

A PRESENTATION OF THE PRACTICE, DISCIPLINE AND PHILOSOPHY OF

LANDSMANSHIP



LANDSMANSHIP
is
APPLIED ECOLOGY

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PHILOSOPHY AND DISCIPLINE OF LANDSMANSHIP



Introduction

As a lifelong enthusiastic researcher, both with the Dept of Agriculture, and as a landholder, I have methodically looked at the landscape through the eyes of a self-taught ecologist and have been observing and experimenting from the point of view of understanding how all living organisms in farming landscapes live and individually develop their own habitat connectivity.

The 'Landsmanship' that I practice is applied ecology and multi-disciplinary in its skill base (e.g. soils, animal husbandry, agronomy, geomorphology, natural cycles, hydrology, etc). Such knowledge has the potential to enable everyone to farm or garden using natural principles in their own back yard or farming property. We are all responsible for the land that we inhabit. We can restore the natural function and processes that have often been lost in our own local habitat-landscape by using appropriate methods and respecting the limits that nature imposes on us. Applied ecology, first and foremost is about understanding how our landscapes function. Farming naturally or ecologically means to repair important landscape function and to ensure that as individual land users and farmers we are first and foremost accountable to nature and not to people or institutions. It is part of our task to increase the security of food and water locally in our world.

This paper provides the reasoning behind my "landsmanship" power point presentation depicting land use practice. Everything I say in this paper is my own opinion and philosophy, born of hard won practical experience and long term repeatable experimentation on a range of properties. I seek to challenge farmers and land users to experiment on their own properties based on my thinking and my hard-won results, and in doing so to celebrate the reduction in their input expenditure that will occur. I would be particularly delighted if you were able to challenge my results, more so if you can improve on them.

Agriculture Today

Over time, we have incrementally converted agriculture into an industry with artificial values, products, services, measurements and developed public and financial accountability, just as we would expect to find in our secondary industries. Our individual farming businesses are now usually artificial enterprises, and mostly disconnected from natural cycles. We have created a situation where we are no longer accountable to microbes, soils, plants, animals and water in our farming enterprises that represent the essential biodiversity in our properties and the very basis of farming sustainably. Property LAW may like to differ but nature's LORE will always prevail, long after we are dead as it did before we were born.

Farming landscapes are human made to some extent since we have usually compromised in many ways the natural process of our land so that we can make an honest living. Nevertheless all landscapes including farming landscapes have been created through aeons of work involving the whole local biological community working together with water, sun and the physical components of the landscape. All organisms have made and continue to make a contribution; plants and animals, lichens and microbes, above and below ground and in the wet areas of our farming landscapes.

Our European based civilisation in Australia, whilst creating great wealth for our nation, must now be held responsible to nature for the current degraded and degrading state of our environment. How can we justify

exporting carbon embodied as food from our increasingly carbon deficient landscape to overseas environments? Australia exports coal, woodchip, grain and natural gas, from an increasingly carbon deficient landscape with adverse consequences to the ecology and natural processes both here and overseas. How long will the nations of the world allow us to export carbon in a profligate manner when by so doing we are subsidising our food and fibre production by land degradation and biodiversity losses including the depletion of soil carbon? How long can our own land sustain itself in this artificial way? We are mining soil, plants, animals and water, as well as coal, trees, gas and other exports and by so doing continue to degrade and dry out our land, as emissions from landscape, farm and continent. That really is an omission in our stewardship behaviour.

About one third of grain grown on and exported from farms is used initially as human food and business then value adds to the other two thirds of that grain. This results in a loss of critical resources at farm scale that mother earth cannot easily replace in the short term but with appropriate understanding on the part of individual landholders, can be managed. For example farmers could value add to their property's ecological health by feeding some of their home-grown grain to free-range livestock across their farming landscape. I routinely feed 10% of the grain I produce to my stock as an ecological tithe. The additional available energy, carbon, nutrients and minerals are then recycled or utilised locally to help rebuild and/or maintain the health of soils, plants, animals and most importantly the health of the critical ecosystem cycles that are the basis of sustainability – carbon, water and nutrient. In my experience, the 10% rule appears to be an important threshold in my farming practices that prevents the land, where I am the steward, from trending toward being unsustainable to being sustainable and even more exciting from being a degrading to and aggrading landscape where critical farming resources can actually increase.

I challenge our nation to keep more of what we produce locally and to export to other countries knowledge that will enable them to also farm sustainably. The international import and export of carbon based commodities is creating ecological harm to all nations involved, particularly to their rural communities and their soils with little or no harm to government and business bottom lines. This is because the externalities such as global warming, land degradation and biodiversity losses etc are still not accounted for in single bottom line accounting procedures. Many countries, unlike Australia, have deep and rich soils as a legacy of recent glaciation, which provides them with some insurance in the medium term, to counterbalance degrading land management practices. However in Australia we do not have the luxury of deep soils and ample nutrients. For the most part our soils are ancient, shallow and impoverished, and easily mismanaged to the point of being an unsustainable resource. The import and export trade has the potential to reduce both soil development and rural community development whilst also recharging the atmosphere with excess gasses on the way back to the biosphere at someone else's place.

Desertification

People now generally understand ecological principles much better than in any period of history and how their living and supply landscapes function. Nevertheless, in Australia in particular, we are still continuing to rapidly make deserts and to de-vegetate and de-hydrate the landscapes where we live and on which we depend, including our cities and farming landscapes. There are many examples of failed past civilisations whose demise is linked to the process of desertification since they either did not notice the slow and gradual de-vegetation and de-watering of their agricultural landscapes over a few centuries, or if they did, were without the skill base needed to repair gross system malfunction. This important historical perspective is more often than not, absent from the minds of busy industrious people, who often appear to remain mentally on auto pilot, without reflecting that the process of desertification is well advanced in Australia, as measured by land degradation and biodiversity loss. We like to have the wilderness and people, under our control, to use our time productively and profitably. Civilization destroyed by desertification is a consistent theme of documented human history over the last 10,000 years. In Australia we still have a choice as to our future sustainability rather than just following past examples of human land occupation - we need to learn from history, not repeat it. Civilisations are already in an advanced state of collapse when they refuse to listen to their prophets and whilst they continue to adversely impact their food and water security and quality.

The farming methods that remain the dominant paradigm in Australia continue to be the agent of dispersing and degrading our essential resources; soils, species, their habitats, and ecosystem processes in the landscapes where we reside. With the best of intentions, we hold fast to destructive artificial nature controlling, and nature interfering land use, living and farming practices, embracing commonly accepted

views and investing heavily in inputs and various infrastructures. Many farming landscapes, as are urban landscapes, are now little more than artificial systems heavily dependent on energy intensive input resources and watering systems. In the meantime we fail to notice that our potential biomass is slowly shrinking, natural landscape resilience is faltering, there is less available water in the landscape quite independent of ongoing drought, and native species continue to decline. Australia has less biomass per hectare today, than 200 years ago but more people! Where are the creative decision makers in Australia noticing or thinking about what we might do about this extraordinary resource loss and how we might repair our failing ecology?

The age of restoration

In this new age of restoration of our lands it is imperative that we radically reverse our current operational land use and farming paradigms.

I strongly believe that we need to reverse our land use practice, both urban and rural, and move from non sustainable artificial systems to more natural systems. Naturalisation of our land and water systems is crucial to the survival of the Australian landscape including those landscapes where we live. Facilitating natural ecological hydration and fertilisation over all of our habitat landscape is a task that belongs to each one of us. By so doing we can re-enfranchise the whole biological community for the benefit of the whole of nature, including people, in a timely and cost effective manner. This cannot be accomplished with money or by building agricultural infrastructure but it can be accomplished by understanding the ecology of the land and its inherent limitations, together with imagination and effort.

Landscape function

Landscapes function as whole of valley land and water systems, and as agri-ecosystems within farming landscapes. They usually function well in our absence but when we humans are present they easily become dysfunctional. Few of us it seems, can readily see with our eyes whether or not a landscape is functioning well or is dysfunctioning – that is whether or not essential ecosystem cycles and processes are leaking resources to the point of being non-sustainable. People generally, have little understanding of nature's processes and think that nature at work can be measured and mastered. Understanding and implementing ecological principles is at the heart of sustainable land use and farming. Ecology is an integrated many faceted process and nature's ecology is often forgotten or more likely not understood in this artificial age. Rather farming and using our land artificially and expensively continues to be encouraged by business and government and offers a perpetual treadmill of a never ending requirement for expensive inputs and expensive infrastructure with no guarantee of solvency or a peaceful lifestyle.

Understanding ecology in farming systems allows us to diagnose functional loss within whole valley systems at all scales within the landscape much as a doctor of medicine or vet might diagnose illness or health in a living person or animal. The study for landsmanship is similar, even without a formal degree. Natural ecology should become the highest discipline in a farmer's mind, much like the disciplines of medicine facilitate healing of the body of people we love. Similarly understanding ecology can help facilitate the health and well being of the body of land and water systems we love as our living habitat landscapes, and that each farmer, so we are told, wants to leave his or her land in better condition than when he/she inherited or purchased it.

Nature is very willing, of its own volition, to maintain biodiversity and natural processes in almost any valley land area where we live. Dispersion and loss of such important components from our landscapes such as biomass, microbes, plants, animals, soil and water, loss of resilience and ecosystem process on the other hand, is essentially induced by our annual taking from the land more than it is able to sustain. When this occurs the landscape is in the process of degrading and losing biodiversity. The popular use of fertilizers, especially in broad acre farming, reduces soil microbe communities and in the longer term may lead to a loss in yield. A failure to not account appropriately for microbial soil loss is likely camouflaged by measured plant yield and its subsequent export, without accounting for it in the financial bottom line. We can easily fool ourselves, even without advertising, about the seductive apparent advantages of artificial practices, products and systems used instead of nature's processes. Based on my understandings and research, I strongly believe that farming practices must be based on the natural and free resourcing of land and water systems, rather than be based on a treadmill of repurchasing ongoing inputs for our farming enterprises and repeated product acquisition that is necessarily obtained from someone else's business.

Biomass and sustainable yields

Our biosphere maintains itself by inter-connected processes including the ability to self heal (resilience). Farming agri-ecosystems are a subset of the biosphere. If our focus is only on production outcomes such as crop yield or beasts per hectare we are in great danger of separating out a component part of our system (i.e. yield) , and in turn may be in danger of dis-connecting the importance of understanding the dependency of yield on natural processes. Accumulating biomass (plant and animal), so that a sustainable yield can be generated in order to make a decent living, is generated naturally by retaining and recycling locally more of what grows locally on our farms, including microbes, plants and animals, and doing so in a manner that maintains critical ecosystem processes including an intact water cycle. This growing, local part of the earth's biosphere, our land and water systems, facilitate too the cooling of our local land in contrast to the degrading condition where landscape over-heating feeds back as a significant loss in biomass production and almost always with a concurrent negative impact on the local water cycle.

Our new focus then both physically and mentally, needs to be directed in 11 major ways that are nevertheless tightly integrated phenomena, at all scales across the farming landscape:

- Understand how agri-ecosystems function and the biophysical signs that are present that signal system malfunction is occurring.
- Increasing farm biomass sustainably– (biomass in this context is defined as the total mass of matter, existing as living organisms present at the designated place in the biosphere: microbes, plants and animals together with their embodied water, although technically biomass is the dry weight without water). Excess biomass can be harvested sustainably and profitably if we understand the limits of the production system.
- Optimising species diversity within the farming system since this is believed to optimise system resilience above ground (terrestrial) and below ground (within the soil) and in waterways, and to optimise the exchange of material resources such as nutrients and carbon products via the nutrient and carbon cycles. This means conserving and/or increasing species in soil, water and on the land. More species live below the ground than above, but the above ground species, including terrestrial vertebrates and insects are incredibly important in maintaining a functional landscape, since every fauna species has a specific and important role in maintaining ecosystem function.
- Optimise living ground cover throughout the year that represents a complete biological community since this will prevent ground overheating to occur, as well as facilitate natural cooling processes, optimise sediment trapping and water retention within the landscape.
- Optimising fauna and flora habitats since free species will only be present attracted and present if their habitat needs are met in a manner that will sustain viable populations.
- Optimising capture of resources moved by water across the landscape predominantly by the density of growing plants, including sediment naturally eroding up slope, dead plant material, dissolved nutrients, animal faeces etc.
- Facilitating fauna to spread their manure as evenly as possible across the landscape so that the nutrient cycles are connected from valley heights to valley floors. This will be achieved using a combination of native fauna and farm stock, the latter being either managed via rotation or by removing fences that inhibit random and full use of the farming valley system.
- Optimising capture of water within the landscape enabling the storing of in ground water thereby decreasing evaporation rates and ensuring that optimal production rates are achieved.
- Optimising base flow, as apposed to rapid runoff flow in creek lines, rivulets and rivers to optimise riparian ecology. This is usually automatically achieved by better water capture at infinite points across the landscape and optimal infiltration as organic carbon accumulates;
- Optimising soil organic carbon and soil formation. This will be greatly facilitated by the ecological tithing of farm production and linking it with manure spreading carried out by animals.
- Increase and maintain habitat connectivity within the farm landscape and between adjacent farming landscapes to optimise biodiversity and to enable the dispersal and movement of fauna between habitats.

Some comments on ecosystem processes and human interactions

Carbon, soil and water capture, naturally occur when all essential, functionally task specific species, are returned or present and retained in valley land and water systems, providing that carrying capacities are not exceeded.

Without our help, successive biological communities, over long periods of time, working with the resources available, (water, nutrients, sediments and sunshine) formed our landscapes and built ecosystems and natural communities, and these were bequeathed to us in good working order, usually without the permission, or associated wisdom of the indigenous people.

Species that have been lost from the local valley landscape should if possible be returned ---or where this is not possible, then a functional mimicking species are considered, to ensure optimal connections within the ecological web. We need to think in ecological terms to best diagnose this requirement in land where we understand the history. Every species has a role to play (niche) and requires a place to live (habitat) and has a unique offering in the maintenance of ecosystem cycles, maintaining species diversity and population numbers and in the transfer of energy through food webs and chains.

We need to remove people-induced impediments, where we have inadvertently caused chemical imbalance in soil profiles or unnecessarily used redundant infrastructure, to replace or control a natural function in our landscapes, to allow nature to heal, maintain, or manage the landscape.

Replacing and/or retaining task specific species to fill ecological functions (niches) in site specific landscapes, also helps to create and accumulate more detritus, sediments, animal and plant derived debris, nutrients and minerals. As recycled matter, these in turn add to the accumulation of biomass and help optimise local hydrology, at very low cost.

It is important to optimise species diversity at farm level since more ecological roles will be supported that will support healthy landscape - microbes, plants and animals. Conversely it is usually better that one species is not allowed to dominate. It is also imperative to have enough, retained species induced nutrients and minerals cycling locally and available as carbohydrate, protein and minerals, since this is what helps to build and maintain healthy biological communities. When there is an appropriate balance within the system, in my experience, naturally occurring plant succession will have already begun to work in favour of the landholder. Many weed species are gradually eliminated through incorporation, grazing, slashing or cultivation to the level where important native plants and animals, and farm crops and animals, out compete most exotic species, without the use of chemicals, in a successional change of guard. Both farmers and graziers can influence the whole landscape, and benefit both production and nature conservation outcomes. As landholders we are only entitled by nature to export second order plant or animal production, fruit and nut of the tree, hay and seed from the perennial plant or young of the parent animal. First order annual plants or parent animals and perennial plants, need to remain in the living landscape as part of the recycling processes essential to maintain healthy soils. However, based on my experience nature will sanction the export of up to 70% of annual cereal grain produced on my property only when at least 30% is recycled back through animals to the cropped soil that grew that grain.

Harvesting grain, in situ, grazed by sheep not only increases meat, wool and lamb production but as a primary bonus their excreta is very high in nutrients, and acts as an immediate boost to pasture and crop production, as well as feeding the essential ecosystem cycles. A very important secondary bonus, is obtained by ensuring that the remains of dead animals (blood, bone, excreta, and wool), fallen timber (broad leaf or woody tap-rooted plants) and grass (eaten by animals or microbes) need to be allowed to rot rapidly or slowly back into the local landscape in a natural composing process that helps create the world's best practice soils. There is no burning of woodpiles, cereal or legume stubble on my property, since this is a net loss of both short and long term components in the complex recycling process. Furthermore dead fallen timber is habitat for many important invertebrates as well as providing important micro wind breaks. Soil renewed and created locally in this way by us, thinking and working as nature, compares favourably with known volcanic basaltic soils originating from the inner earth. This is nature's Lore in action to the benefit of all local species including my family.

An exponential increase in farm biomass up to peak production can occur rapidly on a property that respects and encourages nature's Lore. Growth and accumulation of biomass is generated naturally, by

retaining and recycling locally, more of what grows locally, microbes, plants, and animals. A bonus and one that follows automatically is the cooling of our local land and water system, thereby preventing negative feedback outcomes that inhibit optimal plant and animal growth. Accumulation and retention of more of what we grow as biomass, recycled at different rates over time, overcomes landscape decay (land degradation) and fosters landscape aggradation and the creation of new soils in the landscape. That would be a novel occurrence on many Australian farms in our modern era.

The more self grown biological carbon we have in the landscape the more water is available and retained in soil and species. My valley land and water system is itself completely dependent on living organism, a kind of super-organism, able to provide all necessary food and shelter (habitat), and water, just as we humans do. People tend not to see land as a living being but never the less, it is at my place; a living and growing organism that seeks to maintain 30% carbon and 70% water if I give it the freedom to do so or otherwise, it dies. The symptoms of land death and decay include bare earth, undesirable plants, salinity, acidity, sodic slumping, sheet erosion, gully erosion and tree die-back. Dead land can be regenerated by retaining and recycling its own biomass, to naturally increase microbes, plants, and animals in local valley lands. Living landscapes can increase and maintain their own biomass to their inherent potential in our absence. As this gradually happens over a remarkable three to five year period, nature adds another free gift to aid the savvy landholder – resilience. Resilience is the capacity of my landscape to either resist the adverse conditions of stress caused by for example drought and to self repair if disease, storm, tempest or fire disturbs my land. Optimal drought proofing, optimal water retention and de-energising, optimal soil carbon and the ongoing creation of new soils are the bounty of landsmanship.

In western civilisations, since the beginning of the global industrial and exporting revolution, we have been taught disciplines that primarily promote a monetary economy and the building of infrastructured landscapes- both urban and rural. As people we are entitled to our place in the landscape, as are all organisms. As humans with free-will and natural capacities, we can be agents of good landsmanship or agents of land decay. To change from being agents of decay (the dominant civilised land use paradigm), we need to be able to view our landscape more as a whole living process, with ourselves as an integral part of that process, in the valley systems where we live and farm, rather than a random scattering, of separate component parts in geometric patterns of enclosed lands.

At this stage of our civilisation in Australia, our data-confounded institutions are seemingly no longer supporting the natural sector, only the artificial sector. The majority of our community appear to believe, that we are the dominant specie, and in a sense we are, but we cannot continue to live and work as though nature imposes no limitations on such behaviours, or that we can continue to take nature's given cycles and change the cycling process into a waste stream of lost resources that then jump back to bite us as land degradation outcomes. The dominant land use and farming paradigm is based on high energy and input usage, with little to no thought as to what might be nature's way. The majority of us modern people are no longer able to read our habitat landscape as we would a library, as our indigenous people. We have indeed lost nature consciousness, facilitated by formal education, advertising, propaganda and the life style of our modern world.

The economics of people influenced, infrastructure and currency, does not sit at all well with nature's eco-structures and ecology that I have described above. As the outcomes of industrial farming are assessed and their adverse long term losses seen as increasing land degradation and biodiversity losses, it is becoming increasingly clear that farming based on natural ecology has the potential to provide us with a sustainable living, sustainable production, and sustainable farming landscapes

Although nature encourages us to learn from what nature does, and also how it responds when we treat her badly or in ill advised ways. Given the same set of circumstances nature always responds predictably once we understand her underlying principles. Push nature too far however, and we may cross an ecological threshold that creates changes in state. The resulting adverse impacts usually require restoration know-how and intervention strategies that will coax nature into exercising her self repair strategies. This is nature's LORE. Nature is our teacher and our judge, and our ultimate guide in both repairing and maintaining ecosystem health at our place.

The adverse impact of farm chemicals

Since the Second World War, when poisons were made, by chemists to selectively kill pest organisms, and to produce artificial fertilisers that supposedly would replace natural ways of increasing or maintaining plant and animal production, farmers have largely been converted from being producers to being consumers. The community, including farmers were fooled into believing that artificial fertilizer was the best available product to help grow food and fibre. The government still sponsors scientific trials on fertilizers, insecticides, herbicides and poisons aimed at killing feral animals, based on an untenable set of underlying assumptions. No one in authority, until relatively recently bothered to check out the consequences of such practices on soil health and the pre-existing ecology, or their adverse impacts on beneficial native plants, insects and microbes. Australian native species and soils are allergic to artificial fertilizer and other chemicals. When farmers use fertilizer they destroy and unbalance soil processes, and importantly inhibit soil re-creation. Nature then selectively grows other volunteer plants to try to correct soil imbalances and the farmer then feels the need to use more herbicide. Once committed to the input farming conveyor belt it becomes a self fulfilling prophecy of repetition, with ongoing collateral losses of non target species. .

Without artificial fertilizer landmen who manage the land well, can increase soil, plant and animal production by recycling more of what they grow as plants and animals. Our grandfathers did not need artificial support to out-produce or equal many contemporary farm yields, but then there was far less political-commercialism in rural Australia. Of course there were also indefensible practices such as burning the timber cleared under forced contracts, a process that drew down dramatically on the resources of the local carbon cycle as do all fires. Crop yields relate to soil history and the ecological skills supplied by the farmer- not the advertising, research trial data, sales opinion or propaganda supplied by people funded by commerce, and often through government.

I would like to say here that, as an elder of the rural farming fraternity, SPIN, ADVERTISING, PROPAGANDA, PRODUCT, AUTHORITY AND IGNORANCE ARE NO LONGER NESSECARY in rural Australia; this is now the era of plain speak

We need to re-embrace Mother Earth and her thinking and practices

I would like to see a strong, healthy and independent natural farming sector in Australia producing food and water, utilising their local valley land and water systems without the need to interfere with natural systems, or to rely on artificial support, accompanied simultaneously by increasing nature conservation practices. Nature is calling all of humankind to reverse our current unsustainable land use and farming paradigms and its associated practices and thinking!

Ecology is a most important discipline that enables us to understand how all life is not only interconnected but also interdependent. . All things are interconnected in the biosphere and the atmosphere. A local impact on my property never remains local but is felt throughout the biosphere and magnified when multiple impacts across much larger areas of land occur. This is because nature's grand key cycles (carbon, water and nutrients) as well as energy flow from the sun, occurs at micro and macro scales, within the greater Australia continent and indeed throughout the biosphere. The first peoples thought and think of nature as a being, "Mother Earth". She is now, turning up the heat to move us out of the kitchen, while she prepares our food and water.

"Landsmanship" is applied, practical ecology learned by experience, observation, the capacity to make logical inferences and being able to conceptualize how nature functions and works (right thinking). *Homo sapiens* (right thinking man) are also part of nature and we need to think 'rightly' too, not just think. How can anyone make daily land use or farming decisions and/or advise the urban or rural farming community about our local or global landscape if they don't know how nature works? So why do such people continue to advise based on a faulty modern civilised paradigm? Why pay someone to make decisions or recommendations about the management of our land based on artificial thinking with expensive ramifications for how land and water systems are managed. I would rather base my decisions on 'landsmanship' and ecological thinking that will ensure low cost to no cost solutions for the landholder and perhaps more importantly will have no hidden costs to nature itself. We all need to learn to read and understand the ecology of our local and regional environment, our piece of land. This is our personal library, our teacher, our examiner and our ultimate judge of how we collectively manage our land, and water systems, and our habitat landscape.

Look at the bottom of your valleys!

Large and small gullies (degraded) can, over time, be re-sedimented with soil (aggraded) and revert to functional flood plains at all scales, capturing carbon and water, sediments and solutes as revegetated, renourished, re-hydrated macro and micro valleys. Gullies can be restored to very productive valley floodplains with a very significant increase in productivity per surface area. Erosion and sedimentation are equal and opposite actions of the one function of soil and land formation if naturally induced locally and simultaneously; the former a negative outcome and the latter a positive outcome. It is very important that we facilitate the re-hydration and sediment capture within our own landscapes to create new living land and water systems that feed and water themselves. This can be achieved if we work as an integral part of nature rather than impede natural function with artificial land use methodology.

My hope is that as Australians we will allow nature to rebalances our natural lands. But this requires us to be mentally and emotionally prepared, to take the time and effort to understand how nature works and functions without interference from us and her potential to be the facilitator of sustainable and profitable landscape regeneration.

The Australian continent in spite of being an ancient landscape with limited nutrient resources, evolved into a very resilient landscape. Past mountain ranges were flattened by water, wind and biological activity, creating a series of micro and macro continental floodplains that were highly productive; either seasonally or in response to occasional episodic rainfall events.

What we can do

Our degraded farming and urban lands can naturally be induced to produce as well as conserve, if we simultaneously recycle more of what we grow in mixed farming systems, as well as increasing and applying our ecological skills. All landscapes self-organise, grow, die and decay, as do all living organisms. However death and decay is used by nature to facilitate the miracle of recycling and regenerating new life. Furthermore in her special black box of soil blanketing the land, without our permission or action, she reengineers and rejoins the linkages and processes that we have so unwittingly destroyed.

“Landsmanship” enables all people to ‘farm’ within their boundary fence! We are not naturally entitled to engineer the geology or the hydrology of our landscape as we wish. We are only naturally entitled to be stewards directing and supervising the biology. Yet we continue to build artificial surface water reservoirs at all scales, that are increasing salinity, and infrastructured irrigation systems, which evaporate more liquid water than we use. People do not naturally have the capacity to control and manage water artificially. Even the Roman Empire “knew” it could control and manage water but still eventually dried itself out. Slowly and over time through planned or *ad hoc* intervention, we create problems and bring grief to nature and ourselves through over-exporting produce, baring soil surfaces and mis-manipulating geology and hydrology, ill conceived artificial engineering projects, using earth or water, with the end result of species losses, land degradation and malfunctioning ecosystem processes.

Nature is trying to teach us that we need to replace our artificial thinking and infrastructures and replace them with nature’s art , eco-structures. Fencing, earth works, water works, and irrigation, are all infrastructure that can have an adverse impact (artificial influence) on land and water systems, with the potential to create system malfunction across the landscape, including the most productive valley lands.

We must re-naturalise our landscapes and recreate living, self-hydrating self-fertilising land and water systems; the natural reservoirs in the landscape are the sum total of its species diversity and the deep soil alluviums. These also store non-evaporating water and nutrients for later recycling. All land surfaces need to be naturally porous to absorb rain falling locally, rather than repelled, and shed from urban or rural land as a net resource loss.

Learn to read your own country - we need to learn directly from nature to become landmen. We are part of the earth’s biology (microbes, plants and animals). Our main work as farmers is as stewards of the fenced landscape where we live. We can, for instance, using nothing more than our minds, personalities and ecological skills, facilitate the whole biological-habitat community in our care to create optimal landscapes for both us and them (the organisms), facilitate biomass accumulation, including our food and water, create natural inbuilt land cooling systems that locally increase water in the landscape, conserve

soil, terrestrial and aquatic species, re—instate natural ecological cycles, as well as reinstate system resilience. The more local photosynthesis occurring in local micro climates, the cooler the local soil surface and the greater the capacity to see additional water coming into the landscape via the process of condensation.

The carbon economy

We are currently debating an artificial invention, the marketing of carbon and water (that farmers must embrace to survive), so the markets can control the very stuff of life. And we are trying to make sense of why our world is warming? Most species vary between being around 5-20% carbon and 80-95 % water. There are multiple reasons that help explain global warming but it is the excessive export of carbon based commodities, coupled to artificial land use practices that are overwhelming eco-systems. The business and government paradigm is reducing local biomass, warming the local earth, increasing landscape dysfunction and radiating the sun's warmth back into the atmosphere.

People have always felt the need for servants and we have readily seen ourselves as the most important species on the planet and the others being here to serve us. But of course we now know that we are part of the ecological web of nature and we are simultaneously interconnected and interdependent. Hence we need to understand them and engage with them on an equal footing since all species have a role to play.

As people we like to think of ourselves as creative and as the controllers of all earthly things. If we interact with nature seeking to dominate her she will come back to bite us as is the case with the problem of land degradation and species losses, and subsequent production losses and the accompanying and ignominious peasant farming lifestyles that are all to evident. But there is more! We have a stewardship role. As industrious stewards we need to engage with and enable those species that are more suited by nature to optimise our production lands in a sustainable manner. We can learn to be stewards of nature..

Amazing as it seems we take ages to learn the simplest rules of LORE that re-enfranchises nature and people as a whole. If we don't impede nature in nature's work, then nature will not impede us in the work we wish to do for ourselves and others!

“Landsmanship” is both a philosophy and a science, the natural ecology of land and water systems. It has the potential to enable us to facilitate a remarkable revolution in the way that we manage our farming lands and indeed to recreate sustainable Australian landscapes.

I hope this is helpful.

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