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The Australian Rangeland Society

MANAGING AND MEASURING NATURAL CAPITAL IN THE RANGELANDS TO DELIVER ECOLOGICAL SERVICES.

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BACKGROUND

Twenty four years ago my husband and I arrived at Moorna with two small children, numerous dogs and livestock that we brought with us from our previous property in South Australia.

We immediately set about building our stock numbers to the recommended carrying capacity and getting a cash flow happening. We had purchased the property soon after the 1981-82 drought and the previous owner had de-stocked through these years. Moorna, we thought, was in pretty good heart. After several seasons we became aware we were losing hundreds of lambs after weaning. Our older sheep were looking fine but the stress of weaning was causing huge losses in the lambs. Results from autopsies were clearly showing that their kidneys were unable to cope with the high salt loads. We now realised that the saltland vegetation was having an impact on our production and we needed to do something about it. Most of Moorna's grazing lease and freehold is affected by the lock 9 weir pool and Lake Victoria; the severity of the salinity was not realized until the early nineties, after we received results from test bores.

GRAZING MANAGEMENT

It was at this time that my brother rang and suggested that we implement planned rotational grazing to improve the saltland vegetation, perennial grasses, build soil health and to mitigate the effects of the salinity. We realised we had our backs against the wall but we felt it was worth trialing planned rotational grazing. The landscape responded and little by little we have seen an improvement. This result has had a huge impact on the Moorna management team as we now realize that if you stick to the right system and listen to the landscape then it will talk to you on a daily basis. In fact it is entirely captivating and I am totally engrossed. It has become my life.

Over the years my interest has grown around the question of "where has our natural capital gone" and what can we do to rebuild it. This interest in the local history and landscape was fuelled by numerous meetings with Dick Condon, John Malcolm, and local landholders and any book that I could get my hands on that related to early records of vegetation and stock numbers (carrying capacity). Moorna was conservatively stocked, we were battling to stay viable and the landscape was declining. The historical records from the 1850's through to the 1890's spoke of huge numbers of stock overlanding through this region (to SA) and huge numbers being shorn at the Nulla and Moorna woolsheds. They could not ring for a semi-trailer of hay in those days so the only way that they could keep the sheep alive was from the feed and water available in the immediate area.

We believe on Moorna that there has been between a 75% and 90% loss of natural capital, simply estimated by what the land carried in the first 40 years of settlement and what it can carry today and what native species were once there. In order to find a way to improve the

natural capital we need to look at the impacts that created the decline. Continuous grazing practices, rabbits, not managing drought, increased watering points leading to increased kangaroo numbers and the demise of the native wildlife especially the small ground foraging mammals which have shown to have significant benefits to soil health.

On Moorna we are addressing all the above impacts by planned grazing, kangaroo and rabbit control, matching stocking rates to rainfall and developing a program to re-introduce native wildlife back into our grazing system while still maintaining our wool and meat sheep enterprise.

ADAPTING THE SHEEP ENTERPRISE TO THE ENVIRONMENT AND MARKETS

Moorna runs a self-replacing merino flock, so our main enterprise is wool and the sale of wether lambs and cull ewes. This enterprise is run on 45,000 acres consisting of one-third chenopod and two-thirds saltland vegetation. In 2001 we introduced two South African breeds, Dorpers and Damaras. These breeds were introduced as a trial and we ran them separately from each other for five years to analyse their different characteristics. They are two very different breeds of sheep but the one thing that they do have in common is their ability to metabolise forage that is lignified and maintain good carcass weight. The Dorpers are more like our traditional British breeds and there is no buyer resistance at the market place, but the Damaras have a stronger fat tail sheep characteristic and there is a resistance in the local markets.

We run both breeds on the southern side of the Frenchmans creek; this gives us a formidable natural barrier. It is important that the merino's are kept very separate from the Dorpers and Damaras to prevent any fibre contamination. Also we have had the Dorper and Damara enterprise accredited for organic meat production through BFA and the meat sheep can not mix with the Merinos.

The herding instinct in both breeds is very strong and this is a great advantage when practicing tight planned grazing because clean musters are essential to give the resting paddock total rest from domestic livestock. Prior to the introduction of the Dorpers and Damaras we were running goats in the same area and it was almost impossible to get a clean muster and the landscape suffered.

A decision has been made by the Moorna management team after five years of studying these two breeds and following the South African trend to cross the Dorper rams over the Damaras. This will hopefully give us the best of both breeds. I feel the sheep industry is where the cattle industry was about twenty years ago. It is time to develop a sheep that is best adapted to our semi-arid rangelands and is a buffer against climate change.

APPROACHES TO MONITORING CHANGE

The big question is, how do we know by implementing certain management actions we are improving our soil health and vegetation, and in our case on Moorna our saltland vegetation, to build our production and natural capital?

Over the years we have been associated with numerous monitoring systems, Profit probe, Rangelands Assessment Plots (RAP), Grass Check, water and biodiversity monitoring. Everything was monitored in isolation and we have never felt comfortable with any of the vegetation monitoring systems that we or government agencies have been using. I would like to touch on the ineffectiveness of government intervention through systems like Property

Vegetation Plans (PVP). The mentality of such programs at this stage of our understanding of the landscape is, in many cases, detrimental to best practice. We need systems in place that reward entrepreneurial conservation and production and we need a system in place that can deliver an auditable and creditable accounting of the results of management practices from a landholders perspective. The AEMS property planner system that we have developed is designed to do just this.

During the conceptual discussion with landholders and RIRDC on sustainable wildlife enterprises (SWE) it was very apparent that we needed to have a monitoring system in place to clearly indicate changes in natural capital and finances. I will not elaborate too much in my paper on the detail and complexity of the EMS that we have developed but I would like to say that the system and database has been developed with the end users in mind. The development of the data base was done from the kitchen table and the software has been configured to enable people with minimal computer skills to be able to find their way around the program. It has not been easy to deliver this product, it is still early days and we need several years of twiggling and data for the system to be said that it is the “bees knees”.

So why do we need to go to so much trouble? Why bother? One might say that all the time and money spent on the development of the EMS could have been better spent “on ground”. The answer to this question is that we need a detailed record of actions implemented from a landholders perspective so that we can repeat them if they work and discontinue them if they don't work. The ecological processes are so complex that we need science and common sense, along with systems that assist the collation of data, to allow us to monitor important landscape functions such as water and nutrient cycle to give a trend of improvement or decline in natural capita. All this needs to be coupled with a financial overlay. We need the ecological health of the landscape rising along with the financials, not one heading in a different direction at the expense of the other.

LESSONS FROM OTHER LANDS

Several years ago a number of landholders from the Murray Darling region toured the Karoo district of South Africa. This tour was undertaken basically to see what difference they had made to the landscape after 50, and in some cases 70 years of implementing different forms of planned grazing (cell or rotational grazing to some). The observations were very positive and the improvement in production and biodiversity was clearly demonstrated by the South African landholders through photo points and their improved financial position. Although the planned grazing had contributed to the increase in natural capital, the South African landholders were quick in pointing out the importance their wildlife played to landscape health, income, capital and social values. This point was taken on board by our little group of Aussie's and after much deliberation we are now positioning ourselves through the Murray Darling Rangeland Conservancy (MDRC), a group of like minded landholders, to trial reintroductions of our endemic wildlife species and using the EMS for checks and balances to give an index of change. Some of these changes may be very subtle to begin with but we must act on trends that show up and take appropriate management decisions

THE FUTURE

Where is all this leading us as land managers? Can we do this in a cost effective manner? How much difference to the natural capital are these management changes going to make? All these questions can only be answered if we have some baseline information to show where we started from, management implemented and systems that can listen to landscape trends. This is not easy, but it is not impossible and needs to be done. Let's look at a number of questions.

Where is all this leading us as land managers?

It is giving us control of our business with indicators that will show whether we are sustainable or not long term.

Can we do this in a cost effective manner?

It is not cheap introducing planned grazing systems and endemic wildlife species to create improvement in soil health and natural capital. Initiatives such as carbon and biodiversity credits, where landholders are encouraged and rewarded for looking after the landscape on a long term basis, may provide some income help to initiate projects. The EMS that we are putting in place addresses these issues head on but it is not going to be recognized or effective unless there is enough interaction between the developers of these systems, governments and industry. I hope that we are able to kindle some enthusiasm and collaboration to take these concepts to where they are included in everyday industry, government and farm management.

How much difference to the natural capital are these management changes going to make?

This is the \$ 64 question. Let's not kid ourselves; these changes are not going to happen overnight. Can we afford not to try? No we can't; ecoside is not a pretty thought, and we have to put systems in place that can react to trends and be long term. So what do I mean by long term? Management principles that are established long enough to demonstrate a clear negative or positive trend. Twenty to thirty years maybe. This is made even more difficult when a property changes ownership, but it is through an EMS program that we will be able effect a continuity of management.

The MDRC with the support from RIRDC recognises the important role native wildlife play in the ecological state of our landscape. Their demise contributed greatly to the loss of natural capital; some say up to 30% was lost once the small endemic mammals were removed and unable to provide their ecological service to the landscape. It should be noted here that the conservancy, while having a strong focus on the role that wildlife play in the repair of the landscape, is also very focused on managing grazing, rabbits, kangaroos etc while also retaining productive enterprises.

Who have we involved?

We at Moorna and on the other properties involved in the conservancy feel that we need to build strong partnerships and friendships to share the immense responsibility and cost to manage and monitor the changes required to implement fair and just landscape repair.

The conservancy with support from RIRDC has appointed Greg Martin to coordinate a program to trial the release of endemic species back to our properties. It is Greg's charter to not only successfully establish these little critters in suitable numbers to demonstrate their worth, but to do it in a cost effective way that is within the reach of every landholder and to document the process so that we can learn from our errors or successes. He will also be overseeing developing a creditable and auditable concept of valuing eco-services that produce tangible and measurable improvement to our landscape, rivers and wetlands. The Moorna management team have, over the past 15 years, initiated planned grazing and management practices to enhance the habitat and have laid 1500 fox baits annually for 16 years in preparation for the eventual release of endemic species.

Many of you will know George Wilson and his background in managing landscapes and animals from the Scottish Highlands to the semi-arid Rangelands of Australia. George Wilson's tenacity, courage, foresight and tolerance has been the driver behind the

development of the EMS and given us the prospect of returning wildlife to our landscape. I am sure George must have taken on Sir Winston Churchill's famous lines of "Never give up, Never Give up, Never give up".. His skills in managing people, getting a team together to achieve the almost impossible are second to none. With George coordinating and RIRDC helping with some financial assistance we are well on the way of implementing management practices that are building our soil health and returning our valuable perennial grasses.

CONCLUSION

As I stated before ecocide is not a pretty thought but a reality if we as landholders, governments and scientists don't pull together to utilize the magnificent tools that have become available over the past ten years.. So many times landholders are left out of the loop and only half the story is told. The environmental management system that is being developed around our landscape repair is designed to keep everyone in the loop. I am reminded of another of Sir Winston's Churchill's prose "IF YOU DON'T TAKE CHANGE BY THE HAND IT WILL TAKE YOU BY THE THROAT"