***, rather than trying to rely on a 'fantastic new system or technology' that inevitably leads to unknown detriment or collapses overnight, usually to the surprise of everyone involved.

It is therefore broken down into the following five categories:

Improving and Regenerating Australia's rangelands

Only doing things differently will we get different results in the pursuit of regeneration, rather than *just* sustainability.

A Disciplined Breeding Philosophy for Success

The brilliant Lasater Six Essentials for cattle ranching that are good advice in all breeding enterprises.

Enterprise mix – Diversification and Business Resilience

Building synergistic enterprises with creativity to leverage profitability, without the need and cost involved expanding size or scale.

Marketing Grass and addressing the Climate Challenge

Making a profit out of *both* ends of the grass plant through innovative management and marketing.

Attitude, Education and making the tough decisions

Having the right attitude and being willing to learn are critical components of being able to successfully adapt with increasing speed to an always changing future.

Acknowledgments

Without the generous help and support of the following people this project would not have been possible:

- My wife Cathy and daughter Harriet who have ‘borne the brunt’ of my at times overzealous passion for what I call “healing the land” throughout the last eight years.
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- And last but not least to my good mate Phillip (Peca) Waugh for joining me on the journey through Africa for six weeks and sharing the great adventure.

Introduction

Without doubt the major beneficial impact on my life and business has been the recent so called “biggest drought in one hundred years”, particularly through the years of 2001 and 2002 in the Brewarrina district.
Not because I’m some sort of crazy masochist, but because it was the needed catalyst for positive change that unbeknown to me I desperately craved at the time.

As the old Chinese proverb says;
“When the student is ready, the teacher will appear”.

Running out of money is also a good catalyst, and realising we could not afford to continue with the practice of drought feeding and frustrated with degraded country we started to look for alternatives and different answers to the old ones that would not work for us anymore.
So I’ll start my story a little earlier…

Born and raised on the flat black soil plains of the Brewarrina district in northwest New South Wales where the average rainfall is around 375 to 400 mm and extremely variable, with some years as low as 125mm and others to 700mm and a climate that is generally quite dry and brittle.

After graduating with distinction in 1984 from Longreach Pastoral College, now a campus for the Australian Agricultural College in Queensland, I enthusiastically came home to begin my career on the land. With my brothers also interested in the land and the ‘home place’ not being big enough to support us all we began a ‘sheep crutching run’ around the district to earn our keep. This was the formulae for me over most of the next 15 years, cleaning up almost a million woolly backsides in the process until eventually purchasing “Bokhara Plains”, and Cathy and I then concentrating on making it work for us.
The timing wasn’t so flash, although we did manage to get in one good season before running into the extended dry spell, sometimes called “the biggest drought in one hundred years” which in hindsight I now realise was the beginning of my real learning.

Although desperately dry seasons and dust storms were dominating back in 2001, my excitement was being ignited by the possibilities explored in the book I was given by a mate "Slacky" called "Holistic Management" written by Allan Savory and Jody Butterfield. Originating from Allan's work over many years in southern Africa and the dry south west of the USA, could it be possible that these principles were relevant out here at dry old Brewarrina?
My opinion was that of course they could as it is principle based, and as such it could be managed, monitored and shaped to fit any environment.
After searching for information it wasn't long before I realised, much to my amazement, that there was a couple of organisations that actively taught what I had read about.

Why had I not heard of this before?

Although RCS (Resource Consulting Services) and HMA (Holistic Management Australia) had been operating since the early nineties, from what I could gather most participants or graduates were either in higher rainfall areas to the east of NSW, or were up in the cattle country of northern Queensland.
Unfortunately we knew of very few people in the west of NSW that had learned from these courses, let alone embraced them in any meaningful way at that time. Since then the uptake has grown with a couple of notable success stories, but is still disappointingly low in my view.
By 2002 I had signed up with RCS to do the "Grazing for Profit" school which then led to their Graduate Link and Executive Link programs and our close involvement over the best part of the next five years, helping our business significantly through some incredibly tough times.
Since 2001 Cathy and I have diversified our business into tourism, developed off farm investments and continued to transform our landscape using the principles and strategies we have learned. This has included four separate periods of being totally de-stocked on our own country, twice for over twelve months, so we fully understand the difficulty and strain of making tough decisions and I will expand on this further in the report.

My personal Nuffield Scholarship travels included returning to the south west of the United Sates through Colorado, New Mexico & Texas, a week in the Sonora state of Mexico, a couple of weeks in Zimbabwe, a few days in Botswana and four intensive weeks travelling all over South Africa.

The goal of my study was to target successful landholders in the dryer, semi-arid regions of the world to try and dispel the myth perpetuated by some graziers and scientists that declare Australia “Is different, therefore it won’t work out here”. I deliberately targeted these pioneering practioners rather than academics or universities as in the broader field of biology and ‘living whole systems’ science rarely seems to lead. The ‘lag time’ between **anecdotal evidence and the hard data required by science** has proved to be an incredibly long process in the complex field of rangeland management, with misconstrued results often limiting further research.

In the words of one of my hosts “Just get on and do it…. And let the scientists catch up later on”.

This is not to begrudge any of the great scientists their good work in many areas; however they are often hampered by budgetary constraints, limited trial scope with too few parameters or variables allowed for, and deeply entrenched institutionalised thinking.
The common theme among farmers, graziers and ranchers that are successful was a passion and excitement for what they do, a willingness to make mistakes and learn (whatever their age), great hands on land/ecology and livestock management, and a diversified resilient business structure incorporating planning and monitoring.
All of these things are within our sphere of influence, and are a foundation of long term success for agriculture despite the volatility and instability of the various commodity markets.

Improving and Regenerating Australia's Rangelands

"If you think you probably can or if you think you probably can't, You will be right"

At home: "Bokhara Plains" From 2004 (380mm) to 2008 (380mm)

This subject is quite controversial, particularly in the west of New South Wales and even more so if you also insist that we actually need more sheep or cattle to *regenerate the rangelands.* I will not go into depth with an analysis of grazing management or plant biology as it is covered in many publications, including previous Nuffield Scholar reports and the need for planned (rather than just rotational) grazing is becoming accepted in most circles, though seldom fully understood or practiced.

However I would like to dispel some myths about what is or isn't possible with land and animal management, costs associated with fencing or water and the difference between being questionably sustainable and truly regenerative. I'll also question the seemingly insatiable desire of industry and government to spend large amounts of capital in the war on weeds and quick fix single issue solutions, and why their focus is on the wrong thing.

Planning what to leave is critical.

The common misconception regarding "cell grazing" among landholders and scientists seems to have stemmed from first or second hand stories of mismanagement, or poorly constructed trials that have focused on the 'system' which true **holistic planned grazing**

is not. Rather it involves complex management requiring flexibility and a strong focus on improving the ecology in conjunction with production goals leading to improving landscapes on all of the farms and ranches I visited. If grazing is designed to leave behind a high level of biomass including standing vegetation and ground covering litter, then not only is the health of the grass maintained but the water retention capability is improved and soil erosion through wind or water naturally reduced.

That alone would allow us in these dry areas to utilise far more of the actual rain we get. Too often the lament heard in these areas is that we just don't get enough rain, although inexplicably we allow more than half our rainfall to be regularly lost to evaporation and runoff due to continuing low levels of ground cover.

Ground cover should be a major focus on all landscapes and there would be far less "disastrous flooding" and droughts and dust storms etc. and greatly improved landscape hydrology. And yet many people still operate under the paradigm that if we don't use it then we'll lose it to wildlife such as kangaroos, or it will 'blow away'.
Many places I visited were getting towards the end of their 'dry season' and yet they had good cover on all the country. At Sandy & Monica Speedy's place north of Vryberg in South Africa some warmer weather had induced green shoots to start sprouting from the dry grass, and yet there had not been rain since the previous wet, seven months earlier! With around 240 camps (paddocks) on their farm of around 14,000 acres they had excellent grazing control, and were running almost three times the historical carrying capacity.

Allan Savory monitoring what used to be a seasonal creek, at the end of the dry season

Myths Rebuked.

The following comments are taken from a reply letter Allan Savory wrote after some South African rangeland scientists visited his farm at "Dimbangombe", Zimbabwe, and although they were impressed with what they saw they still held on to some old misconceptions such as:

Myth 1. Overgrazing is due to too many animals and is controlled by limiting animal numbers and amount of grass off take.

The research, and thus the science, is clear. Overgrazing is a function of time of exposure and re-exposure of grass plants to severe grazing. This was discovered by French pasture scientist (Andre Voisin) over fifty years ago but ignored by range scientists. So deep, however, is the myth that despite thousands of PhD dissertations and papers no range scientist I know of has ever defined overgrazing simply because all seemingly **knew** it was due to too many animals.

Myth 2. Resting rangelands is beneficial to their health.

Resting land varies in effect across the brittleness scale world wide. Toward the low end (perennial humidity of atmosphere and soil) it is the most powerful tool known to us to restore biodiversity and land health. As any environment shifts across the scale toward the higher end (erratic humidity in soil and atmosphere), the effects of rest (total rest or partial rest – animals present but in low numbers with little "impact") becomes increasingly adverse for perennial grasslands. Again the research and science is clear, based on the work of S.I. McNaughton and others as well as many protected (from animals) plots studied world wide, but the myth prevails in range science.

Myth 3. Land can be overgrazed; and land can be managed.

Range scientists talk and write of overgrazed land. Only plants can be grazed and browsed or overgrazed and over browsed, but not land. The distinction is important since many of the world's rangelands include **overgrazed plants on over rested soils**, when they could be **grazed or overgrazed plants on periodically disturbed healthy soils.**

Myth 4. Plants compete with one another for water and nutrients and some oust others that are less competitive.

Plants can be said to compete with one another when viewed at the species level. But when viewed at the community level this changes. Plants, animals and soil life in communities function as wholes of great synergy and complexity. Species will even speciate to avoid competition. In an effort to reduce the numbers of a species "outcompeting" a more desirable one, US officials spend over $300 million every year to poison the noxious invaders, and they have been doing so for over 30 years with little impact. People on the same rangelands managing holistically have solved the problem at no cost by simply changing the circumstances that result in a particular plant filling a major vacuum and dominating the community.

Myth 5. Droughts are best planned for by reserving grazing areas to utilize when there is a drought.

The belief that droughts are best planned for by reserving areas of land ungrazed in case of drought is another costly and destructive myth. Droughts planned for in terms of time rather than area (i.e., number of *days* of grazing preserved spread over an entire ranch) result in far higher production of the animals and the land every season – drought or no drought – with far less risk. Range science drought planning actually increases the danger of drought while decreasing the production (on both animals and plants). Despite great increases in livestock numbers it is rare indeed for any rancher practicing holistic planned grazing to have to destock in dry years.

End Allan Savory

Costs are not necessarily Costs.

To control grazing on the rangelands by either domesticated livestock or by wildlife is often perceived to be an issue of high cost or prohibitive difficulty such as rough terrain. After visiting several farms around Graff Rinett in South Africa and seeing fences going up at

almost impossible angles through country as rugged and rocky as you could imagine then I believe the second point can be dismissed. Certainly fencing will never seem difficult here on the flat open country of Brewarrina again!
All farmers, in all countries were quite adamant that "fence & water" in conjunction with greater grazing control were the best "investment" you could make as it led to more grass being grown, healthier pastures and therefore higher stocking rates.

The more paddocks, camps or pastures that were developed the **greater control** managers would have in three crucial areas:
a. Smaller paddocks allow longer rest periods and yearlong accurate planning.
b. It allows higher animal density, therefore more beneficial impact by hoof and dung.
c. And it also produces more even, less selective grazing across each area being grazed.

Fencing and water will always seem easy at home after this!

One important point is that fencing does not have to be particularly elaborate, and less expensive electric fencing is very effective. Especially when stock become accustomed to their natural herding instinct of being in a larger mob, and the paddock they are in has adequate pasture available.
Costs in Africa may be a little distorted compared to here due to their lower labour costs; however from my own personal experience we have put in an extensive fence and water system on Bokhara Plains for less than $12 an acre on country worth around $70 an acre.

In my travels I've heard many accounts of fencing costs being repaid through higher productivity in just one year, and two years for water infrastructure. And there are also many funding opportunities available these days for landholders in Australia who can justify

expenditure for good natural resource management outcomes that make it even more economical.

As a normal rule of thumb it would seem that the smaller the area fenced the more benefit to be gained, and I believe this to be true, but this does not have to mean that the rangelands need to be all fenced up into 50 acre paddocks.

I see that there are two other viable options at least and I'm sure if the *principles* are truly aspired to then creative ingenuity could come up with plenty more, including future technological probable's such as "virtual fencing".

The first is that in the more extensive areas landholders could group together so that existing large paddocks and water are utilized by far bigger mobs. This would have the added benefit of freeing up each individual owners time, as turns could be taken looking after the single mob or those more interested in livestock do it all the time. This would create a dramatic lowering of overheads for those involved and allow the ecological benefits needed without any added capital expenditure.
Of course it would need like minded participants, co-operation and good management to succeed but what successful business doesn't, and I'm sure if the focus was on "How can we" rather than "Why can't we" - then a way would surely be found.

The second is to herd your livestock to manage where they are without fences. Bud Williams of Bowie, Texas said to me that "He doesn't know why you guys down there bother with all that fencing" as all we need to do is 'herd' them and get them to stay in any area that we want them to remain. This is quite a feasible scenario either through finding a way to justify a labour unit to do that, or by developing and learning some of Bud William's phenomenal stock handling skill. Certainly he has taught others to do that and has successfully improved plenty of rangeland himself perfecting these techniques.

Building a 3,000 cow water point. "Chico Basin Ranch, Colorado.

One last point regarding wildlife;
Whether in the USA, Mexico or Africa nearly all landholders had a view that wildlife is a part of the landscape that they desire, rather than consider them a pest and they actively encouraged more.
That may come as a surprise to many in Australia that get periodically inundated with kangaroos and have a distinct disliking for them. I've been in that category myself at times, but I'm definitely changing.
A common thought was that if you don't have enough grass for your livestock then analyse why (because of your management) that may be, instead of blaming the wildlife. Certainly I've noticed often that even in the worst of a drought there is generally much more grass left in beside the fenced off main road where kangaroos can still access, compared with the nearby paddock with livestock. This suggests to me that even though they do create grazing pressure, they are never the main culprits in the inevitable resulting bare ground whenever we run into an extensive dry time.

Why Weeds are necessary for Regeneration

The main difference between "sustainability" and "regeneration" I believe is that most country is in dire need of vast improvement and having a mentality that sustainability or 'protection' is good enough throws up two unfortunate blockages, particularly in the rangelands.

To “sustain what currently is” seems to be what is considered the best case scenario for the landscape according to governmental bodies and current rangeland science, leading to the belief that if we create a national park (or pay people to remove livestock) then the long term health of the landscape will be assured. This has not been the case on millions of Hectares of land on several continents in brittle environments, even though these attempts have spanned several decades. Short term success is indeed true, but eventually the lack of beneficial grazers leads to the breakdown of a grassland ecology that evolved with the necessary symbiotic relationship of herbivores.

The second blockage is caused by the thought that currently the land is now in its best possible condition given its recent history, thereby automatically dismissing the possibility that we can positively impact the landscape to a level that is much higher in diversity, health and resilience than it may have been in for centuries. If the landscape was manipulated for eons with aboriginal burning and over rest then who knows what amazing landscapes we can once again create by using herbivores. Current rangeland science tends towards a very defensive view of what is possible with the landscape, restricting positive tools, and limiting our opportunities.
There is far too much emphasis placed on eradicating what we perceive as foreign species or undesirable weeds rather than trying to take our landscapes towards health and abundance while viewing whatever weed that grows there as purely a symptom of what management is needed.

Ivan Aguirre of La Inmaculada Ranch in Mexico says in regards to introduced species and his governments’ unfortunate obsession with plants such as the introduced Buffel Grass:
“Every plant was introduced from somewhere else at some time through history, so why not just focus on their possible benefits, of which often there are many”
Like here this wonderful grass is perceived to dominate ecosystems to the detriment of native species, and yet to Ivan it is just one grass species in among dozens of others simply because he grazes the country to encourage **diversity**. As is so often the case, the problem species or weed is often just a symptom of poor grazing management and can be addressed, controlled or even turned into a wonderful resource as is the case with Mesquite on Rancho La Inmaculada. A classic example of what a change in thinking can do is this plant that “infests” much of his land & has also consumed about $300 million dollars worth of funding for eradication control in Texas (all to no avail).

In the 1970's Ivan's father in line with the leading science of the time bull dozed 25,000 acres of the ranch clear of Mesquite as it was considered such a weed. By the time Ivan took over in the mid eighties he had begun to question the merits of this policy and now he and his wife Martha have no less than 7 beneficial uses for this tree.

It is harvested (only trimmed) for charcoal as well as timber to make into a range of products such as flooring that they manufacture. The small off cuts are scattered around to return carbon to the soil and cover bare ground. The tree itself brings up important minerals from deeper down in the soil profile (as do many weeds) & also provides sun and wind shelter for livestock and wildlife. The seed pods are harvested for uses in cooking and made into flour, and the leaf provides much needed protein for livestock during the dry season.
And as an aside, the grass grows thicker in and around the trees, due to the improved mineralisation, and is prolific all over the ranch, keeping the Mesquite in balance due to great grazing management.

Here at Bokhara Plains it would be easy to be concerned about "weeds" such as black Roly Poly, or many of the numerous other less palatable species such as Poverty Bush and some of the various Copper Burrs. However, I continually remind myself that they are simply early succession colonisers of either degraded heavy soil (Roly Poly) or of scalded bare clay pan areas and they are the important pioneers of regeneration. I also tell myself that their "job" is not necessarily to be fodder for livestock; rather their role is to reclaim and prepare the soil for the higher succession perennial grasses that will eventually take over.

Plenty of grass in among the Mesquite at the Aguirre's ranch in Mexico

“What we focus on……will expand, so lets make sure we are addressing the cause & not just another symptom’

The Sonora Desert, Mexico… is flourishing under good management!

The boundary fence at Ranch La Inmaculada in Sonora, Mexico

A Sound Breeding Philosophy

"It takes high hurdles to achieve high goals"

Tom Lasater

I was very fortunate while in Colorado to visit the Lasater Ranch at Matheson with my host Duke Phillips of the Chico Basin Ranch to sort through that year's young bulls. Dale Lasater's father Tom founded the Beefmaster breed of cattle back in the 1930's in Texas as a hardy composite derived of approximately half Brahman; quarter Shorthorn & a quarter Hereford. He registered the Beefmaster breed as its own entity around then, and in the early forties he closed the herd to any outside genetics and now over 70 years later it still remains that way.

To have a closed herd of such magnificent cattle is amazing in itself, but the truly amazing story for me is the astounding legacy of breeding discipline displayed by their management results. Derived from the Lasater philosophy of cattle ranching developed by Tom Lasater in his lifetime of perfecting what must be the most functional and practical herd of cattle in the world.

Founded on the Six Essentials of Cattle Ranching which were developed though trial, error and an extremely keen sense of what good management should entail. No more are needed and leaving any single one of the essentials out would let the herd down. I strongly feel that his essential guidelines would be relevant in the management of any type of breeding enterprise, anywhere in the world and that the underlying philosophy would also be relevant to agriculture in general.

Functionality, practicality, working with rather than against nature and hardiness are all traits to aspire to in any enterprise. Tom Lasater's ability to make an operational profit 56 years in a row in 14 inch rainfall country with a tough winter every year, through good years and bad is testament to the man's fortitude, discipline and the breed's astounding functional capability.

Dale Lasater casting a critical eye over young bulls

"Cattle breeding is a relatively simple endeavor.
The only difficult part is to keep it simple"
Tom Lasater

The following "Six Essentials" developed and refined by the Lasater family, interest me as a livestock breeder (at times) because I have never seen nor read about any seed stock producer of any breed anywhere that has such a total focus on real functionality. You will not find in the Lasater philosophy any mention of trying to deal with single issue traits such as hide colour, pinkeye, worm or tick resistance or even the overemphasis on maintaining a favourite sire or dam. Many stud producers will disagree and say they already utilise these principles in their operation, while I maintain that giving them 'lip service' is not the same as actually doing and a study of the show circuit, with its pampered ribbon winners will confirm this.

Whatever breeding enterprise you develop, and whatever land type or environment you choose to farm on, the following six principles, balanced with the right animal for your environment are an extremely sound basis for a successful breeding program.

The Lasater Six Principles for Cattle Ranching

(Summation taken from the book "The Lasater Philosophy of Cattle Ranching")

Disposition

The most obvious good character trait to develop in any herd is to be easily and quietly handled by staff, who in a family enterprise are often family. It is also a trait sometimes overlooked or made excuses for if there is good offspring evident, even though disposition is one of the most heritable of traits. An animal with acceptable disposition is one in which the animal is responsive and docile by nature and gentle by training. Although well designed yards, educated stock handlers and supplementary feeding weaners can all help, Tom Lasater would always maintain when queried on his ruthlessness that he " May get rid of **some** good cattle, he also gets rid of **all** of the bad ones." The initial culling process may take place at weaning, but any animal that becomes highly strung or irritable during their lifetime becomes a casualty of the process as well. Any cattle that don't make the grade have no place in today's industry with labour shortages and tight margins.

"A quiet disposition is essential"

Fertility

Simply put, true fertility means that the cow must produce a good size calf at weaning time, starting at the age of two from a short breeding season every year or she is culled. Simple to say but much more difficult to enact, especially with the early joining of heifers which many people mistakenly believe they cannot achieve in their particular environment. The Lasater's believe there are two possible answers to this situation;

One, follow this program stringently and quickly develop a fertile herd through heavy culling of non-performers.

Or two, buy heifers that can perform under this management regime.

The high retention rate of joinable heifers also allows the increased culling percentage of the rest of the cow herd, thereby improving productivity markedly. This

philosophy runs through to even dealing with predators, in that if a cow loses a calf to a coyote than the cow is culled rather than the predator eliminated.

Weight

It has been said that by selecting for weaning weight alone, a producer can improve his cattle in all aspects 70% as fast as all the most complex, computer orientated management systems could hope to, using nothing more complicated than a scale. There is a high degree of correlation that exists between weaning weight, fertility, feedlot performance and milking ability.

If weaners are weighed twice, the first measures the cow's ability to produce and the second, post weaning weight measures the weaners' ability to fend for himself.

Heifers are weighed at weaning and thereafter the cows are not weighed again, only judged on their ability to produce a good weaning weight weaner each year, or be culled.

Milk Production

Considering that our cheapest gains are produced from birth through to weaning it is imperative that a cow produces enough milk to wean a heavy weight calf each year. Those with the lower weight calves are culled, favouring the best milking cows.

Confirmation

This is considered solely in the context of what the end product will perform like "on the hook". The saying "Form follows Function" is relevant throughout all of these principles so rather than pick for a certain type of body shape or size, pressure is applied to the herd to perform with the end result being bulls that look like bulls and cows that look like cows in a size that fits the environment. Colour does not come into calculation at all as:

"Hide colour doesn't matter, when the T-bone is on the platter"

Mary Casey Lasater.

*Kit Pharo of Pharo Cattle Company, also of Colorado has a similar philosophy to the Lasater's, believing to a greater degree though that much more profitability can be generated by deliberately keeping the size of the cow smaller framed (2 – 4 score), although still easy fleshing, well muscled and durable with weaning weights being 60% of the mothers at nine months.

Hardiness

"Hardiness is exemplified by those individuals that carry on their relentless production assignment year after year with minimum assistance"

Tom Lasater

No excuse such as sore feet or udder is tolerated as cattle must be able to perform in the environment in which they are run with minimal assistance. Admirable traits such as lice, fly and pinkeye resistance come to the fore in a herd that has to continually perform under all conditions year in year out. If the focus is on the traits and performance that we are trying to enhance then dealing with problems and problem animals becomes a non-issue. Vaccinations are kept to a minimum as well with only the diseases Blackleg, Malignant Edema and Brucellosis treated.

Cattle should be raised in the environment they are to be used in, and have the ability to adapt to any particular disadvantages of that geographic location.

Enterprise mix – Diversification and Business Resilience

Complementary versus Competing

Rather than consider our land and business as a single enterprise income generating entity such as a 'grazing block', we are better to view it as a total resource package that can be leveraged into a variety of directions to increase reliability of cashflow.
Especially if the new enterprises are complementary rather than competing, as this will add value to the bottom line while decreasing total overheads because the need for more land is not necessary. Although many would suggest, and I'd agree, that specializing in a certain enterprise and focusing will achieve greater results in that enterprise, it does not however mean that overall profitability will be maximised in your business.
Complementary enterprises and diversification does not mean running sheep *and* cattle particularly, although there are grazing benefits due to diet variation in that scenario. Rather I'm referring to our ability to use imagination and creativity to add layers and synergy that would otherwise not be part of a more straight forward grazing business. Tourism and hunting are two such enterprises. Developing products from leather or timber, bringing in other species such as chickens or turkeys that have multiple benefits other than what they produce such as pest and weed control, could also be considered.

American farmer and writer Joel Salatin, star of the award winning book "The Omnivores Dilemma" by Michael Palin, and also author of several of his own fantastic books, who is probably the worlds leading thinker and doer when it comes complementary, synergistic and ecologically friendly farming says:
"Complementary enterprises fill the most critical gaps in our current agricultural paradigm. They answer the production issue, the labour issue, the generational transfer issue, and the opportunity issue. Although they represent a fundamentally different way of thinking for stodgy cattlemen and John Deere jockey grain farmers, complementary enterprises offer regeneration for **any and all farms.**"

Most of the people I have visited, on several continents, have had both a diversity of animals and enterprise.

Roly and Sam Kroon at Graff Rinett in South Africa were an exceptional example of what creative thinking can produce. Not only did they have the usual Nguni cattle and Dohne sheep mix that was popular in that area, but they also ran an on farm 'farm supplies' business, an extensive fence contracting operation, an investment consultancy enterprise and an incredible and complicated nutritional supplement making chamber that they had almost invented and built from scratch themselves. To get an opening into markets, especially overseas, was proving more difficult than development due to the opposition of the big end of town in the shape of pharmaceutical giants that don't like untested 'in the lab' products that they can't buy the patent for.

This product could have a beneficial impact on the failing health of so many all over the world and especially in the HIV ravaged population of that country.

Roly and Sam Kroons "health industry" enterprise. Graff Rinett, South Africa

Using Equity to Invest Off Farm

Readers could be forgiven for thinking "invest in *what* off farm" at the moment, with crashing values in the stock market, real estate & superannuation funds making the battle with drought, fire and flood currently looking more palatable.

However, every disaster for someone is another's opportunity, so even at the moment those that are smart will be looking and watching for a possibility, while others as always will be focused on the doom.

One thing for sure on the rangelands of the world, it is only a "matter of when, not if" before we experience another long and difficult dry spell, and our emphasis should always be on how we are **prepared**, and using equity in our land to invest in appreciating assets off farm is one very effective way to do that.

To be able to have a business "drought proof" (rather than our 'farm') and enable us to take the pressure off trying to eke out unrealistic production goals from the livestock side of the business during a particularly dry period will leave our ecology and finances in much better condition when the rains do come.

NSW Farmer of The Year in 2008 and friend of mine Nigel Kerin of Yeoval will always maintain that "You must at first generate ecological wealth, before you can truly create a monetary one".

To substitute 'trucked in fodder' for pasture during a dry spell to maintain numbers can have high ecological costs associated that are seldom factored in to the 'break even price', and is rarely an option with those that can plan a long way ahead.

Many of the farmers I visited had detailed grazing plans for up to a year out, also allowing for either a 'good or bad wet' scenario with critical dates penned in. They considered this another tool to monitor effective ecological management with their livestock, and if decisions have to be made about reducing numbers then there is also a plan to utilise the freed up capital in the most productive manner available.

Simply knowing there is an income generating stream coming in regardless of climatic conditions can reduce stress, free the mind from the soul sapping drought foreboding, and take the pressure off emotional livestock related decisions.

In the event of the inevitable 'dry period' in the rangelands it may be that the best paddock you've got is the unused farm equity that could be proactively utilised in an income generating off farm investment portfolio.

Marketing Grass in a Changing Climate

The continuing struggle within pastoral areas to battle with the balance between fodder availability and livestock numbers has historically had many contributing factors, and now growing consensus that there may be another in the form of even more variable climate due to anthropogenic global warming.

Whether you are a believer in Global Warming or not, our ability to control our decisions throughout unpredictable grass availability to maximise the opportunities and minimize the disasters in the rangelands will continue to be our greatest asset, or our darkest foe. If anything the risks may be heightened with increased climate variability, but so will the benefits for those embracing the challenge with good planning, knowledge and skills to continually adapt.

Livestock industries also have political impacts relating to the above in regards to carbon, methane and animal welfare issues. It is critical we address these issues from the positive standpoint, that we are part of the solution and not simply a scapegoat for the real polluters and / or political expediency.

Marketing

"Weight gain & Market price may have absolutely no influence on profitability"

Bud Williams

With legendary Bud and Eunice Williams in Bowie, Texas

Visiting Bud & Eunice Williams in Texas for a day was an inspirational experience as they are possibly the world's leading teachers of "Low Stress Livestock" handling techniques, as well the developers of the Sell / Buy cashflow generating strategy of marketing. Their ability to achieve extraordinary results with animals in all situations and all environments in a manner that is quiet, calm and 'family friendly' is surely a must learn skill for all members of the livestock industries, and also a direct contributor to profit when animals go to market. Our best defense in response to those that question the welfare of animals involved in the livestock industry is to be proactive and have exemplary methods and results.

The key to their marketing strategy is to always keep your portfolios of **Grass, Money and Animals in balance,** and to always know the true market value of your livestock on any given day. What you think they should be worth is irrelevant as the market is always right, and every day we make a decision to either buy, or sell our livestock. If we choose to hang on then we have effectively just bought them, so we must be aware of the market and whether we have an opportunity to **sell our over valued animals and replace with under valued ones to lock in profit**. If this is done then we can trade in a rising or falling market as the profit is always locked in up front by calculating the true 'cost of gain' of the animals being bought. Although opposite to how most people view trading, it

is an incredibly effective marketing strategy that can leverage a business into a far greater cash flow position.

As Bud says:

"Even a one percent profit margin is great, if you can do it every day"

"The number one unfair advantage in grazing, is knowing how to sell livestock"

Bud Williams.

Fortunately in Australia we have three guys who have learned from Bud Williams and developed schools for the marketing and trading methods in this country. Jim Lindsay, Rod Knight and Grahame Rees operate two invaluable consultancy businesses for both the Low Stress Stock handling, and KLR Marketing schools which run in various locations all over Australia. (Details in the Appendices)

The Carbon Opportunity for Agriculture

This is surely one of the most talked about issues in agriculture in modern times, and could be the topic for several Nuffield studies all focusing on various individual industry concerns. However I will only cover it as briefly as possible in this report with its relevance to my topic.

My thoughts from travelling and listening to those that know far more than me about the subject, are that there are two fundamental points to keep in mind. One is that the issue of emissions trading is here to stay for at least the foreseeable future so we have to embrace it positively, and two is that Carbon itself is the most critically important component of soil health and therefore agriculture, that we should be fervently embracing and learning all we can about it. Climate change is inexorably linked to land degradation and the breakdown of what should be our healthily functioning carbon cycle, and yet the vast majority involved in the political debate do not understand the critical connection between agriculture, and in particular the ability of livestock, for the necessary land regeneration needed to actually address the core of the problem.

"Our ability to change the Earth increases at a faster rate than our ability to foresee the consequences of that change"

Quote used at RCS Meeting in Harrismith, South Africa

Agriculture, through farming methods that actively sequester carbon is the only viable and economical way of realistically reducing the legacy load of carbon in the atmosphere. Accurately measuring soil carbon increases to fit a trading model, is proving to be a stumbling block to its acceptance in the current Australian Emissions Trading Scheme (ETS). Although attitudes are changing among the scientific community and work done by those such as Dr Christine Jones are developing models and producing data to back up their considerable body of evidence.

"A very doable 1% increase in the world's agricultural soils will remove the threat of carbon induced global warming, and would be the equivalent to planting the whole planet to trees four times over". (Terry McCosker, Harrismith 2008)

With almost 85% of the Earths land surface area comprised of rangelands, and the ability of well managed livestock to vastly improve the soil in this environment, we are being faced with the possibility of an incredible opportunity to improve our soils and be rewarded financially for it in a carbon based economy.

Too often in the current debate we have had representatives of agriculture and farming groups take a defensive position and resist being involved because of the misguided belief that our profitability will suffer. This is due to the reality of industrial and conventional agriculture having the capacity to be a net emitter, and their inability to embrace agricultural methods that actively sequester carbon, build soil health, create diversity and develop business resilience and true profitability for farmers. A trading scheme that rewards farmers for good soil, plant and animal management over and above their production profits could be the greatest turning point in land use and management that mankind has ever witnessed.

The Methane Debate – Where is the right question?

Yes Methane is a 21 times more potent greenhouse gas than Co2. Yes, it is a by-product of the digestive processes of ruminants, and yes sheep, cattle goats etc are ruminants and part of the world's protein producing livestock markets, and also a major component in our ability to restore the health of our rangelands as per my report.

Why though may I ask in all the debate are the emissions by livestock considered a problem at all?

How is this bad for the environment? Cattle and great management have regenerated the Sonora desert

Enteric fermentation in a ruminant's stomach is a natural process and part of the crucial nutrient and mineral cycles of grazing animals in their normal environment, which are an important part of a healthy ecosystem designed by nature over eons. Studies into methane emissions from ruminants have focused on animals going through an industrial feedlot system, force fed grain which is not usual in their diets in nature or how they evolved, and they also completely discount the net carbon sequestration potential through the synergistic relationship of herbivores with grasslands.

In all of my travels through the dry environments of New Mexico, Colorado, Oklahoma, Texas, Mexico, Zimbabwe and South Africa one thing struck me very strongly: the lack

of large numbers of animals and the inability of the landscape to actually support the vast numbers of herding herbivores that history books tell us once roamed these areas.

Sandy Speedy of Vryberg in South Africa told me about the eye witness account that his father had of one of the last great migration herds in that country which occurred back in the forties. The herd of Springbok and other game animals was about twenty kms wide and over a hundred kms long (as documented in the Guinness book of Records) and seemed to his father to be more densely compacted than herds of cattle they had used at home of some 2,000 animals per Hectare. There must have been hundreds of millions of animals present, and yet the landscape was far healthier than now, and the springs were flowing. Towns with names ending in **Fonteyn** (fountain) bear testament to the original capacity of the landscape where now the springs are dry and the animals and grass mostly gone.

Methane is also emitted naturally by many processes including through termites and humans, and vast amounts of **stored methane is released through gas and coal extraction** that unlike the above are not part of the normal cycling processes of nature. And by far the biggest amount of methane is coming from swamps and wetlands etc, with huge amounts of methane bubbling up from the melting of Arctic permafrost and from seabeds off the Siberian coast.

Poor science has skewed the debate against utilizing the very animals that are critical in the only real, economic and plausible solution to balancing the carbon situation and restoring vast areas of productive rangelands at the same time.

Attitude, Education and Making the Tough Decisions

"It is in your moments of decision that your destiny is shaped".

Anthony Robbins

A leap of faith (boots and all!)… The 218 metre Bloukrans Bungee, South Africa

For some reason many landholders still do not take up the opportunity to further their education or gain new skills to help their business, with the possible exception in the uptake of computers for communication and accountancy packages.

This is not due I believe to lack of availability, viable access to professional help or extenuating or trying circumstances that usually precede our desire to look.

In a world where the pace of change is faster than ever before in our history, and the terms of trade for those involved in agriculture becoming tighter and tighter, it has become imperative that we as businessmen and women constantly strive to keep up with the latest knowledge…. Or even more importantly to discover old knowledge that is

relevant and critical in our ability to deal with the vast array of issues stemming from old problems that have not had the **cause** addressed correctly.

As Terry McCosker from RCS says;
"To have a fundamental change or paradigm shift there needs to be a process or four stages that lead to an end result"…
Discontent… A 'need' has to be created and this can take many forms. Usually a combination of financial, personal or production issues being a catalyst.
A Shared Vision… Those close to us need to be involved in our dreams; otherwise the momentum of progress can be limited, or even stopped.
A Plan… What do we do next? Where do we want to go, and what do we want out of life?
And Skills & Knowledge… Education, and gaining the knowledge necessary to be successful in our endeavours toward our new direction. Learning should always be considered an ongoing process, approached with an open mind and desire to continually improve all aspects of our business.

Nearly all the successful ***practitioners*** that I visited in the United States, Mexico & throughout southern Africa were somewhere in this process of continual change and progress, which is indeed a continuum as prior knowledge becomes inevitably superseded by new knowledge.
Another common denominator among these practitioners was their ability "to get on with the job" once they realised action was required, rather than procrastinate and leave the work till tomorrow!

Another 'blockage' common throughout the rangelands and evident I believe in much of the dryer western division of NSW, particularly during the last few decades since the demise of the great wool boom, is the defensive mentality of us as landholders.
This was explained to me once by Sean Martin of Principle Focus after I had commented about the slow uptake of innovation in land management out west.

He said “That people out there suffered from a **‘scarcity mentality’** that had probably been brought about by having to deal with extreme conditions, disappointment and heartache in a tough environment over a long period of time. An attitude has thus prevailed of being defensive and trying to desperately hold on to what had been hard fought for. If we can progress past this blockage than the alternative is for us to have ‘**an abundance mentality’** and create a positive situation where we produce far more than we could before by using different principles and attitude”.

I found this comment to be a real breakthrough for me in understanding why change (however beneficial) can be difficult to influence, and with all I’ve learnt the “scarcity mentality’ still creeps back to haunt me occasionally. It’s this attitude that leads us to continually regard weeds and native animals as competition for grass in our business, and contrastingly why all the hosts I visited could envision an abundance of flora and fauna in harmony with livestock on their landscape.

A combination of ‘scarcity mentality’, lack of long term goals for what we wish our landscape to be like and a lack of knowledge or understanding about the results our decisions will incur leads us to focus entirely on the perceived problem (such as drought – not enough grass left) and the thought that it is out of our hands and inevitably we must replace the missing grass.

We humans are a strange species when it is seemingly easier to make a decision which hurts us financially, physically, mentally, ecologically & socially rather than step back from the problem, look at the bigger picture and decide what to do with the long term in mind. Why does “the tough decision” such as lowering numbers earlier or “planning for drought” seem to be so against the grain, and yet the massive problems felt through the ramifications of not addressing these issues, and a direct result of our own decisions are often the cause of much higher stress and even depression.

"We cannot change the seasons, we can only change ourselves"

Jim Rohn.

Each and every practitioner visited had been through plenty of hardship, and ventured down the wrong road occasionally. However, universally they all seemed to benefit by the experience and turned it into an invaluable learning exercise that would be corrected or adjusted as need be the next time a similar situation would occur.

With the trend worldwide towards ecological responsibility and improved animal welfare we as the major contributors and controllers of land and animal management will increasingly find ourselves under pressure & under the microscope. This is going to involve much more than positive marketing and trying harder to inform the ill-informed or naïve among the population who choose to disagree. I believe we should also stop trying to defend the indefensible as some farming practices are so far removed from the healthy biological process they should be that many farmers have become totally disconnected with nature itself. Is it any wonder that profitability has suffered through our attempts to unsustainably conquer, replace, dissect and subjugate nature with the slicing of genes from different kingdoms in the never ending battle that farming has become?

By focusing on the positive, the regenerative, the profitable and the enjoyable we can be inspired by every step forward, and be proud of being part of the greatest vocation on Earth.

Conclusions

With all of the increasing pressure coming to bear upon agriculture throughout the world via tightening margins, environmental responsibility and falling numbers of farmers leading to less political clout, I still remain a fervent optimist in the future of profitable and enjoyable family farming.

When all is said and done, past all the glitz and glamour, past all the political ideology, past all the fancy technology of IPods' and plasma TV's, beyond all the hype and disconnect between the urban populations and their tenuous link with farming:

Everyone still has to eat.
Everyone still requires clothing.
Everyone still needs clean air and water.

Agriculture is of course at the very front line of all of this, and therefore will eventually be recognised for its true value and we can maximise this opportunity by utilising farming methods that are also in line with the core values and principles of the great majority of our customer base. Western civilisation has become accustomed to cheap food that has evolved to be incredibly convenient while distancing itself from the nutritional capabilities necessary to deal with the modern world's exploding health problems. It is no coincidence that the lift in production with industrial agriculture has not been followed by the same level of nutrition to the point where we can now go to a "Walmart Super Store" to buy our food at the same time as we buy our pharmaceuticals to deal with our health issues, brought about to a large extent by our lifestyles and the quality of food we have available to consume.

Ecologically regenerative agriculture, in its many forms, I believe is the preferred future, and answer to bridging the insidious divide between the producer and the consumer.

People have to feel good about what they eat because of its nutritional benefit, because of its taste and because they want to support the efforts of farmers that truly care about the customers' health and well being, as well as the care of our planets finite natural resources.

And although I do agree with keeping an eye on the big picture and political trends throughout the modern agricultural world, I also feel strongly after my extensive travels that we have far more to gain as individuals by improving our own businesses first, for the true triple bottom line of ecology, economy and social / community responsibility. This will give us a collective strength from the grass roots level, where it should start anyway, to deal with the global perspective.

If it is all too difficult to be a profitable farmer in these times, then why have I encountered in my travels so many fantastic operators who are profitable, innovative, ecologically regenerative and incredibly inspirational?
Individual management and skill have much more influence on our results than all external forces, and focussing on what we can change is much more empowering and positive for the psyche of the Australian farmer in all regions, all environments and through all situations.
Agriculture has no need to, nor can we afford it to become corporatized, industrialised, homogenised, monopolised and disconnected with the general population, when we should once again be considered in high regard and in an industry that the young are encouraged and willing to be a part of.

And finally, despite the current debate vilifying ruminating livestock due to methane from the natural process of enteric fermentation in digestion designed by nature through millennia, I am still excited by the possibilities of what can be achieved on these ancient Australian soils. The most dramatic results I have witnessed in the rehabilitation of rangelands, and incredible ecological improvement throughout the world has been with the careful use of livestock in a planned holistic grazing system, and I can see a huge future for a repopulated and revitalised rural Australian economy. The very animals that

are so readily at our disposal will be the key just as soon as we inevitably achieve enough anecdotal evidence to convince those in government and academia that many answers are already beneath our noses, and truly warrant a closer look.

What should be considered in every decision!

"The Future"

Preferred Reading and Reference Material

Websites:

www.polyfacefarms.com

www.stockmanship.com

www.pharocattle.com

www.chicobasinranch.com

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www.principlefocus.com.au

www.stockmangrassfarmer.com

www.klrmarketing.com.au

www.carboncoalition.com.au

www.managingwholes.com

www.bokharaplains.com

www.lasaterbeefmasters.com

www.lss.net.au

Books:

- Allan Savory / Jody Butterfield – Holistic Management
- Joel Salatin - Family Friendly Farming
  -Everything I want to do is Illegal
- Allan Nation – Knowledge Rich Ranching
- Jared Dimond – Collapse
  - Guns, Germs & Steel
- Tim Flannery – The Future Eaters
  - The Weather Makers
- David Suzuki – Naked Ape to Super Species
- Michael Palin – The Omnivores Dilemma
- Paul Hawken – The Natural Capitalist
  - Environmental Capitalism

Plain English Compendium Summary

Project Title: Beyond Sustainability for the Pastoral Industry

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Objectives: To dispel the myth that pastoral areas are limited in potential for ecological improvement and profitability by using livestock as beneficial tools, and by creating diversification and business resilience.

Background: The movement of people out of the rural and regional areas caused by lack of profitability and drought is having a detrimental effect on numerous regional communities, as well as the landscape itself. Traditional grazing practices have proved inadequate for our increasingly erratic and variable climate, which needs more intensive management and flexibility.

Research: By targeting successful landholders with similar environments to western NSW in the drier areas of the United States, Mexico, Zimbabwe and South Africa, and learning from their practical experience in land regeneration and variation of enterprise to increase profitability.

Outcomes: By using innovative principles of land and animal management and by continuing to learn and develop synergistic enterprises I am buoyed by the opportunity and potential we have to focus on improvements in all facets of our management from ecology, economy and social / community development in rural areas.

Implications: My belief, reinforced by my extensive travels and study, is that we have the potential ability, access to knowledge, and available resources to vastly improve all of our rangeland ecology and producer profitability, far beyond the current level of even the most optimistic model put forward.