Rhia Campillo

From:	
Sent:	Friday, 3 August 2012 3:34 PM
То:	State Development Infrastructure and Industry Committee
Subject:	Submission: Michelle Finger
Follow Up Flag:	Follow up
Flag Status:	Blue



The Research Director

State Development

Infrastructure and Industry Committee

Parliament House

George Street

Brisbane QLD 4000

Friday, August 03, 2012

RE: Inquiry into the future and continued relevance of Government land tenure across Queensland

Thankyou for the opportunity to respond to the Parliamentary Inquiry into 'the Future and Continued Relevance of Government Land Tenure across Queensland.'

As a primary producer, my future business is predicated on secure tenure and regulation.

Below, I have detailed my concerns and issues associated with my tenure and attempted to provide some suggested methods through which these could be addressed.

My Enterprise

I hold the following tenure type/s

- Permit to Occupy
- Freehold Land
- Forestry Lease/Permit

My primary production includes

• Cattle

My Tenure Issues

I believe that the following conditions or actions by Government have affected my ability to manage this land effectively

- Restrictions on the ability to convert tenure
- Limits on diversification
- Duration of lease term
- Increasing regulation and loss of rights on freehold land
- Onerous and/or poor conditions set by lease agreements

This issue/s have affected my enterprise because:

a) The Policy of increasing the National Park Network, and in particular converting QLDs State Forests to National Park should be ABOLISHED.

b) European settlement has irreversibly changed the Australian landscape, such that careful & rigorous management is now required in order to sustain native ecosystems.

c) Forestry is valuable to environment and economy.

d) Conditions Imposed on Forestry Leases need to be reviewed.

e) Future environmental protection plans need to work in partnership WITH leaseholders.

Please refer to the attachments for more detail on my issues.

My suggested solutions to rectify this issue/s are:

As per attachments

Additional information on my issues is available in the following attachments (upload) <u>Michelle_Finger.docx</u>

Again, thank you for the opportunity to comment on this significant inquiry.

Best regards,

My Contact Details

Full Name Michelle Finger

E-mail

Phone	
Number	

Rhia Campillo

From:	S & M Finger
Sent:	Friday, 3 August 2012 4:57 PM
То:	State Development Infrastructure and Industry Committee
Subject:	Submission into land tenure review.
Follow Up Flag:	Follow up
Flag Status:	Completed
Attachments:	Cattle and Conservation Can.pdf; Points for Qld Minister - FIACHRA - forest reserves.pdf; Conversion of QLDs State Forests into National Parks.pdf; DPoint_33.pdf; Meeting Discussion Points (2).docx; Smart Futures Fund Application - HUGH POSSINGHAM.doc; Alistair Melzer.docx; Moorlands CurrentTitle.pdf
Dear Sir/Mada	m,

Thank you for conducting the much-needed Inquiry into the future and continued relevance of Government land tenure across Queensland. I would like to make a submission to this enquiry.

My Details are:

ger, on behalf of Alison, Steven & Michelle Finger.



Our family have 3 properties, all near Clermont, 2 small free-hold blocks and our largest property, and home base is "Moorlands", which is a State Forest Lease for which our family have held the grazing rights since 1962.

Our lease is also under threat of being converted into a National Park.

The history of our family management is explained in a paper that I have written, entitled "Conversion of QLDs State Forests into National Parks" - which is attached.

Since the untimely death of business partner Tony Finger and the breakdown of the original family partnership, the unfair conditions imposed on Forestry Leases have plagued our family.

These conditions prevent proper environmental management, erode business viability and make business expansion almost impossible:

- The current lease conditions do not enable a viable business and do not promote environmentally sustainable management.
 - Forestry Leases provide <u>no security</u> they may be revoked at any time with only 6 months notice.
 - When they are revoked, only UNIMPROVED value is paid.
 - could even be forced to pay for the REMOVAL of improvements.

These conditions mean that:

- a forestry lease has NO equity with which to borrow against - which makes it very

difficult for the business to grow & remain viable into the future, also limits options for succession planning.

- it is not financially viable to invest in management infrastructure, even if it could improve environmental outcomes (eg fencing of land types, more watering points to spread grazing pressure etc).

We have been very recently faced with 2 major problems resulting from these lease conditions: - current threat of losing our property to national park

- we are on the brink of being unviable as a business, even with my husband working outside to supplement farm income.

As such, we want to re-structure, sell our 2 small freehold places and invest in a larger, more viable cattle enterprise.

We are in the unusual position where even though we can demonstrate adequate cash flow and ability to service the proposed loan - we cannot get our loan approved because we do not have enough equity, because to the banks, the forestry lease is worth NOTHING.

A current Title Search detailing the numerous conditions imposed on our lease is attached. I was recently involved in a meeting with the honourable Minister Cripps where these and other issues were raised - the discussion points from this meeting are also attached. Additionally I have attached some information from various scientific sources, supporting a stand against increasing the national park network, without drastically increasing the funds to look after these lands.

Thank you for conducting this review 7 the opportunity to submit to it. Regards, Michelle Finger.



What is the true cost of on-farm conservation, and who will pay? Wendy Pyper reports.



ative biodiversity conservation and beef production may seem unlikely allies. But until recently, few studies on whether the two could coexist had been conducted. In a project just completed, CSIRO Sustainable Ecosystems economist, Neil MacLeod, and his colleagues in the Grazed Landscapes Management Team, considered the costs and barriers involved in implementing conservation strategies with livestock production on Queensland's grassy eucalypt grazing lands.

'We looked at the on-farm impacts of adopting best practice conservation management in Queensland to optimise biodiversity on rural landscapes,' MacLeod says.

'The grassy eucalypt woodlands are under-represented in formal conservation reserves because they're among the richest grazing lands in the country, and they're some of the oldest settled. But they're also ecologically diverse, and maintaining that biodiversity is a high priority.'

The first questions typically asked of any strategy to conserve resources are: how will changing management practices affect production, and what are the economic implications of such change?

MacLeod's study sought real-world answers to these questions.

Down on the farm

Four beef cattle properties were selected for the study, at Crows Nest, west of Brisbane, and further north at Mundubbera. Two properties were small, intensive farms of about 900 hectares, and two were larger farms of 1700 ha and 10 000 ha.

The properties were chosen to represent the diversity of enterprises in the region, in terms of their vegetation structure and commercial activity. All four contained 'variegated landscapes', that is, 60-90% of the original native vegetation remained. This definition is important as it influences landscape management.

'Treating them as "fragmented" landscapes and seeking to only protect a few of

their component species is likely to eventually lead to their degradation,' MacLeod explains.

MacLeod and his colleagues assessed the ecological health of each property under their present management systems, through vegetation and ground surveys, air photo interpretation and landowner consultations. Using geographic information systems, the ecological information was turned into spatial maps showing the distribution of different land uses and ecological elements.

Principles and thresholds

The maps were then compared to a set of ecological principles for the sustainable management of grazed woodlands. These principles promote improved ecological function through the management of pastures, soils, trees, watercourses, wildlife and habitat.

'The principles were developed through a partnership between our project team and 11 scientific specialists with expertise



in different aspects of landscape management, such as soils, hydrology, wildlife, tree grazing ecology, and farm forestry,' MacLeod says.

Some of the management principles contain threshold values for minimum levels of native vegetation. For example, 'there should be a minimum of 30% woodland or forest cover on properties'; 'woodland patches should be a minimum of 5–10 ha'; and, 'at least 10% of the property managed for wildlife values'.

'Thresholds are naturally contentious, but we've included them to show that as tree or grass cover gets below a certain threshold, some key ecological processes change for the worse,' MacLeod says.

'Woodland bird populations decline or tree dieback increases, for example.'

The health assessment revealed that the soils and pastures on each property were in good condition. The most significant issue for the four properties, however, was the state of their treescapes and the health of riparian vegetation. While many paddocks had significant tree populations with a reasonable diversity of species, there were also many paddocks with non-viable tree populations. In all cases, MacLeod says the riparian zones had been extensively cleared (which is common practice), and continued access by livestock had significantly modified the bankside timber and soil structure.

'Most of the properties had more than the minimum threshold of trees, but they weren't necessarily in the right spots to be ecologically sustainable over time, or to sustain regional wildlife populations,' MacLeod says

'Riparian zones are the real battlegrounds, however, because they are generally the most productive parts of the landscape. They were often the first areas cleared for pastoral settlement and remain targets for pasture development. But they're also critical for retaining local wildlife populations and ensuring adequate water quality.' Landholders could implement a number of management strategies to address this imbalance. These include limiting areas of intensive development, reducing stocking rates to minimise bare soil, retaining, regenerating and planting trees, particularly in recharge and riparian areas, and excluding cattle from watercourses by fencing. But how much would these strategies cost?

Conservation costs

To find out, MacLeod used an economic model to estimate differences in profitability between the present management systems and alternative conservation measures. The analysis was based on changes in grazing access, timber densities and stock carried, and the capital costs of the restoration options (fencing off watercourses, tree planting, dams and troughs).

If the conservation measures were adopted, the model projected a decline in net profit across the four properties of



Without significant public support, the prospect of farmers adopting management principles that protect native animals, such as this bearded dragon, are slim.

between 29 and 77%. This was mostly due to the reduction in forage available to cattle as timber densities increased and access to riparian areas was restricted. The capital costs for infrastructure and trees ranged between \$90 000 and \$1.4 million.

'This fairly poor finding is not entirely surprising' MacLeod says. 'The scale of change required to meet serious conservation objectives was always going to be a large one.'

As well as these economic losses, the grazing team identified other barriers to the adoption of the ecological principles they had identified. During paddock meetings, landholders and their neighbours pointed to the lack of available labour and skills to plant trees and build infrastructure as important barriers.

'Most farms are operated by one person or a small family team, so the amount of effort to plant and manage thousands of trees is very high,' MacLeod says. 'Farmers also like to trial new things before they adopt them. But augmenting a large treescape or "buffering" (planting trees and shrubs) a whole creek can't be tested on a small scale.'

Farmers argue that replanted and fenced riparian zones would become weed, pest and fire hazards. The first fire would take the trees and the \$2000 a kilometre fence with it. And treeing riparian areas is contentious, particularly in headwater areas, because stock grazing around shallow-rooted trees encourages bare soil and increased erosion.

Furthermore, MacLeod says not all farmers accept that the level of dysfunction in the landscape is as great as ecologists claim it is. The long time scales in which any positive results from alternative management *might* accrue is a disincentive, and there is no real evidence that money will fix a supposedly damaged system.

'The outcomes from the landholders' point of view are fairly adverse, and they feel that any benefits from their management actions and capital outlays will go to others,' MacLeod says.

'The general conclusion from this project is that there are limited prospects for wide-scale private adoption of the conservation principles in the absence of significant public support. It's now a question of to what extent the landholder should bear the public cost of conservation, and vice versa.'

Seasoning unpalatable solutions

For MacLeod, a 'product' of the land himself, this outcome is frustrating, considering the apparent urgency of the situation. But his realistic streak and a determination to find alternative solutions temper his frustration.

'Australia has a long history of pastoralism and landscape modification, so it would be unrealistic to turn it around quickly. We just have to be more creative in trying to break down barriers and solve some of the problems,' he says.

He ponders whether a 'Volkswagen' alternative to the 'Rolls Royce' conservation effort could be found.

'Australian farmers are notorious for finding their way around tricky problems with a bit of native ingenuity. We need to tap into that innovation if we are serious about fixing the problems this study suggests are out there,' MacLeod says. He adds that alternative income sources such as agroforestry, or intensifying production on particular parts of the land, are being considered. More wide ranging issues are also being canvassed in the public arena, such as reforming markets and institutions to reward private landholders' efforts to provide environmental services for the wider community.

With the continued support of Land and Water Australia, MacLeod has launched a new project that will attempt to resolve some of the economic and other issues raised by the landholders. The project will consider the validity of the ecological principles in different vegetation communities, and at larger scales across 20–30 subcatchments (each 500 ha) at Emu Creek.

'Does every landholder have to apply the principles, or can we operate at a different scale and get the same or better result?' MacLeod asks. 'Can we get people to operate in groups, on a landcare-type basis, and target parts of the catchment that would be priority areas? We might be able to get some economies of scale on the effort or the outcomes.'

Using economic modelling, the Grazed Landscapes Management Team will try to define costs for particular management activities, and how those costs might be distributed among a group of landholders. The team will also try and confirm that following the principles really does improve ecosystem function.

'We are going back into the catchments to look for evidence that the landscape is

Abstract: A CSIRO project looked at the impacts, at farm level, of adopting best practice conservation management in Queensland, to optimise biodiversity on grassy eucalypt woodlands, which are ecologically diverse yet under-represented in conservation reserves. Modelling of differences in profitability between the present management systems and alternative conservation measures projected a decline in net profit of 29-77% if conservation measures were adopted. The project concluded there were limited prospects for wide-scale private adoption of the conservation principles in the absence of significant public support. A new project will attempt to resolve some of the economic and other issues.

K e y w o r d s: woodlands, grassy eucalypt woodlands, grazing, biodiversity conservation, cattle, sustainable management, land management. or isn't configured the way our principles suggest,' MacLeod says.

'We'll look for output indicators – water quality, tree health, or wildlife populations – to see if subcatchments that appear to be consistent with the principles are giving a good outcome, if there's no difference, or if there's an in-between response.'

The project will seek to maintain landholder interest by working with the Emu Creek Catchment Landcare Group. As with the previous project, landholders are being engaged and consulted.

'Farmers are happy to discuss contentious issues, once their point of view is respected,' MacLeod says.

'Their knowledge and stewardship of their land is a critical component of any recipe for success. In the previous project there were many exchanges of views and ideas, and I think it helped both sides understand each other and the nature of the barriers to adopting the principles.' At the end of the day, MacLeod says the search for sustainable land use in Australia is a journey rather than a destination: 'we have already started walking in the grassy woodlands at least'.

This is an edited version of an article that first appeared in Thinking Bush, published by Land and Water Australia.

More about the ecological principles

- McIntyre S McIvor JG and MacLeod N (2000) Principles for sustainable grazing in eucalypt woodlands: Landscape-scale indicators and the search for thresholds. Chapter 13, *Management for Sustainable Ecosystems*. P Hale A Petrie D Moloney and P Sattler (Eds.). Centre for Conservation Biology, The University of Queensland, Brisbane.
- McIntyre S McIvor JGM and Heard KM (2002) Managing and Conserving Grassy Woodlands. CSIRO Publishing, Melbourne.



Neil MacLeod and his colleagues are investigating conservation incentives, such as the reform of markets and institutions, to reward private landholders' efforts to provide environmental services for the wider community.

A practical guide to conservation farming

WIDESPREAD changes to the grassy eucalypt woodlands of south-eastern Australia, mainly for agricultural production, highlight the need for landholders to consider conservation goals in their daily decisions about property management.

A new book from CSIRO Publishing, Managing and Conserving Grassy Woodlands, offers practical guidance to help them do just that.

The book draws together the findings of a major project in which a multidisciplinary team of CSIRO scientists worked for more than six years to address the issue of ecological sustainability in grazing lands.

It features a set of principles covering property planning, and the conservation of native vegetation, soils, pastures, wildlife and watercourses. Each is addressed in a separate chapter that outlines the scientific understanding behind the principle and discusses issues relating to its practical application.

A chapter on wildlife and core conservation areas is based on the principle that all properties require core conservation areas for species that are sensitive to agricultural land uses. It describes the ecosystem services that a diversity of organisms can provide, such as pest control, pollination and the maintenance of soil health.

The chapter also offers advice on selecting core conservation areas, and the critical elements they should contain – mature trees, hollows, fallen timber, vegetation, ground litter, and understorey and waterside vegetation – and how to preserve them. For example, a variety of grazing regimes can help maintain areas of large grass tussocks, leaf litter and fallen branches that protect bird species, and mammals such as the rufous bettong and long-nosed potoroo.

A minimum woodland cover of 30% is advocated in the book's chapter on trees. This is supported with an explanation of the positive effect of trees on production systems, and discussions of natural regeneration, minimum patch sizes, tree locations and population structures.

A chapter on barriers and opportunities for adoption explores issues relating to the uptake of new agricultural practices by Australian farmers. It includes feedback from landholders who have had the opportunity to discuss the principles.

The final chapter offers an example of how a simple landscape of one land type might look if the principles were applied. The 250 page hard-cover book is extensively referenced and clear diagrams are used to illustrate many of the concepts outlined in the text. It has been edited by CSIRO's Sue McIntyre, John McIvor and Katina Heard.

Managing and Conserving Grassy Woodlands is available for \$59.95 from CSIRO Publishing, freecall 1800 645 051, email: publishing.sales@csiro.au.

Managing & Conserving Grassy Woodlands

1. Werden, 1.8 Million & Kill Hand Dation





BRIDLED NAILTAIL WALLABY TRUST McMillan, Kelly and Thomas Lawyers 61 Roderick Street, Ipswich Qld 4305

www.bntwallaby.org.au

Dear Minister

- We believe the current policy is flawed as it is financially unsustainable
- While many pastoralists and agriculturalists have proven to be less-than-careful land managers, we believe that well-designed joint pastoral-conservation management is far healthier for the environment
- This is due to the large number of invasive species across the landscape, including grasses that require grazing by large herbivores to maintain some control
- The Bridled Nailtail Wallaby Trust works closely with pastoralists on joint management programs, with great success for both parties
- A great deal of knowledge exists within the pastoral community, DERM and CSIRO to make a joint-management program a near-future reality
- We urge you to reconsider the current policy change and commit a task force to forge a new era in protect area management
 - one that protects the environment by actively managing the environmental threats
 - protects livelihoods of rural Australians
 - engenders a culture of stewardship of the land among the people of Queensland, and removes the increasing supposition that the government should be solely responsible as that is not a viable long-term solution

Regards

Fiachra Kearney

Director Bridled Nailtail Wallaby Pty Ltd ACN: 123 531 582 Bridled Nailtail Wallaby Trust ABN: 57 619 119 884

Michelle Finger

"Moorlands" 🔸

22/11/2011

Conversion of QLDs State Forests into National Parks

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Aim of this Paper

I have written this paper to bring attention to the REALITY behind the Government's decision to convert QLDs State Forest Leases into National Parks.

Labour is trying to sell this as a vote-winning "green" move, but with just a little scrutiny anyone can see that this policy is an absolute FRAUD that will in reality achieve NOTHING (or worse) for the environment, put farming families out of their homes and jobs, and damage QLDs' economy. Please read on for explanation of why this is such a flawed policy.

Rather than simply criticizing the government's approach, I have tried to be positive and pro-active by acknowledging that the environment/biodiversity DOES need to be concisely protected, and suggesting where I feel the source of the problem may lie and some alternative solutions.

Please note that I am NOT politically motivated. I do not support or oppose any particular party or politician. I do oppose this policy.

Thank you for your time.

Regards, Michelle Finger.

Key Points:

* **Government is deceiving the public** - they are touting this as a 'green' policy, but it has no real conservation objectives, and is likely to in fact do further HARM to environment - this policy is not scientific - it is simply a false ploy for votes with as little expenditure as possible.

Points specific to State Forest Leases:

- * 1.2 million hectares, and the livelihoods of 280 graziers will be affected by the closure of grazing in State Forests.
- * Done properly, harvesting of natural timbers is a renewable, sustainable resource.
- * Commercial timber production was the original intent and purpose of Forestry Leases.
- * State Forests especially require careful management (particularly of fire), or this valuable resource will be lost management that they are not likely to receive if converted to National Parks.
- * Forests are unique as they are the only source of building materials that can be a renewable, and even store greenhouse gasses rather than release them.
- * State Forests are an underutilized asset that should be developed, not shut down.
- * State Forest Leases are being targeted not because they are of particular conservation value ... simply because they are cheap to acquire.

General Points:

- * Existing National Parks are not being adequately managed.
- * Simply declaring an area as a National Park is not enough to 'protect' it.
- * Lands CAN be utilized for BOTH conservation & production however farmers need education, financial support & incentives.
- * Farmers are sometimes pushed into non-sustainable practices in order to survive financially in the short term.
- * It is realistic and unfair to expect landholders to solely bear the public cost of conservation.
- * In certain circumstances, grazing can be used as a management tool to facilitate biodiversity.
- * National parks need to be selected carefully & managed properly (this policy does neither).
- * Many 'green' policies are only providing 'paper conservation' while achieving poor results on the ground, and increasing pressure on landholders.
- * MORE land could better looked after if governments & conservationists worked WITH landholders.
- * More research is required into balancing production with conservation.

1. Introduction

The QLD government aims to have 7.5% of our state designated as National Park by the year 2020 (http://www.towardq2.qld.gov.au/tomorrow/greenqld/greenspace.aspx). As a part of this policy, natural timber harvesting has ceased and Grazing Leases are not going to be renewed in many of QLDs' State Forests - which are instead being converted to National Parks. 1.2 million hectares, and the livelihoods of 280 graziers will be affected

(http://www.agforceqld.org.au/index.php?tgtPage=&page_id=278).

I question whether this policy is aimed a achieving real conservation outcomes, or simply <u>perceiving</u> to do so in order to win votes. I feel that this policy has not been well thought-through, that it is not based in science, and that it will cause both environmental and economic harm. Not to mention enormous heartache to many Queensland families.

Our Family property is one of the effected leases. My husband (Steven Finger), myself and our 2 young daughters live on and manage "Moorlands", west of Clermont Queensland. Moorlands is a State Forest Lease that was purchased by Steven's Grandfather and Father (Bill) in partnership in 1962. Since the death of Steven's father in 2003, the Moorlands lease has been in the name of his mother Alison. We have just 8 short years left until our lease runs out (2020).

2. Harvesting of Natural Timbers

2.1 History of Timber Harvesting on "Moorlands"

During the beef price slump of 1974, my husband's late Father, Bill, began harvesting timber to supplement the family income. Bill has written about his training and experience as a timber cutter on pages 36 – 42 of his book, "Memoirs of Characters and Places I Have Known, a personal history of the Clermont district by Phillip William (Bill) Finger".

Bill was given the right to cut timber on a statutory declaration, and held it for 28 years, which is the longest record held by a single person. It was then continued by his son, Steven, until it was withdrawn by the government in September 2007. With the statutory declaration, Bill was given the sole rights to the timber on Moorlands. This helped him regulate the harvesting and made it more sustainable as he would leave the smaller trees that outside cutters would have taken until they were a more suitable size and managed the roads etc carefully to prevent erosion. In this way, Bill and Steven were able to go back to the same areas and harvest quality posts approximately every 6-8 years. The timber they harvested was mostly Rosewood and Lancewood used for rural fencing and yard building.

2.2 Benefits of Timber Harvesting

If done properly, harvesting these natural timbers is a perfectly sustainable, low impact resource, with very little disturbance to the natural environment. We are not talking rows of plantations and large machinery. We are talking about natural vegetation and a man on foot with a chainsaw selecting out individual trees.

In September 2007 our right to harvest this timber was revoked, without reason or explanation, and

a renewable resource was lost. Now that timber is not available for use, fencing projects in the district are completed using steel. Note the local jobs lost, increased pollution in production and hugely increased carbon footprint when comparing the use of local timbers to the use of steel.

In 2007, timber sales represented 76.8% of our total Gross Income for that year¹. No compensation has been made for this loss of income.

Commercial timber production was the original intent and purpose of Forestry Leases. The State Forest Act 1959, Part 4 33 (1) states:

"The **cardinal principle** to be observed in the management of State forests shall be the **permanent reservation** of such areas for the **purpose of producing timber** and associated products **in perpetuity** ..."

The government have not officially changed the lease type, yet with a swipe of their pen some bureaucrat has simply decided that we are no longer permitted to harvest timber. This is not right. Is it even legal? And for what purpose? It certainly hasn't achieved anything positive for the environment. Instead a renewable, sustainable resource has been shut down.

The very first Objective in the Land Act 1994 is:

"Sustainability • sustainable resource use and development to ensure existing needs are met and the State's resources are conserved for the benefit of future generations"

Preventing timber from being harvested in State Forests is the complete opposite of this objective. This policy not only neglects to use or develop this resource, it fails to conserve it as well: The forests on 'Moorlands' are predominately rosewood and lancewood. These species are highly susceptible to fire and will be lost of not managed correctly. Without grazing pressure and landholder management, introduced pasture species build up fuel loads in fire-sensitive timber ecosystems. These introduced grasses grow more densely hence produce more fuel load than native grasses and also burn at higher temperatures. This will see the complete loss of some timbered ecosystems to grasslands - This is exactly what is happening to the Gidgee in Mazeppa National Park north of Clermont.

Additionally, the COMERCIAL resource can/will also be lost even if the timber species itself is not lost to an area. After a poorly timed fire, the seedbed is activated and suckers can grow back impossibly thick so thick that they choke out their own growth and remain spindly and commercially useless for DECADES. This is also a poor environmental outcome as sucker growth can be so thick as to exclude all other species, reducing biodiversity and creating erosion problems around the bare tree roots (as no grass will grow in these conditions).

Timber harvesting has been also identified as a useful tool in fighting Global Warming. Compared to producing other building materials, timber harvesting emits only a small amount of greenhouse gasses; and then has the added benefit of actually locking up these gasses within the timber product. Forests that are being harvested promote more vigorous tree growth as the completion from other trees is

¹ Please note that we would did harvest more timber in 2007 than an average previous year, because we were aware that the timber rights were coming to an end. I do not wish to deceive anyone. Without having done the figures, I estimate that income from timber harvesting in previous years would have been around 1/3 to 1/2 of our Gross Income. The point is still made that this is a large portion of our livelihood taken away without any form of compensation.

being reduced which results higher rates of green house gas adsorption than a mature forest that is not being harvested.

Illegal timber cutting on Moorlands has been a problem in the past and is sure to escalate now that timber cannot be obtained legitimately, because alternative fencing materials are far more expensive. Taking away our capacity to earn income from the forest increases the risk of fire damage and illegal activity as we are no longer able to maintain and monitor it on a regular basis. Illegal cutters do not pay royalties and do not care about sustainable harvest practices.

3. Why have State Forest Leases been chosen?

I think that the State Forest Leases have been 'chosen' to be converted into National Parks, not by any scientific means of selecting the most crucial ecosystems etc - but simply because the conditions imposed on a Forestry Lease make them easy and cheap for the government to acquire. For example, "Moorlands" was <u>PURCHASED</u> by this family back in 1962. We pay rates on this property, charged at their valuation of \$1, 400, 000. If we wanted to sell "Moorlands" to any other person, it would go to auction and they would have to pay us something like the above figure. However, the tenure of this land is "Forestry Lease" (as opposed to GHPL or Freehold). If the government wish to resume it, they are only required to give us as little as 6 months notice, and <u>do not have to pay us a single cent for the land</u> - only for structures which THEY pre-approve. We could potentially lose our home, entire business and future ... and not even get enough out of it to purchase another home to live in. But the unfairness of this is a whole different issue.

Unfortunately I fear that this policy has NOTHING to do with achieving real conservation outcomes and everything to with 'sounding green' to the urban voter while spending the least amount of money possible. Hugo Spooner, a pastoralist heavily involved with the conservation of the Bridled Nail Tail Wallaby ('Flashjack' wallaby) has made the following comments to me (June 2011):

"I have been involved with the NR (National Reserve) system for fourteen years and am so disillusioned that I have threatened withdrawing from it on several occasions. Had it not been for the protection of the Flashjack I would have followed that path. I have some inside knowledge of some of the State Government Cabinet and can assure you that there is not a 'green' bone among them, even at the highest level. The NR program is based on **green credentials measured in hectares. I have heard it first hand, "don't worry about how and where - just get the hectares."** While the targets were being attained, I watched as new NRs escaped all scrutiny and were **often managed with total negligence as far as the environment was concerned**."

This policy is simply a trick to make the government sound 'green' - they want to be able to advertise that they have made a 7.5% of QLD into National Parks ... but they are simply looking for the cheapest, easiest way to reach this statistic without aiming for any real conservation outcomes. Whether or not shutting down forestry is a good thing for the state or environment, the effects of removing cattle from these areas, whether there are other areas in more urgent need of protection, and how they are going to manage these areas once they are declared as National Parks are all issues which do not seem to have been considered. "don't worry about how and where - just get the hectares."

4. More National Parks may have No Benefit for Conservation

I believe creating more National Parks may actually do more HARM to the environment than allowing the current resident lease holders to continue to manage these lands. DERM simply does not have enough resources to adequately manage all of the land it is responsible for. The National Parks that I am most familiar with, mainly Homevale near Nebo and Mazeppa north of Clermont, are both known havens for feral cattle, dogs, pigs, weed pests and raging uncontrolled fires. I know this because we live near them and have seen it all first-hand.

One example of DERMs inability to look after its lands was highlighted for us in 2008(?) when there was a particularly bad bush fire that we were fighting here. Our resources were stretched, as were those of our neighbors. We phoned the local DERM office to see if they could assist in anyway ... and were told that they did have a spray tank that we could borrow ... but it was locked in the shed in town and the person with the key was going to be away for a week. *Well gee, that's handy!*

Allowing grazing in the forests means that there is someone managing the area. It helps to reduce the fuel load and minimizes the risk of intense fires, as well as controlling the growth of introduced pasture species like Buffel grass. There are some examples, like that of the Bridled Nail Tail Wallaby and the Little Penguins, where grazing by cattle is a crucial management tool (to control introduced grasses) for the conservation of these species - and there has been examples of hap-hazard removal of cattle by the government having disastrous consequences for species like these. I do recognise that it is not ideal to have cattle in a nature reserve and that they do bring their own problems with them - but I am simply asking for research into the situation be carried out before such drastic decisions are made.

In my opinion DERM is not appropriately managing the land that it already has under its jurisdiction, never mind obtaining more. This is not a personal attack on the DERM officers themselves, but they simply do not have enough resources.

The following highlights are from the article titled "Is turning the map green good for nature?" by Hugh Possingham and Kerrie Wilson, in the journal "Decision Point", issue 33:

" ... *if we dedicate an area as a national park, can we be sure that this delivered a positive conservation outcome?* ... Many of our remote reserves are so over-run with feral herbivores and predators that some believe that neighboring pastoral properties are better for conservation. The major mammal declines in northern Australia appear to be occurring everywhere, regardless of land tenure, even in some of our best funded national parks..."

5. It's Unrealistic to Lock Up Vast Areas of Productive Lands into National Parks

The whole idea of locking up large areas of potentially productive land is completely impractical - and short term at best - when faced with a rapidly increasing human population and reduced productive lands in Australia due to the potential effects of Climate Change and the loss of farm lands due to mining, natural gas extraction and urbanization etc.

Julian Cribb has said in his book 'The coming Famine' (2010, CSIRO publishing): "Between now and the 2060's, the human population is going to grow to about 11.4 billion people...So basically the world has to find twice as much food as it is producing today."

As unpalatable as the idea may be, I believe that eventually ALL land is likely to be needed in some way to fulfill the various requirements of the human population - and the sooner we learn to do this sustainably, the better off the environment will be.

6. Why Conservation is Difficult for Farmers/Graziers

6.1 Lack of Education / Poor Sharing of Information

Landholders need to be more aware of conservation issues and need to step up and become more actively engaged in conservation practices. More education is badly needed as to what the conservation issues of a particular local area are and what actions landholders can do to assist. At the moment, most courses, field days and publications intended for farmers and graziers seem to be aimed at ever-increasing production - selling the merits of a new (introduced) pasture species for example - without any information or consideration given to the impact of the advertised management practice on ecosystems. I am not saying that ignorance is any excuse, but producers can only work to the best of their knowledge and I have found out for myself that there is very little research into the effects of or relationship between different specific agricultural practices and conservation. This information is extremely hard to find, even for someone who is actively seeking it ... so it is very difficult for the average grazier to "initiate pro-active conservation measures".

For one example, every grazier I know has seen for themselves the positive things that Buffel Grass can contribute to the environment - especially in preventing and healing erosion - but are completely unaware of the less obvious but still important negative impacts that Buffel has on biodiversity. I didn't realise myself until recently. The problems associated with Buffel grass seem to be a hot topic amongst conservation groups - but this information is not getting through to landholders. A lot more research needs to be done on how best to manage land to achieve balance between production and conservation - and this knowledge needs to be made widely available.

6.2 Financial Strain

I think that available funds is a real barrier preventing landholders from managing their properties in the most environmentally responsible way possible. Family-owned Australian agriculture enterprises really are doing it tough. I think that many are focused just purely on survival and can only dream of the way that they would really like to manage their land. This is certainly our case.

These days people on the land are constantly told that: "You do not own the land, only the lease to use *it. The land is owned by all Australians and it is your responsibility to look after it for the future of all Australians*" (past Forestry Officer). Well then, if all Australians own the land, everyone should have to share the responsibility and cost of looking after it. It is not fair, and simply not financially possible, to put this duty entirely on the land holder. (There are A few grants available for fencing riparian zones etc, but it is not enough and the amount of red-tape involved make it hardly worth the while).

Let's face it - more money could be made if it was cleared and planted with Buffel grass. Why should agricultural producers be expected to forgo improving their businesses? Why should we make less money in order to preserve the environment ... just to be bought out by an overseas company who couldn't care less?? Or to have our product out-competed in the market place by an import grown

overseas ... possibly using such practices as genetically modified seed stock, recently cleared rainforest soil, copious amounts of pesticides that are banned in Australia, tones of chemical fertilizers and even child labour. ?? The rate at which small Australian farms are going bankrupt, and the amount of Australian land being snapped-up by overseas interests is nothing short of alarming.

Unfortunately agriculture in Australia is just like any other business. Competition is fierce. Inflation of costs is extreme, while cattle prices have changed little in 30 years. The largest grazing companies, the abattoirs, the exporters, have all been allowed to be bought out and controlled by overseas companies. Like any other business, farms must keep expanding, increasing their productivity and increasing production just to survive. However this is not a sustainable way to manage land. Most farmers/graziers I know are fully aware of this, and it absolutely breaks their hearts to have to push their lands harder and harder ... but for many this is simply what they have to do to survive in the short term.

The following quote is taken directly from the National Farmer's Federation, Farm Facts 2011: "Despite common misconceptions, government support for Australian farms represents just 4% of farming income. By comparison, according to the Organization for Economic Cooperation and Development (OECD), in Norway it is 61%, Korea 52%, in the European Union it is 23%, in Canada it is 17%, and in the United States it is 9%. In fact, **Australian farmers are among the most self-sufficient in the world**."

There is an interesting article in issue 113 of the journal Ecos (2002) called 'Cattle and Conservation Can' written on the work done by Dr Neil MacLeod, that highlights the cost of conservation practices: "The general conclusion of this project is that there are limited prospects for wide-scale private adoption of the conservation principles in the absence of public support. It's now a question of to **what extent the landholder should bear the public cost of conservation**... Without significant support, the prospect of farmers adopting management principles that protect native animals ... are slim."

6.3 Lack of Support & Respect from our Government

Instead of helping our farmers, like nearly every other country does (as pointed out by the Farm Facts quote above), the Australian governments seem to have a long history of using farmers as a cheap scape-goat to win the hearts of city 'green' voters. Whenever they need a few extra votes, they slap some poorly researched policy onto farmers, that sounds in the media like it is stopping us villains from destroying the environment. When in truth, **many of these policies are achieving very little for conservation**. They are **just making it bloody hard to make a living on the land**, which, as I have explained, in turn **just makes things even worse for the environment**. The way in which the Vegetation Management Act was implemented, PMAVs, Reef Rescue EMRPs, the escalation of land rents, and this policy of increasing the National Park network are all examples of this. And farmers make up such a small percentage of the population that it doesn't matter how much we jump up and down - we simply don't have the voting power to change anything.

Though I am not saying that farmers/graziers are entirely guilt-free either. Some grave mistakes have been made in the past, and some continue to be made through fear, ignorance, simple lack of education and financial strain. I accept that a lot of farming or grazing properties are probably not 'well managed' in respect to conservation at this point in time - perhaps ours included??

7. The Gap Between "Agriculturalists" and "Conservationists"

There is this huge gap, an air of miss-trust and an unwillingness to share information between the 'conservationists' and the 'agriculturalists'. This is a real shame and must change. It will be very, very difficult as farmers are very skeptical of any 'green' movement because of the battering we have received in the 'name of being green' as explained above. The farmer-DERM relationship is completely in tatters. In general, DERM treat us with a total lack of respect and disregard, and farmers eye DERM warily as the enemy trying to take away our livelihoods.

This simply must change. I am hoping that our industry, in spite of all the kicks it has received, can have a big enough heart to instigate this change and open up to departments like DERM and private conservation groups to work together for the good of both industry and conservation.

8. An Alternative Proposal to Protect the Environment into the Future

Given the opportunity, I firmly believe that <u>more land</u>, could be <u>better managed</u>, and <u>better environmental</u> <u>outcomes reached</u>, by responsible producers than by locking up land as National Parks. "*Farmers occupy and manage 61% of Australia's landmass, as such, they are at the frontline in delivering environmental outcomes on behalf of the broader community*" (National Farmer's Federation, Farm Facts 2011.

Producers have many years or even generations of experience in land management. They have personal, intimate knowledge of a particular area, most live within their area of responsibility, and have equipment on-site. I believe that, given the right support, a responsible producer would be much better able to care for their own land than a DERM officer based in town.

Producers are on the land for the shear love of the land. Agriculture is after all the lowest return for capital investment industry. The hours are long, weekends and holidays mean nothing and sick days are non-existent. **We are here simply because we love it**. We love it because we were born into it. Because we spent our childhoods here. In many cases so did our parents. We are passionate about our little pieces of the environment. It is our home. Our income. Our superannuation. Our future, and our children's future. *Of course we want to protect it!* To care for each piece of land with the same intensity as someone who chooses to live there and make their whole livelihood from it - would be far out of the reach of any government budget.

I feel that graziers, indeed all agriculture sectors, MUST have a commitment to long-term conservation - it is our duty as custodians of the land and is necessary for the preservation of the environment, our industry and also for the long-term future of our society itself in terms of economy and food supply.

I am certain that the future lies in government, conservation groups and agriculturalists all working TOGETHER to improve management and conservation outcomes. It seems to me that spending the funds in this way could achieve more conservation outcomes, across more acres, while still achieving some level of job creation, production and economic strength.

Agricultural businesses should NOT be treated like any other businesses. They need government support - in the form of research, education, guidance and funds - to help them operate in a environmentally responsible way, on behalf of all Australians ... and still remain financially viable. At the moment there is no recognition or reward for those landholders who are making an effort. A more positive reinforcement approach is needed where landholders who are doing the right thing by the

environment are *rewarded*, rather than the Government's usual big-stick regulation approach. We need <u>incentives</u> to reward land owners that make an effort to preserve the environment. Some ideas might be tax breaks for keeping low stocking rates. Rewards for not 'improving' their pastures with foreign species, rewards for every year that an important patch of timber is left standing etc. I believe that the best way to help the environment is to help out our farmers. To operate in an environmentally-ideal way requires capital outlay and a reduced level of production that unfortunately we just cannot afford. I also believe that Australia has many flawed government policies, made without local consultation, that add to the pressure on producers and worsen environmental problems.

I would like to see real conservation initiatives with specific outcomes in mind, rather than just 'paper conservation' that serves only to appear to the general public as if it is doing something, while in reality achieving nothing on the ground.

I am begging for policy decisions to be based in real science, not political trickery.

I think that the current policy of indiscriminately increasing the National Park network is very deceptive in this respect and I think that any member of the public who votes for this policy - believing that they are doing a good thing for the environment - would be very disappointed to learn that there is not enough resources to manage these areas and how little will actually be achieved for conservation ... and for such a massive cost.

"Currently the map of Australia's protected areas (and graphs showing its increase) is one of the **main** claims for conservation success. Increasing the percentage of the country conserved and the number of ecosystems represented is a major component of State of Environment Reports for the nation and states ... However there is also a case to suggest that, by itself, designating protected areas is an increasingly poor surrogate for conservation performance" ("Is turning the map green good for nature?" by Hugh Possingham and Kerrie Wilson, "Decision Point", issue 33).

Unfortunately the environment is not pristine. This area has been grazed by cattle for ? 150+ years? It has already changed dramatically since white settlement. New and foreign species have been introduced. National Parks sound romantic to the city 'green' voter, but land cannot simply be locked away and the environment expected to be preserved. It has already been altered and now needs careful, often costly management.

I am not saying that we should have no National Parks. It is important to set aside areas of natural wonder, beauty and heritage to preserve them for future generations. These areas are also vital sources of tourism. And I have no doubt that there are certain areas / ecosystems that are particularly sensitive or that harbor vary rare species, and these areas are of course worthy of protection. HOWEVER, these areas need to be selected very carefully to ensure maximum benefit to the environment. You cannot just preserve land willy-nilly and expect conservation success. Land should be chosen that is adjoining to existing national parks, or to create wildlife corridors between important land for animals etc. Lands of conservation value. Decisions need to be made based on real scientific research. It is pointless to just protect segmented random blocks of land - like simply converting anything that is a State Forest Leases. This is not a valid way to select land to preserve.

The next key is to ensure that these precious areas are very well managed - meaning that:

only as much land should be made into National Parks as the State can afford to manage properly.

As for the rest: Private landholders should be *encouraged* and *assisted* to manage the land in the most sustainable way possible.

9. <u>Conclusion</u>

If the current policy of converting QLDs State Forests to National Parks is implemented, I feel that it will be an absolute tragedy because:

a) it will achieve nothing for the environment, perhaps even worsen conservation outcomes, through:

- the loss of a sustainable, renewable resource (responsible timber harvesting).
- inappropriate land selection
- lack of management of these lands
- b) it is an unrealistic, short-sighted policy that does not consider a future of an increasing hungry population and decreased available area for farming/grazing.
- c) it will waste a lot of tax payer's dollars purchasing these leases, and ongoing costs for DERM to 'manage' them.
- d) It will add to the ill-will many farmers feel towards government and 'environmentalists', further damaging relationships that are the cornerstone of true conservation.
- e) it will cause many farming families to lose their livelihoods, their homes, and their staff's jobs as well and for what??

For us personally it will see us lose our family home, our business, and more than likely spell the end to our farming career. This would be a lot easier to take if we believed it was for some greater good of preserving the environment. Instead, we fear that the land that we love, that has been in this family for 49 years, spanning 4 generations, will become a haven for feral pests and the forests burnt out and destroyed. **This is the most heart-wrenching part of the whole argument.**

If this policy is implemented, we believe that on 'Moorlands':

- There will continue to be cattle present only they will be feral and their population will be uncontrolled.
- Timber will continue to be cut only it will be happening illegally and unregulated.
- Weeds and pests will not be adequately controlled.
- Fire will not be effectively managed, resulting in substantial damage to the fire-sensitive timbers found here.

And it is not only "Moorlands"; 1.2 Million Hectares and 280 farming families in QLD are set to be effected by this policy.

The only thing that this policy might achieve is some short-term, uneducated 'green' votes for a struggling government. *Is it really worth the cost?*

Please note again that I have NO interest in politics and do not support or oppose any particular party or politician. I do oppose this policy. Please, PLEASE help us fight it!

Regards, Michelle Finger.

DECISION POINT

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Connecting conservation policy makers, researchers and practitioners

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DECISION POINT

Decision Point is a monthly magazine presenting news, views and ideas on environmental decision making, biodiversity, conservation planning and monitoring. It is produced by AEDA – the Applied Environmental Decision Analysis CERF Hub. For more info on *Decision Point*, or AEDA, see the back page or visit our website at www.aeda.edu.au

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Is turning the map green good for nature?



Accounting for outcomes

By Hugh Possingham and Kerrie Wilson (Uni of Qld, AEDA)

We often say at the beginning of our papers that protected area systems are the cornerstone of our efforts to conserve biodiversity. For two decades the notion of building a comprehensive, adequate and representative reserve system has been at the heart of Australian conservation policy and investment. The coverage of protected areas exceeds international targets. Protected areas are so embedded in the national psyche and our system is heralded as world class by the global conservation community; it would seem that questioning this mandate would be heresy.

In 2006 Ferraro and Pattanayak published a provocative article about evaluating conservation actions. They pointed out that we had very little evidence to prove that any of our interventions for nature conservation actually work (though on this point you should consider Mick McCarthy's article in *Decision Point #28* on the required investment to save threatened birds). For example, if we dedicate an area as a national park, can we be sure that this delivered a positive conservation outcome? Sounds like a stupid question – of course national parks are good.

In Australia, protected area designation stops the biggest threat to biodiversity broadscale land clearing. We're lucky, in some countries protected areas aren't even immune from clearing (DeFries et al, 2005). Our protected areas also generally prevent grazing by domestic stock, though not necessarily overgrazing by wild animals (although perversely, grazing must continue on some leasehold land, even if the primary management goal is biodiversity conservation). One only has to drive around parts

of the sheep-wheatbelt of southern Australia to see a landscape where the only substantive pieces of native vegetation are national parks (for example, the Stirling Ranges National Park in WA or the Ngarkat Conservation Park in SA). And a small number are also located in prime agricultural land, and these protected areas are generally smaller too.

But broad-scale land-clearing has stopped in all states because of land clearing legislation, hasn't it (sort of, maybe, ...)? Let's pretend we have successfully stopped land clearing away from the cities and towns. What threat, then, does a protected area prevent? Do we need, for example, to meet the National Reserve System (NRS) goals of getting 10% of every bioregion in a protected area

66 A ustralia has exceeded the CBD goal of 'effectively' protecting 10% of the country only if we believe our protected areas abate all threats adequately. We're now moving toward increasing the size of the protected areas estate by 25% by 2013"

There's also a case to suggest that protected areas are an increasingly poor surrogate for conservation performance"

if reservation does not abate any threats?

Horrified readers will now be mentally amassing arguments in favour of protected areas and likely shuffling uncomfortably in their seats:

• Protected areas have less domestic grazing, and grazing is one of the big threats to biodiversity.

• Protected areas will have fire management that is beneficial to biodiversity.

• Protected area managers will have invasive weeds removed, returning habitats to a more natural state.

• Protected areas provide better public access which will enthuse the community about nature.

And I'm sure you can add a few points of your own.

However the sceptic might say: "Pah - where's the proof?"

> Many of our remote reserves are so over-run with feral herbivores and predators that some believe that neighbouring pastoral properties are better for conservation. The major mammal declines in northern Australia appear to be occurring everywhere, regardless of land tenure, even in some of our best funded national parks (Woinarski et al, 2001). Private property can provide visitor opportunities just as well as public property. And some of the compelling evidence for protected areas

comes from efforts beyond their boundaries, such as the innovative work by the Australian Wildlife Conservancy and Bush Heritage Australia.

So, how do we demonstrate the real value of protected areas? What we need is decent accounting. Currently the map of Australia's protected areas (and graphs showing its increase) is one of the main claims for conservation success. Increasing the percentage of the country conserved and the number of ecosystems represented is a major component of State of Environment Reports for the nation and states. However we need to see some different maps (and data), too.

What about a map (and the associated percentages) of where total grazing pressure is appropriate? What about a map of where fire is managed primarily for biodiversity? What about a map of where land clearing really can't occur? What about a map of where the medium-sized mammal fauna is largely intact? What about a map showing vegetation condition that is within 20% of a reference condition? We can imagine similar maps for marine and freshwater systems as well.

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These are real maps of outcomes and they are how we must assess our conservation success. These are the maps that show us where we could do better and what we need to do in these places. There is no doubt that declaring a protected area will, in some cases, deliver outcomes or be a step towards delivering outcomes. However there is also a case to suggest that, by itself, designating protected areas is an increasingly poor surrogate for conservation performance. It's a bit like saying attending lectures is a good predictor of learning. Attending class can help some, but plenty of university students get distinctions and never appear at a lecture, while for others being there is probably essential.

Australia has exceeded the CBD goal (see box on the CBD) of 'effectively' protecting 10% of the country only if we believe our protected areas abate all threats adequately. We're now moving toward increasing the size of the protected areas estate by 25% by 2013 (to reach 125 million hectares). Do we need more protected areas or better managed protected areas? Will more protected areas halt the general downward trend in the status of our flora and fauna? The answer to these questions is quite simple - who's to know! Without decent environmental accounts it's really just guesswork.

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Locations of Australia's National Reserve System. For full details see http://www.environment. gov.au/parks/nrs/science/ maps.html



SAVE BIODIVERSIT

The UN declared 2010 the International Year of Biodiversity (IYB). Throughout the year many events will be organised to disseminate information, promote the protection of biodiversity and encourage organisations, institutions, companies and individuals to take direct action to reduce the growing loss of biological diversity worldwide. For a run down on what's happening around the world check out website Countdown 2010 (set up by the IUCN).

More info: http://www.countdown2010.net/year-biodiversity Decision Point #33 - 3

Welcome to the CBD

CBD stands for the Convention on Biological Diversity. It was developed through the United Nations Environment Programme and came into being at the end of 1993.

In April 2002, the Parties to the Convention (that's 191 nations and includes Australia) committed themselves to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level. This target was subsequently endorsed by the World Summit on Sustainable Development and the United Nations General Assembly and was incorporated as a new target under the Millennium Development Goals.

The CBD has 11 goals (listed below). One of the targets for goal 1 is: "at least 10% of each of the world's ecological regions be effectively conserved". For the full list of goals with their targets see https://www.cbd.int/2010-target/goals-targets.shtml

More info: http://www.cbd.int/

Eleven goals of the CBD

Goal 1: Promote the conservation of the biological diversity of ecosystems, habitats and biomes

> Goal 2: Promote the conservation of species diversity.

> > Goal 3: Promote the conservation of genetic diversity.

> > > Goal 4: Promote sustainable use and consumption.

> > > > **Goal 5:** Pressures from habitat loss, land use change and degradation, and unsustainable water use, reduced.

Goal 6: Control threats from invasive alien species.

Goal 7: Address challenges to biodiversity from climate change, and pollution.

Goal 8: Maintain capacity of ecosystems to deliver goods and services and support livelihoods.

Goal 9: Maintain socio-cultural diversity of indigenous and local communities.

Goal 10: Ensure the fair and equitable sharing of benefits arising out of the use of genetic resources.

Goal 11: Parties have improved financial, human, scientific, technical and technological capacity to implement the Convention.



Hitting the target and missing the point

Can biodiversity targets be bad for conservation?

By Josie Carwardine (University of Queensland, AEDA)

ots of decisions in life are based on targets, and conservation is no exception. When we want to decide how to invest in saving biodiversity, we set targets like how many populations of each species should be protected in a reserve system; or how many hectares of each vegetation type we should protect from cattle grazing? These targets help to control how we divide our efforts amongst all the features of biodiversity that we care about, and provide us with a benchmark for measuring our achievements.

But can setting a target have bad impacts for biodiversity? Some scientists and conservationists argue that targets give society a license to destroy the proportions of species and habitats that are above a target amount (eg, Soulé & Sanjayan 1998, Woinarski et al. 2007). So if we set a goal of protecting 30% of each vegetation type, does this mean 70% of it can be destroyed? And to make matters worse, is 30% protected enough to make a difference – is it enough to sustain a species in the first place?

I work in the area of spatial priority setting, and targets are part and parcel of the conservation planning I'm involved in. To me, target-based conservation planning seems like a sensible, practical and transparent approach to protecting biodiversity, but I know it is important to understand the potential limitations of the approach you are working with. Consequently I'm very interested in understanding the strengths and weaknesses of targets as a means of securing the conservation of our precious biodiversity.

Over the last year I've been discussing the perceived problems with conservation targets with a group of AEDA researchers including Carissa Klein, Hugh Possingham, Bob Pressey and Kerrie Wilson, and the results of our discussions are now presented in the journal *Conservation Letters* (Carwardine et al, 2009). In this paper we argue that targets are actually good for conservation, but our communication of them could do with some serious improvement. So, if you've ever been in a debate where the value of conservation targets was under question, it wouldn't hurt to be familiar with the arguments.

Six common concerns

We found six commonly reported 'limitations' of targets in conservation planning:

(1) setting conservation targets results in perverse outcomes

- (2) conservation plans based on targets will be inadequate;
- (3) conservation plans based on targets will be inflexible
- and over-ride expert judgement; (4) conservation plans based on targets will be

unachievable;

(5) the approach fails in intact landscapes; and

f we set a goal of protecting 30% of each vegetation type, does this mean 70% of it can be destroyed? And to make matters worse, is 30% protected enough to make a difference - to sustain a species in the first place?" (6) the approach cannot consider complex factors such as climate change, ecological processes, threats and socioeconomic criteria.

We came to the conclusion that most of these concerns are misconceived, and have arisen from poor communication about the nature and intentions of conservation targets. Consider for example:

1. The concern that targets give license to destroy the untargeted proportions of a feature has arisen through confusion about the role of conservation targets

Conservation targets are often used to protect minimum amounts of each biodiversity feature in a reserve (eg, Commonwealth of Australia 2005), but they actually say nothing about the remainder of the landscape. Regardless of reserve selection approach, the fate of biodiversity outside reserves must be protected by clearing laws and policies, fishery quotas, and best-practice farming. It is a perverse interpretation of conservation targets to suggest they give license to destroy biodiversity - a bit like saying that nobody should get more than the minimum wage!

2. Concerns that target amounts are inadequate have arisen because we haven't articulated clearly that targets are sometimes defined by socio-political feasibility, rather than by persistence requirements

The purpose of socio-political targets – such as protecting 10% to 30% of the historical extent of major vegetation types as recommended by the World Conservation Union – is to ensure equity of protection, where previously ecosystems with value for productive or extraction were overlooked. More "adequate" targets are often set by accounting for factors that affect species persistence. Scientists need to communicate that both types of targets are adaptive, and can be revised with increased biological knowledge and changing social and ecological conditions.

3. We need to make it clearer that the quantitative phase of conservation planning is only one part of the process, so areas known to be important can be picked up by experts

It is best practice for all quantitative conservation planning tools to be used in conjunction with expert knowledge

and intuition, because many elements of biodiversity and socio-ecological systems cannot be captured with available data. Many people have probably been misled on this point because academic examples target-based planning often don't involve expert input.

4. Ambitious targets are used to represent longerterm objectives in the face of short-term constraints, so it is OK if targets cannot all be achieved at once

Due to a lack of resources, targets are often unachievable in the short term, but they are useful for influencing policy by highlighting current funding shortfalls. Conservation actions for meeting targets can be scheduled over time, using factors like irreplaceability and threat. While knowledge of the potential availability of conservation areas should be investigated prior to planning to determine the appropriate kinds of conservation actions, maps of the relative importance of areas for meeting targets can help determine whether to carry out an action (eg, purchase for a reserve) in an area if it becomes available in the future.

5. Target-based conservation planning is flexible and can work in all landscapes

Target-based conservation planning has been used successfully for both intact and fragmented landscapes in both the land and sea. For example, the intact Great Barrier Marine Park was re-zoned using a target-based approach. However, targets may have different implications in different landscapes: In fragmented landscapes most remaining areas of remnant ecosystem plus some restoration may be needed to achieve targets, while in intact landscapes there is more flexibility and scope for accommodating larger targets, biodiversity processes and off-reserve actions.

6. Target-based conservation planning is not limited by complex factors more than by our ability to define and parameterise them

The concern that target-based conservation planning cannot address complex factors has arisen because developments of the approach are not widely disseminated. Target-based conservation planning is continually evolving to address complex factors such as off-reserve conservation, multiple actions and benefits, ecological processes, climate change, threats, condition, dynamics and socio-economic issues. The main challenges are not in the development of new algorithms, but in defining the problem mathematically and parameterising it with relevant data.

Are there alternatives to target-based conservation planning?

Many proposed alternatives to target-based conservation planning do not solve any kind of quantifiable objective (something that is being maximised or minimised). For example the guiding principles laid out in Woinarski et al. (2007) in their discussion on the conservation of Australia's north are:

1. The natural environments must be valued recognizing their national and international significance

2. The ecological integrity of the processes that support life must be maintained

3. The population viability of all native species must be protected

4. Thresholds defined by the limits to ecological integrity... must be used to assess and guide development options

5. The contributions of all property holders and managers are needed to maintain the North's natural values.

These are excellent principles for informing quantitative approaches. However, by themselves they are not enough

to determine where, when and how to manage for conservation.

Targets are not the only quantitative way to prioritise conservation efforts over multiple biodiversity features. Alternative approaches include maximal covering problems, where the objective is to maximise the utility, or benefit, gained by spending a fixed budget. Figure 1 shows the different ways that target-based and non-target based problems measure the utility of protecting increasing amounts of a feature (Figure 1, Lines A-E).

Continuous utility functions have more biological meaning than target-based utility functions, but targets have some practical advantages for planners and policy-makers. They are simple to convey, politically tractable, and allow whole portfolios of potential conservation areas to be identified.

Most importantly, they provide a clear goal – many conservation planners need to know when their short-term goals have been achieved.

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Area of vegetation type (%)

Figure 1: Target-based and alternative utility functions for a single vegetation type. The utility indicates the benefit of protecting increasing amounts of a single vegetation type. In simple target-based approaches, benefit is zero until the entire target - in this case 30% of the extent of the vegetation type - is reached (A). Alternatively, utility is gained incrementally until the target is reached (B). In both A and B no utility is gained beyond the target amount. In continuous (non-target) utility functions some additional benefit is gained from each incremental area protected. The shape can be linear (C), where utility accrues in equal increments until the entire vegetation type is conserved, or can follow diminishing returns (D) or sigmoidal (E) curves. The largest increments of utility are gained where curves are steepest in a positive direction. When curves flatten, efforts are switched to protecting different features for which larger utility can be gained from the same investments.

Frogs near freeway croak it

Why amorous urban frogs are thwarted by traffic noise

Most people know that frogs and freeways don't make good bedfellows but the impact of cars and trucks on frogs go way beyond the occasional squishing. New research led by AEDA's Kirsten Parris has found that traffic noise is drowning out the mating call of some frogs. It's believed that this could be one of the reasons for the large-scale decline of frog populations in Melbourne.

Mathematical modelling predicts that in areas with lots of traffic noise, male pobblebonk frogs that could once be heard by females some 800 metres away can now only be heard within 14 metres. And just like humans trying to attract a mate in a noisy bar, this acoustic interference might be causing havoc with their social life. Dr Parris made the discovery while undertaking research on nine frog species in public ponds in and around Melbourne.

"Being heard is important," she said. 'If the females can't hear the male frogs then they have less chance of breeding successfully."

Frogs with low-frequency calls are particularly affected, given that most urban noise – from traffic to air conditioners – comes across as a low rumble. And in response to this threat it appears that some frogs are changing their calls. With Honours students Meah Velik-Lord and Joanne North, Dr Parris found that the southern brown tree frog was adapting to urban noise by producing a squeakier and higher-pitched call. This new call helps them to be heard, but does not completely make up for the effect of the traffic noise.

After monitoring 50 sites around Melbourne, Dr Parris says Kew Billabong in the inner-eastern suburbs might be the worst place for calling frogs because of the nearby Eastern Freeway. Mount Macedon and the far-eastern suburbs, such as Belgrave, are much easier places for frogs to be heard as they have little traffic.

"I've been studying frogs in Melbourne since 2000," says Dr Parris. "Recently, my colleague Dr Andrew Hamer from the Australian Research Centre for Urban Ecology (ARCUE) revisited some of my original sites and found that whole populations have disappeared. This is what's known

A call for the frog

Frogs and other amphibians are an important part of many ecosystems from the tropics to the temperate zone. They occupy an intermediate position in the food chain and act both as important predators of invertebrates (such as locusts and other crop pests) and as prey (for a wide range of species including fish, reptiles and birds). Amphibians around the world are facing an extinction crisis, with almost one in three species considered to be threatened by processes such as the loss and fragmentation of habitat, disease, pollution, and pressure from introduced predators such as fish.

Given the large proportion of the Earth's terrestrial surface that is currently affected by road-traffic noise, increasing traffic volumes, and the expected future expansion of the road network, many frog populations around the world are likely to be affected by traffic noise as well. Although not the most obvious threat to the persistence of frogs, traffic noise is one of the most geographically widespread.

as local extinction, and it's possible that urban noise is contributing to this process."

But it's not just noise conspiring against the frogs. Dr Parris says several species, including the threatened growling grass frog, are struggling in and around droughtaffected Melbourne.

"Year after year there's not enough water for them to breed successfully," she explains. "Eventually the frog population declines to nothing, and roads and other barriers in the urban environment prevent new frogs from moving into those ponds. So even if they fill with water again, they stay empty of frogs."

And with climate change forecasts of reduced rainfall for many of our cities, the frogs' predicament is expected

to worsen. This is why Dr Parris and colleagues have started a pilot program with the Melbourne Zoo and the Royal Botanic Gardens Melbourne that aims to put frogs back into urban areas where they have disappeared. However, for such programs to be effective it's important that we understand the impacts and threats posed by urban noise.

"Frogs are a very important part of the ecosystem, and some species are also very sensitive to environmental changes," says Dr Parris. "It's often

In areas with lots of traffic noise, male pobblebonk frogs that could once be heard by females some 800 metres away can now only be heard within 14 metres."



The audible range of the southern brown tree frog is reduced from around 75 metres to 19 metres at the noisiest sites in Melbourne. By increasing the pitch of its call in traffic noise, this range is extended to 24 meters. Urban noise has also reduced the audible range of the pobblebonk frog by several hundred metres. (Photo by Nick Clemann.)

said that frogs are our canary in the coalmine; providing an early indication that all is not well in the environment. Well, these 'canaries' are falling off the perch so maybe it's time we started heeding the warning."

Though Dr Parris says the environment is not her only motivation for trying to repopulate Melbourne's ponds with frogs.

"The sound of calling frogs makes many people happy," she says. "Hearing frogs provides a small connection with nature, one that is quite precious to anyone living in a big city."

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URL: http://www.ecologyandsociety.org/vol14/iss1/art25/



Noiseworks: To capture the frog call and ambient noise, researchers used paired microphones with one pointing at the pond and the other at the main source of traffic noise. (Photo by Meah-Velik-Lord.)



Frog heaven? Not quite. This pond in the Queen Victoria Gardens, Melbourne, is right next to St Kilda Road and traffic noise is known to be impacting on frog communication. The southern brown tree frog lives in this pond when it contains water. Unfortunately, it's currently dry because of the drought and water restrictions. (Photo by Kirsten Parris.)

The call of the frog

Male frogs call to attract females for mating and to declare to other males that a calling site or territory is occupied. The advertisement or mating call of a frog contains key information about species identity and an individual's motivation to reproduce. Females are known to select mates on the basis of call properties such as frequency (pitch), pulse rate, amplitude, call rate, or call length. In general, female frogs prefer calls that are energetically costly to produce. These could include calls that are louder, longer, and/or have a higher repetition rate. A male producing energetically-costly calls indicates that he has substantial energy reserves and is therefore healthy and vigorous, with access to highquality resources.



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Marine conservation planning for a complex world

Spatial marine zoning for fisheries and conservation

By Carissa Klein (University of Queensland, AEDA)

Marxin protected areas (MPAs) are a cornerstone of many conservation programs around the world. There are many different types of MPAs, each with differing levels of protection. Some allow for the selective extraction of resources while others are strictly 'hands off' (no-take). One long-standing approach in designing reserves is to use a planning tool such as *Marxan* or *Zonation* to identify areas that cost-effectively achieve ecological objectives (such as comprehensively and adequately representing biodiversity). However, the use of these tools is often limited when planners face the more complex problems of prioritising for multiple types of MPAs and resource uses (eg, fishing, mining, tourism). And this is where we're hoping *Marxan with Zones* (see box) will make a big difference.

To test how useful *Marxan with Zones* might be in designing networks of MPAs, we used it with the objectives and zones defined by California's Marine Life Protection Act Initiative, one of the world's most ambitious conservation programs (see the story on the Initiative's history).

Using *Marxan with Zones* we identified multiple zoning configurations for four

Control Control Contr

addition of zones and the ability to specify certain costs and targets for each zone are the control variables that offer improved results over *Marxan*.

Zoning of the ocean has captured the interest of many as a means to protect biodiversity, manage fisheries, implement ecosystem-based management, and plan for climate change. We suggest that the use of planning tools complements, rather than replaces, a stakeholder-driven zoning process.

This research is not only relevant to California, but is topical in Australia, as the Department of Environment, Water Resources, Heritage and the Arts is currently overseeing a marine planning process that will zone all

different types of MPAs, each with different fishing restrictions and biodiversity conservation targets. We considered fishing data for eight commercial fisheries and biodiversity data for thirtytwo conservation features (for example, kelp forests, surfgrass, estuaries). Zone 4 And was the output? We have produced a zoning configuration that results in mean

that results in mean value losses of less than 9% for every fishery, without compromising conservation goals (see Figure 1).

Further, we found that a spatial numerical optimisation tool that allows for multiple zones (such as *Marxan with Zones*) out performs a tool that can only identify marine reserves; and it does it in two ways. First, the overall impact on the fishing industry is reduced. Second, there is a more equitable impact on different fishing sectors.

These results confirm that, for any optimisation problem, expanding the control variables results in greater flexibility and better outcomes. In *Marxan with Zones*, the



Figure 1: The zoning solutions are displayed as the frequency with which sites are selected for an indicated zone (selection frequency) across 100 individual solutions and as the best solution (ie, achieves targets for the least cost). (a) Zone 4 (conservation medium) selection frequency via Marxan with Zones; (b) Zone 1 (no-take reserve) selection frequency via Marxan with Zones; (c) best solution via Marxan with Zones; and (d) best solution via Marxan (without zoning). The study region is located off the northern part of California's central coast, near San Francisco. Commonwealth waters (see *Decision Point #20*). Adapting ideas from this zoning approach can help stakeholders and decision makers to implement MPAs that balance competing socio-economic and biodiversity interests. Moreover, our approach is applicable to both marine and terrestrial conservation planning. It delivers an ecosystembased management outcome that balances conservation and industry objectives.

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Klein CJ, C Steinback, M Watts, AJ Scholz & HP Possingham (2009). *Frontiers in Ecology and the Environment* doi:10.1890/090047

Marxan with Zones

Marxan with Zones is a new multi-zone optimisation tool developed with the support of AEDA. It's novel in that it introduces zoning as a formal consideration of the conservation planning problem. This represents a shift away from the basic reserve design problem towards a multiple zone scheme that supports the efficient allocation of resources across a range of different uses.

Marxan with Zones is being used to address problems relating to biosphere reserves, multiple-use marine parks, off-reserve marine planning, and multiple-use terrestrial forestry planning. This refined version of Marxan is suitable for dealing with complex problems by considering multiple zones with different targets, planning unit costs and biodiversity benefits for each zone.

See *Decision Point Issue #27* (p10-11) for more info on Marxan with Zones (and three case studies of how it can be applied – Rottnest Island (see below), Cockburn Sound and East Kalimantan).



Figure 2: One configuration around Rottnest Island produced by Marxan with Zones that delivers optimal trade-offs between recreation and biodiversity protection.

Rottnest Island is located 18 km off the coast of Perth, Western Australia. It's a popular tourist and recreational destination but the waters surrounding the island also contain important biodiversity assets.

Marxan can be used to locate marine sanctuaries that meet biodiversity objectives whilst minimising impacts on a simplified measure of recreational uses. Marxan with Zones extends this capability by: Placing restricted-use areas according to their benefit to biodiversity; and accommodating complex recreational objectives for many recreational uses.

Using Marxan with Zones, the aim was to identify configurations of three zones: marine sanctuaries, restricted use areas, and recreational areas that: -Spatially separate sanctuaries and restricted-use areas from

recreational activities threatening them,

-Meet biodiversity conservation objectives, -Minimise the disruption to recreational users.

A brief history of the Initiative

California's first six MPAs were created between 1909 and 1913; but by 1950 all had been removed. After 1950 more than 50 other MPAs were created along the California coast. That sounds impressive but unfortunately these MPAs were established in a random manner and without regard to regional conservation goals. Most have been thought to be too small and ineffective in protecting against habitat and species loss. These MPAs protected less than 1% of coastal waters, and none extended to deeper waters. In 1999 the MLPA (Marine Life Protection Act) was created in order to re-evaluate the MPA system and to establish a better network of MPAs that would be more effective in protecting against habitat and species loss.

To help implement the MLPA, the California Natural Resources Agency, the California Department of Fish and Game and the Resources Legacy Fund Foundation have formed a public-private partnership known as the Marine Life Protection Act Initiative (MLPA Initiative). This partnership is governed by a formal Memorandum of Understanding that details each group's participation in the process. Scientists, resource managers, experts, stakeholders and members of the public also play important roles in guiding the outcomes of this publicprivate partnership.

More info: http://www.dfg.ca.gov/mlpa/index.asp



AEDA & Australia's standing in conservation science

The fabulous AEDA MTReview is now available

Onservation science is booming and Australia has made a significant contribution to its growth around the world. What was one scientific journal 30 years ago is now 20. In most areas of science Australia wallows in and out of the top ten in terms of productivity and citations – but in conservation science (and ecology) we are third or fourth (behind the much bigger countries of the USA and UK). From 2000 to 2008, Australia published more papers in the world's top conservation journal *Conservation Biology* than any other country (aside from the USA).

AEDA does conservation science. Has it contributed to this excellent national effort? Yes it has. The AEDA CERF Hub has produced around 340 publications since commencing in 2007. This includes 9 complete books and 52 book chapters.

Three hundred and forty (and you can read the whole list at http:// www.aeda.edu.au/publications) - that's quite a lot but, of course, quality trumps quantity. How do they stack up in terms of impact? Quite well, actually.

Over 58% of our published journal articles have an impact factor of greater than 3.0 (and it should be noted that less than 25% of ecology journals have impact factors over 3.0 and less than 4% have impact factors over 9). Twelve percent of all our publications appear in top science journals, such as *Science*, *Nature*, *PloS Biology*, *Trends in Ecology & Evolution* (TREE), *Ecology Letters* and *Proceedings of the National Academy of Science of the USA* (*PNAS*), each with impact factors greater than 9.0.

Add to this that 59% of the publications with impact factors of greater than 9.0 have junior researchers, including PhD students, as first authors, and it is obvious that AEDA's work is not only impacting on conservation science today, but setting the scene for scientific work of major importance in the future. <text><text><text><text><image><image>



Publication impact factors for papers published from 2007 till now (mid 2009).

he Mid Term Review was put together to encapsulate some of AEDA's value as we approach our final year of CERF funding."

feedback from readers on *Decision Point* and a heap of other stories, facts, stats and pics – see the fabulous AEDA Mid Term Review (the annual report you have when you're not having an annual report).

If you're a regular reader of *Decision Point* you'll recognise several of the stories in the review as they were repurposed from *Decision Point*. However, when you see them packaged with all the other bits and pieces (and faces) that make up AEDA you quickly get a sense of what our CERF hub has created in the few short years it has existed.

The Mid Term Review was put together to encapsulate some of AEDA's value as we approach

our final year of CERF funding. At this point, the future of the CERF hubs is still being considered but regardless of what transpires, AEDA can reflect proudly on our achievements and our anticipated legacy.

Achievements and legacy were also the theme of Hugh Possingham's presentation at the recent CERF Conference (held in Canberra in September). As with the Mid Term Review, his presentation aimed to convey AEDA's value to government stakeholders and fellow CERF researchers.

His final slide was a mugs gallery of AEDA Fellows. "This is our true legacy," he said. "These are the people that will be taking a lead role in conservation science in the coming generation. Australia's standing in conservation science is in excellent condition, way ahead of where our nations stands in most other fields of scientific endeavour. I'm confident that with the calibre of the researchers we see coming through AEDA that Australia's high standing in conservation science will be secure long into the future."

The AEDA Mid Term Review is now available for downloading from the AEDA website at http://www.aeda.edu.au/information-about-aeda

For a breakdown of impact factors on AEDA's published outputs, discussions on some of our higher impact papers,



Hugh Possingham talks up an AEDA storm at the CERF Conference in September.

Planning to learn about planning

Conservation planning, learning & adaptive management

Why is it that when it comes to conservation planning even 'the best laid plans of mice and men often go awry'? The best science is applied to identify the most important area to be set aside, a reserve is proclaimed, a press release is put out, but the biodiversity the reserve was supposed to protect continues to decline (see page 2)? Why? Because in a complex world things rarely go to plan. Uncertainty (sometimes enormous uncertainty) makes it impossible to predict the responses of social and ecological systems to planned conservation actions.

Uncertainty can't be eliminated but it can be reduced through learning. Reflecting on the learning process, so as to encourage new learning, is an especially important activity. Unfortunately, a space for such reflection is rarely provided in setting up conservation planning initiatives.

So, how can this situation be improved? A group of AEDA researchers recently led an investigation into this very question (Grantham et al, 2009). They found that there has been a general lack of discussion on how to incorporate learning processes into conservation planning.

"Conservation planning is a dynamic process, the science of which has generally focused on one-time-only assessments of optimal protected area configuration," says Dr Hedley Grantham, the AEDA Fellow who led the investigation. "We suggest a shift is needed, toward a more adaptive approach to the conservation planning process. By deliberately including learning in the conservation planning process, future conservation decisions are likely to be more effective.

"And what might this entail? To begin with we need a shift by conservation planners toward greater self-reflection, a focus on process as opposed to outputs (ie how a plan is formed rather than the size or location of a specific reserve), and improved collaboration with those implementing adaptive conservation planning."

Learning and adaptively refining a conservation planning process can occur in two ways – passively or actively. If the conservation planning process proceeds only by reviewing the performance of previous and current actions, and then altering future actions in response, then it is termed 'passive'; this is the most common form of adaptive management.

A more challenging approach is 'active' adaptive spatial prioritisation. In this case, alternative actions are trialled in an experimental fashion and their relative performance evaluated. For example, different conservation instruments, such as the acquisition of land or monetary incentives to landholders, can be trialled, and their costs and benefits compared within a region. Active adaptive management seeks to balance both short-term management objectives and a desire to learn so as to achieve optimal long-term management outcomes. In this way, active adaptive management is a form of management that values learning because of its ability to optimise management outcomes in the long-term. There is now a large body of literature on adaptive techniques for natural resource management but surprisingly little discussion of its principles and applications in the field of conservation planning.

An active approach to adaptive conservation planning requires experimental manipulation. Randomised trials that test particular strategies and approaches are a robust method, but despite their popularity in the medical and social sciences, they have rarely been applied in conservation. This might be due to the perceived permanence of many conservation decisions; for example, it is extremely difficult to reverse decisions about the establishment of protected areas (although AEDA is looking into this now). Similarly, there are limited opportunities to replicate actions in different places under controlled We need a shift by conservation planners toward greater selfreflection, a focus on process as opposed to outputs, and improved collaboration with those implementing adaptive conservation planning"

A movable plan

Conservation agencies are regularly forced to manage inefficient protected area networks because previously implemented protected areas were designated on an ad hoc basis. While it is understandable that conservation agencies might be hesitant to remove protection from existing protected sites, areas managed for conservation cannot operate optimally if past decisions are not reversible. As more information is gathered, planners should be able to adapt the areas managed for conservation to ensure the best use of scarce conservation resources.

For some ecosystems, such as grasslands, biodiversity can recover relatively quickly from disturbance so that the benefits of protection are subject to diminishing returns. Adaptively relocating temporary protected areas to where return on investment is high may lead to the greatest improvement in the overall health of the system. This approach could be made independent of the condition of the ecosystem, through periodic rotations, or dependent on the condition of the system, through monitoring, to learn where the greatest benefits of protection can be achieved.

The ability to shift conservation actions can help secure dynamic ecological processes. This is because such processes may require a dynamic approach in areas managed for conservation Such areas may be spatially or temporally variable; examples include maintaining a mosaic of succession types and tracking highly migratory species. Dynamic protected areas will require a conservation plan to be continually updated, depending on the state of the system.



conditions, if each place is different ecologically and socially and in time and space, making it harder to learn general relationships and principles.

This might also be due to the general absence of longterm conservation planning programs, inadequate funding, or a lack of appreciation for the importance of adaptive management.

Future research priorities

The investigation identified four issues that are particularly important for targeting research to improve adaptive conservation planning.

(1) How much investment in learning is required?

Decisions on how and when to invest in learning should take into account the likely costs, in terms of both time and nt #22 11 Continued on page 12

Adaptive conservation planning

(Continued from p11)

money, and the potential benefits, in terms of improved conservation. Too much time and too many resources spent gathering data to inform learning can mean that areas of high conservation value are degraded before agencies feel they have learned enough to make decisions with confidence. Alternatively, if there is inadequate learning, opportunities and efficiencies may be lost. Ideally, data collection should occur continually and conservation plans refined accordingly.

(2) What are the advantages of learning and adapting in conservation planning?

Conservation planners need to be able to adapt to conservation opportunities as they arise and, where possible, encourage the emergence of new opportunities. Recognising opportunities has led to new research on adaptive decision rules, devised to help achieve objectives in a dynamic context. So far, however, these methods have not incorporated the option of waiting for new opportunities or ways of creating opportunities. Because conservation can involve irreversible losses, there is a complex and poorly understood trade-off between acting on current opportunities and waiting for, or finding, new ones. To increase opportunities, experimental application of different conservation instruments can help conservation planners to learn about the factors that define conservation success under a range of different circumstances, thereby reducing the gap between conservation plans and their implementation.

(3) What are the challenges facing learning and adaptive conservation planning?

Implementing active adaptive conservation planning may be socially and politically challenging. For example, the need to investigate a suite of possible conservation actions could lead to the temporary application of suboptimal conservation actions and explicitly acknowledges a lack of understanding. This could be hard to justify to funding bodies and the general public. The long time frames needed for evaluating alternative actions for some conservation outcomes might not match the time frame of a conservation project; furthermore, it can be difficult to separate the effect of conservation actions from changes that would have occurred anyway. Although there are benefits to having a diversity of approaches to conservation it is important to separate current best practice from less effective strategies. For agencies that rely on public funding, we recognise that it can be difficult to develop conservation strategies that are both informed by good science and marketable to funders, who are often uncomfortable with the uncertainty implied by adaptive management approaches.

(4) How can conservation theory and practice be more closely linked?

Our capacity to learn can be improved by linking theory and practice. Participatory action research should be embraced, that is, where research questions are sourced from practitioners and not from academic theory. The learning that is central to adaptive management is gained from post hoc analysis of previous conservation actions. Effective scientists move consciously and routinely between the operational and conceptual perspectives of their discipline, to ensure that application informs theory and vice versa. This will be most accurately and effectively achieved by linking the peer-reviewed literature to practitioners' activities.

More info: Hedley Grantham <h.grantham@uq.edu.au>

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Grantham HS, M Bode, E McDonald-Madden, ET Game, AT Knight, and HP Possingham (2009). Effective conservation planning requires learning and adaptation. *Frontiers in Ecology and the Environment*; doi:10.1890/080151

Australian's take action!(?)



According to the IUCN Red List there are 788 Australian plants and animals which are currently listed as threatened. The Red List includes 57 species of mammal listed as threatened, by far the highest figure amongst all developed nations.

Earlier this year the Australian Bureau of Statistics (ABS) released a list of a different form – a survey on environmental views held by Australians. It found that about half of all Australians believed the natural environment was declining, but that four in ten Australians reported the condition of the natural environment in Australia as neither good nor bad.

And what did the people who thought Australia had an environmental problem do about it? Only about one-third of those surveyed had some form of environmental involvement in the 12 months prior to the survey. The most commonly reported environmental activity undertaken was signing a petition relating to any environmental issues (17% of all people), followed by donating money to help protect the environment (14%). One in ten people expressed concern about the environment through a letter, email or by talking to responsible authorities.

(The survey also found that men and women thought differently about climate change, with one-quarter of all men but only one-fifth of all women 'not concerned about climate change'.)



Applied Environmental Decision Analysis A Commonwealth Environment Research Facility

Smart science for wise decisions

Decision Point is the monthly magazine of AEDA, and it's available free from our website. You can also subscribe to an email alerting you to new issues as they are released at http://www.aeda.edu.au/news

Decision Point is written and produced by David Salt. If you have news or views relating to AEDA or of interest to AEDA members, please send them to David at David.Salt@anu.edu.au

When we print out *Decision Point* we use recycled paper. We hope you will too.

AEDA stands for Applied Environmental Decision Analysis, a research hub of the Commonwealth Environment Research Facility program. The CERF program is funded by the Australian Government's Department of the Environment, Water, Heritage & the Arts.

AEDA's members are primarily based at the University of Queensland, the Australian National University, the University of Melbourne and RMIT.



Briefing Notes / Discussion Points

1) Please confirm the Government's position on the Labour policy of converting QLDs State Forests into National Parks.

a) The Policy of increasing the National Park Network, and in particular converting QLDs State Forests to National Park should be <u>ABOLISHED</u>.

- This policy goes directly against LNPs commitment to grow Agricultural productivity & QLDs economy:
 - Data collected in an AgForce survey shows that the businesses of over 1/3 of effected lease holders will become unviable resulting in loss of jobs and production.
- Government cannot afford the expenditure to increase the National Park Network, and cannot afford to provide adequate management for these areas.
 - This policy removes the free environmental stewardship currently provided by leaseholders and deposits this burden solely on the state.
- The National Parks that already exist are not being managed adequately.
 - The scientific community is beginning to recognize that merely designating an area as 'protected' is an increasingly poor surrogate for conservation performance:

"Many of our remote reserves are so over-run with feral herbivores and predators that some believe that neighboring pastoral properties are better for conservation. The major mammal declines in Northern Australia appear to be occurring everywhere, regardless of land tenure, even in some of our best funded national parks" (Woinarski et al, 2001).

- Many National Parks are introducing cattle back into the protected areas to control invasive grasses so why remove the current land managers, only to then buy them back?
- Converting simply <u>any</u> land that is State Forest tenure is not an acceptable method of National Park selection.
- State Forests are a valuable economic and environmental asset that should be maintained in their own right.

b) European settlement has irreversibly changed the Australian landscape, such that careful & rigorous management is now required in order to sustain native ecosystems.

- The natural balance has already been altered:
 - -feral pests & weeds need to be controlled.
 - -fire needs to be carefully managed particularly as introduced pasture species, now common in the landscape, grow to produce a much larger biomass than native grasses and also burn at higher temperatures. This increases likelihood of destructive fire in unmanaged lands.
 - -invasive introduced grasses need to be controlled the only practical way to do this is by grazing.

c) Forestry is valuable to environment and economy.

- Done correctly, harvesting of natural timbers is a SUSTAINABLE and RENEWABLE resource.
 This resource has already been shut down by Labour, and should be re-opened & developed for both environmental and economic benefits to QLD.
 - -Economic benefits though both jobs and royalties.
 - -Royalties collected should be invested back into the health of the forests.
 - -Acacia ecosystems (rosewood, lancewood, brigalow, gidgee etc) are particularly fire sensitive and therefore require particular management, including allowing selective grazing to reduce fuel loads. <u>Otherwise these ecosystems, and their resources, are at real risk of being lost.</u>
 - -Timber is an environmentally wise construction material, which produces few pollutants to generate and also in itself stores carbon. Steel has replaced the use of timber since Labour made it unavailable.

2) Conditions Imposed on Forestry Leases need to be reviewed.

• The current lease conditions do not enable a viable business and do not promote environmentally sustainable management.

-Forestry Leases provide <u>no security</u> - they may be revoked at any time with only 6 months notice. -When they are revoked, only UNIMPROVED value is paid.

These conditions mean that:

- a forestry lease has NO equity with which to borrow against which makes it very difficult for the business to grow & remain viable into the future, also limits options for succession planning.
- it is not financially viable to invest in management infrastructure, even if it could improve environmental outcomes (eg fencing of land types, more watering points to spread grazing pressure etc).

3) Property Maps of Assessable Vegetation (PMAVs)

- totally inaccurate
- totally unfair PMAVs are useful for the government only and provide no benefit to the farmer, government is forcing farmers to pay for developing maps to use in regulation against themselves.
- PMAVs are driving a second wave of "panic clearing"

4) Reef ERMPs

- hypocritical of government to demand these to producers when it doesn't have management plans in place for its own lands.
- excludes hobby farms / lifestyle blocks that are more likely to be unprofessional in their application of chemicals than commercial farms, and that are generally also closer to the reef.
- insulting approach to farmers
- the Reef ERMPs are a purely "paper conservation" measure that will achieve nothing for conservation.

Suggested Solution

Future environmental protection plans need to work in partnership <u>WITH</u> leaseholders.

- Past government "Big Stick" legislative approaches have failed miserably.
- We need to work together.
- Instead of legislation, threats & fines for doing the wrong thing, try providing incentives or rewards for doing the right thing by the environment.
- Government simply cannot afford to manage vast areas of land on its own.
- Grazing is now an integral part of the landscape.
- Suggest an extension officer program to assess the current situation, *on an individual property basis*, help identify any issues, and offer guidance and support to help improve management where necessary.
- Current landholders can be *utilized to deliver environmental services* with education, guidance, and support.
- Landholders have local, practical experience in the management of their lands this knowledge should be respected & utilized.
- Lands can be used for BOTH conservation & production though not without government support.
- As this approach maintains production, economy, jobs AND environment this is a more sustainable solution moving forward into the future.
- The government should not impose the costs of carrying out an government program on the producer.
- It must be recognized that lands are also <u>businesses</u>, and that there is a limit to "the extent the landholder should bear the public cost of conservation" (Pyper, 2002)
- Management plans should incorporate the principles of Active Adaptive Management- a flexible approach that incorporates learning from effects of an action into decisions and future management.

Woinarski JC, JD Milne and G Wanganeen (2001). Changes in mammal populations in relatively intact landscapes of Kakadu National Park, *Austral Ecology*, 26:360-370.

Pyper, W (report on the work of Dr Neil MacLeod) (2002). Cattle and conservation can be a costly mix, *Ecos*, 113: 10-13.

Smart Futures Fund

Smart Futures Premier's Fellowships 2011/2012 APPLICATION FORM

1. Fellowship overview

Provide a brief, plain English Smart Futures Premier's Fellowship title.

Smart Futures Premier's Fellowship in conservation innovation

Provide a plain English description of the proposed fellowship research and the likely outcomes for Queensland. Please refer to Note 1. (maximum 100 words)

The project will quantify the benefits to Queensland's flora and fauna (biodiversity) from buying and managing national parks. There is growing scepticism around the world about whether national parks are the key to securing the world's biodiversity. The large expansion of the Queensland national parks system to meet the Q2 target (protect 50 per cent more land for nature conservation) provides an unprecedented opportunity to monitor the biodiversity in parks before and after they are dedicated. The project will determine the biodiversity return on investment from national parks, and whether managing them in different ways makes a difference.

2. Name of applicant

Name (including title)

Professor Hugh Possingham

12.2 Research outcomes: projects which will deliver significant) outcomes for Queensland and make tangible contributions to the Toward Q2 targets (30 per cent weighting).

Discuss the expected **outcomes** of the fellowship for Queensland and the Toward Q2 targets. Please indicate when you expect the outcomes to be delivered. *(maximum 500 words)*

One of the two Queensland Green Toward Q2 targets is "Protect 50 per cent more land for nature conservation and public recreation". Protected areas are generally considered the cornerstone of any countries efforts to conserve their flora and fauna so this target appears appropriate and logical.

The value of protected areas relies on their ability to mitigate threats to biodiversity. This can occur because the mere act of declaring an area national park stops some human-induced threats. It also occurs because most national parks in Queensland are primarily managed to protect and enhance biodiversity. However, in an era where broad-scale land clearing has all but ended, the value of national parks for achieving conservation goals has been questioned (Ferraro and Pattanayak 2005).

Remarkably, there is very little data in Australia, indeed globally, that proves the existence of, or quantifies the benefits of, terrestrial protected areas. The only large-scale evidence from Australia comes from our own research where we use expert opinion information to suggest that nationally threatened species that exist almost entirely in national parks are slightly better off than other species (Taylor et al. 2011). The evidence is weak.

This project will deliver three outcomes:

Determine if national parks deliver benefits to biodiversity,

1. Determine whether different sorts of conservation management deliver different benefits to

biodiversity, and

2. Quantify the return on investment to biodiversity and to the people of Queensland from buying and managing national parks by accounting for the costs of different sorts of conservation management.

In a world first large-scale and long-term experiment on the effectiveness of national parks, we will monitor the biodiversity of new national parks from, and preferably before, dedication alongside carefully selected control sites – sites where management for agricultural production continues without change. This will enable us, once-and-for-all, to quantify the biodiversity benefits of national parks above and beyond what would have otherwise occurred.

Second, we will work with state government to facilitate alternative management regimes for new protected areas – for example, management by a non-government organization or neighbouring land-owners to determine what management regimes delivers the greatest biodiversity benefits.

Third, by accounting for the financial costs of park acquisition we will, for the first time in the world, calculate the return on investment from acquiring and managing a national park relative to other conservation actions, like stewardship agreements.

While this is a very large scale and long-term experiment that will exceed the length of the Fellowship, credible answers to all three questions will be available within the four years of the project.

Ferraro P.J., Pattanayak S.K. (2006) Money for nothing? A call for empirical evaluation of biodiversity conservation investments. Plos Biology 4, 482-488

Taylor MFJ, Sattler PS, Evans M, Fuller RA, Watson JEM, Possingham HP. 2011. What works for threatened species recovery? An empirical evaluation for Australia. Biodiversity and Conservation 20(4): 767-777.

12.3 Research proposal: research which is well planned, technically sound and achievable (40 per cent weighting).

List the objectives of the proposed fellowship research. (maximum 300 words)

This project has three objectives:

- 1. To determine if national parks deliver benefits to biodiversity, and if so, can we quantify those benefits?
- 2. To determine whether different sorts of conservation management, standard national park, indigenous protected area, non-government organization managed protected area, and stewardship arrangements with local land-owners, deliver different benefits to biodiversity.
- 3. By accounting for the costs of different sorts of national park management, we will quantify the return on investment to biodiversity, and to the people of Queensland, from buying and managing national parks in different ways.

Describe how the proposed research is **different** from other research in this field. *(maximum 300 words)*

Ferraro and Pattanayak (2006) sent shockwaves through the conservation world by pointing out that the scientific

evidence that protected areas deliver conservation outcomes is either absent or, at best, sparse. Indeed, they, and other researchers, have questioned the value of almost all nature conservation interventions, citing lack of: objectives, funding and monitoring, as the biggest concerns (Bruner et al. 2004; Sutherland et al. 2004). In 2005, the Millennium Ecosystem Assessment stated that: "Few well-designed empirical analyses assess even the most common biodiversity conservation measures" (Millennium Ecosystem Assessment 2005). Again, Australia is not immune from failure, two of our most iconic, well-funded and important national parks – Kakadu and Christmas Island – have recently experienced embarrassing catastrophes. The small and medium-sized mammal fauna of Kakadu has collapsed, while Christmas Island is the site of Australia's most recent mammal extinction, with several other species of fauna in a perilous state.

As far as we know, a before-after, control-impact experiment that quantifies the costs and benefits of national parks, and different sorts of national park management, has never been carried out anywhere in the world. That said, we are fully aware of the social and political challenges of carrying out this evaluation. This is a high risk, high reward, research program.

Bruner A.G., Gullison R.E., Balmford A. (2004) Financial costs and shortfalls of managing and expanding protected-area systems in developing countries. *Bioscience* **54**, 1119-1126.

Millennium Ecosystem Assessment. (2005) Ecosystems and human well-being: Policy Responses: Findings of the Responses Working Group of the Millennium Ecosystem Assessment. Island Press, Washington, D.C.

Sutherland W.J., Pullin A.S., Dolman P.M., Knight T.M. (2004) The need for evidence-based conservation. *Trends in Ecology & Evolution* **19**, 305-308

Hello Michelle,

The last-minute thing is unfortunate.

From my perspective:

- (1) The Queensland (and Australian) landscape has been irrevocably changed by the introduction of highly productive, but highly invasive, exotic pasture grasses and legumes.
- (2) Without grazing these species outcompete native species, often producing greater and taller levels of biomass.
- (3) In lands without stock the biomass carries the risk of destructive fire encroaching on native ecosystems.
- (4) National parks and other reserve systems are most vulnerable to these issues.
- (5) Many of Queensland's ecosystems are fire sensitive. These include the great Acacia ecosystems (Brigalow, Gidgee, Blackwood and others) and dry rainforests (especially softwood scrubs).
- (6) Grazing is recognized as an effective way of reducing the bulk of fire fuel around these sensitive ecosystems.
- (7) Converting state forests to national park removes the tool essential to controlling the bulk of exotic grasses and other fire fuels.
- (8) To date the grazing of these forests has assisted in controlling the fire risk .
- (9) QPWS would require a lot of extra resources (people and funding) to manage fuel loads by traditional methods (fire trails, fuel reduction burns).
- (10) QPWS is trialing the controlled use of grazing as a biocontrol agent for invasive pasture grasses in national parks where fire sensitive ecosystems occur – using neighbors to assist. So in state forests why remove the effective managers only to "buy" them back.
- (11) Community partnerships in the provision of or maintenance of environmental services on traditionally grazed lands is a more sustainable solution.

Hope this is useful. Regards

Alistair Melzer

Senior Research Fellow, Centre for Environmental Management. Central Queensland University.

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Title Reference: 40032656 Date Created: 24/05/2002

DESCRIPTION OF LAND

Tenure Reference: TL 0/217322

LOT	3	CROWN PLAN RU23			
		County of RUTLEDGE	Parish	of	MOORLANDS
		Local Government: ISAAC			
LOT	5	CROWN PLAN RU54			
		County of RUTLEDGE	Parish	of	MOORLANDS
		Local Government: ISAAC			
LOT	A	SURVEY PLAN 128605			
		County of RUTLEDGE	Parish	of	CLYDE

For exclusions / reservations for public purposes refer to Plan SP 128605

Local Government: ISAAC

Area: 22592.000000 Ha. (ABOUT)

No Land Description

No Forestry Entitlement Area

No Future Conservation Area

Purpose for which granted: GRAZING - STATE FOREST

TERM OF LEASE

Term and day of beginning of lease

Term: 17 years 11 months commencing on 01/02/2002

Expiring on 31/12/2019

REGISTERED LESSEE

Dealing No: 710046521 26/10/2006

ALISON GLENDA FINGER

CONDITIONS

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CONDITIONS

- A65 (1) The lessee must use the leased land for grazing purposes only.(2) This lease may be forfeited if not used for the purposes
 - stated above.
 - (3) The annual rent must be paid in accordance with the Land Act 1994.
 - The Parties acknowledge that GST may be payable in respect of (4) a supply made under this lease. Where GST becomes payable in respect of a supply made under this lease, the State (lessor) may recover the GST from the lessee by increasing the consideration payable by the lessee to the State by an amount equal to that which the State is obliged to remit to the Commonwealth as GST $\,$ on the supply, and that amount may be $\,$ recovered from the lessee as part of the money payable to the State under this lease. The State will upon request by the lessee, issue to the lessee a valid GST tax invoice in respect of any taxable supply made under this lease. (NOTE: For the purpose of this condition "GST" means the goods and services tax which results from the enactment of A New Tax System (Goods and Services Tax) Act 1999 and the related Acts which constitute the Commonwealth taxation reform (as amended from time to time)).
 - (5) The lessee must pay the cost of any required survey or re-survey of the leased land.
 - (6) The lessee must control pest plants and animals, on the leased land, in accordance with the Land Protection (Pest and Stock Route Management) Act 2002 and the Local Laws and requirements of the Belyando Shire Council.
 - (7) The lessee must give the Minister administering the Land Act 1994, information about the lease, when requested.
 - (8) The lessee has the responsibility for a duty of care, to take all reasonable and practicable measures to sustainably manage the leased land by conserving the physical, biological, productive and cultural values, either on the leased land or in areas affected by the management of the leased land.
 - (9) The lessee indemnifies and agrees to keep the State of Queensland, Crown Instrumentalities, local governments and other statutory bodies (the Indemnified) against all actions, suits, proceedings, claims, demands, costs, losses, damages and expenses (Claim) arising out of or in any way connected to or resulting from the State of Queensland granting this lease to the lessee and which is connected to or resulting from the lessee's use and occupation of the leased land (all referred to as the indemnified acts or omissions) save to the extent that the Claim arises as a result of any negligent act or omission of the State of Queensland. The lessee hereby releases and discharges the Indemnified from any Claim relating to the indemnified.
 - (10) Except as hereinafter provided the lessee must not interfere with any forest products or remove any quarry material (including any stone, gravel, sand, earth, soil, rock, guano or clay which is not a mineral within the meaning of the Mineral Resources Act 1989) or other material upon the leased

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CONDITIONS

land without the permission of the Minister administering the Land Act 1994 except under the authority of and in compliance in every respect with requirements of a permit, licence, agreement or contract granted or made under the Forestry Act 1959.

- (11) The right of resuming the whole or any part of the leased land at any time on giving six (6) months notice is reserved to the State. Should this right be exercised, the lessee will be compensated for lawful improvements existing on the land so resumed provided that:
 - (i) Such improvements existed and were owned by the lessee from the commencement of the lease;
 - (ii) In respect of improvements erected after the date on which the lease commenced, prior approval to the erection of such improvements had been obtained and it had not been indicated at the time of approval that compensation would not be payable in respect to same;
 - (iii) Ringbarking and clearing will not be regarded as improvements;
 - (iv) No compensation will be payable in respect to the unexpired period of the lease.
- (12) At the forfeiture, surrender or expiry of the lease, the lessee will have the option of removing all fencing or structural improvements exising on the leased land owned by the lessee within a period of six (6) months provided all money due by the lessee to the State on any account whatsoever has been paid. Should the land be not again leased to the lessee after the forfeiture, surrender or expiry of the said lease and the lessee not being desirous of exercising the lessee's option of removing all or any part of the fencing and/or structural improvements, the lessee will be compensated for:
 - (i) Such improvements as were existing on the leased land at the commencement of the lease and owned by the lessee;
 - (ii) Improvements, including water improvements erected with prior approval since the commencement of the lease provided it had not been indicated when such approval was given that compensation would not be payable in respect to same.
- (13) Should, in the opinion of an authorised officer responsible for the district, damage be caused or likely to be caused to the leased land or to the tree growth on the leased land by the number of stock being grazed at any time, the lessee must forthwith reduce the number of stock being grazed to a maximum number as specified by an authorised officer for the district by notice in writing to the lessee.
- (14) The lessee shall keep the leased land, in a clean, orderly and sanitary condition. No household refuse, construction materials, car bodies or refuse of any other nature is to be deposited or accumulated on the lease. All refuse of any nature upon the leased land is to be removed to an approved local government refuse facility.
- (15) The right is reserved for any authorised Officer of the

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Department of Natural Resources and Mines or the Environmental Protection Agency as a fire protection or silvicultural measure to carry out burning on the leased land either in part or whole. Where this is necessary for other than immediate fire fighting purposes the lessee or their agent will be given as much notice as is practicable but not less than seven (7) days. In the case of burning on constructed fire breaks or breaks in the course of construction the Department of Natural Resources and Mines or the Environmental Protection Agency may carry out such work as it considers necessary without advice to the lessee.

- (16) When the lessee is not residing on the leased land, the Department of Natural Resources and Mines or the Environmental Protection Agency may, by notice in writing, require the lessee during such periods as may be stipulated in such notice to notify the Department of Natural Resources and Mines or the Environmental Protection Agency at least twenty-four (24) hours beforehand of their intention to visit the leased land and of the date of such visit.
- (17) The lessee must not clear any vegetation on the leased land, unless in accordance with the written authority of the Environmental Protection Agency.
- (18) This lease is subject to the Land Act 1994, the Forestry Act, the Nature Conservation Act and the Environmental Protection Act and all other relevant State and Commonwealth Acts.
- A69 Further to Condition A65(12) above, the lessee must remove all improvements and rehabilitate the area to the satisfaction of the Minister administering the Land Act 1994 and the Minister administering the Forestry Act 1959 from the date of forfeiture, surrender or expiry of the lease.
- A70 If the lessee fails to remove the improvements and rehabilitate the area as detailed in Condition A69 above, the Minister administering the Land Act 1994 and the Forestry Act 1959, can remove the improvements and rehabilitate the area and is hereby authorised to do whatever is necessary to effect the said removal and rehabilitation. The said Minister may recover from the lessee the total cost incurred in the said removal and rehabilitation.
- C342 The lessee must comply with any lawful requirements of the Belyando Shire Council.
- C343 The lessee must from the commencement of the lease and to the satisfaction of the Minister administering the Land Act 1994, construct and maintain firebreaks on the leased land.
- C344 The lessee must not under any circumstances carry out any cultivation on the leased land.

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- C350 Upon forfeiture, cancellation or expiry of the lease, the lessee must remove from the leased land all cattle owned by the lessee. Any cattle not removed from the leased land within six (6) months from the date of forfeiture, cancellation or expiry of the lease, will become the property of the State and maybe disposed of or otherwise dealt with as the Minister administering the Land Act 1994 may determine. The lessee has no right to compensation or any claim against the State in respect of the loss of ownership of any cattle.
- E22 The lessee must, protect the leased land from erosion and effect such works as are considered necessary .
- G61 The lessee of this lease is not allowed to make an application for conversion in terms of the Land Act 1994.
- H122 The lessee must, at all times during the currency of the lease, allow any person authorised under the Land Act 1994 or the Forestry Act 1959 free and unrestricted access to, from and across the leased land.
- H123 The provision of access to the leased land will not be the responsibility of the Belyando Shire Council or the State.
- J15 The lessee must manage the leased land in a manner that will not interfere with or restrict the rights of the public in the use of the leased land for the purpose of State Forest for which it was dedicated in particular and without limiting the generality of this condition; so that all the relevant duties and functions in terms of the Forestry Act 1959 may be performed and carried out.
- L109 The lessee must not effect any structural or further structural improvements on the leased land, without the approval of the Minister administering the Land Act 1994, the Forestry Act 1959 and any other relevant authority, having been first obtained.
- L110 The lessee must from the commencement of the lease and, to the satisfaction of the Minister administering the Forestry Act 1959, maintain all improvements on the leased land in a good and substantial state of repair.
- Q18 Any person authorised by the Environmental Protection Agency, must at all times during the term of the lease , have free and unrestricted use of all water on the leased land for any purpose connected with the management of the State Forest or for fire protection.
- Q19 The lessee must not light fires or carry out burning operations on the leased land without the prior approval of the Environmental Protection Agency or the Department of Natural Resources and Mines.
- S49 The lessee must not take stock on agistment on the leased land without the approval of the Environmental Protection Agency having been first obtained.

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S50 The lessee must, if required by the Environmental Protection Agency increase or decrease the numbers of stock grazing on the leased land.

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X103 In addition to the obligations under The Workplace Health & Safety Act 1995, its Regulations, Codes of Practice and any amendments thereto, the Environmental Protection Agency (herein referred to as the EPA) requires the lessee to comply with and to ensure that any other person (including the lessees' employees, contractors, sub-contractors and their employees) on the leased land for the purpose of, or in association with, the carrying out of any activity under the authority of the lease complies with, the following safety conditions. Where the safety conditions require a higher degree of safety than outlined in the The Workplace Health & Safety Act 1995, its Regulations or approved Codes of Practice, then the lessee shall comply with the safety conditions.

Accident Reporting

Death or Hospitalisation - The details of any accident causing death or hospitalisation of a person where the accident may be directly or indirectly attributed to Forest Harvesting must be reported to the Department of Natural Resources and Mines within 24 hours of its occurrence.

Personal Protective Equipment

Helmets - An industrial safety helmet and appropriate accessories conforming to AS1801 - Industrial Safety Helmets and AS1800 - The Selection, care and use of Industrial Safety Helmets, must be used by any person exposed to the risk of head injury.

Plant

ROPS and FOPS - Any machinery used in the operation which requires an operator to be positioned on it during use, must incorporate an appropriate operator protective structure.

Operator protective structures include Roll Over Protective Structures (ROPS), Falling Object Protective Structures (FOPS), or some other structure which will offer protection in a particular application. Incorporation of seat belts is a requirement of Australian Standard rollover protection.

Where possible, all ROPS must comply with standards equivalent of AS2294 - Earth Moving Machinery - Protective Structures or AS1636 - Agricultural Wheeled Tractors Roll Over Protective Structures - Criteria and Tests.

Where possible, all FOPS must comply with standards equivalent to AS2294 - Earth Moving Machinery - Protective Structures.

Seat belts must comply with AS2664 - Earthmoving Machinery - Seat Belts and Seat Belt Anchorages. Seat Belts wher fitted, must be worn at all times while the harvesting plant is in operation unliess the wearing of seat belts endangers the operator or others eg: restricting movement or vision.

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Where the Australian Standard cannot be applied (such as ROPS for excavators),or where ROPS and FOPS are not readily available, an operator protective structure which provides appropriate protection must be designed to an appropriate standard by a competent person. The structure must be manufactured and fitted by a suitably qualified tradesperson.

At any time that the lease is in effect, the lessee must if required by the Department of Natural Resources and Mines, within the time reasonably specified by that officer, produced documentary evidence from a competent person that the protective structure fitted to any item of plant does at that material time meet the standard specified in this clause.

Certificates of Competency

Vehicles and Harvesting Plant - Any person driving or operating a vehicle or any plant used on the leased land must possess a current Certificate of Competency where applicable, and must produce such certificate if required by the Department of Natural Resources and Mines, within the time reasonably specified by that Officer.

Chainsaws - Any person operating or using a chainsaw must possess a Certificate of Competency in the operation of chainsaws and produce such certificate if required by the Department of Natural Resources and Mines, within the time reasonably specified by the officer.

Safety Signs

Roadside Activities - Roads must be temporarily closed at access points to hazardous areas by the use of Safety Signs, appropriate authorised temporary barries and/or traffic control personnel whenever lease operations constitute a hazard to road users.

Other Specific Hazards - Safety Signs must be used to identify the boundary of any immediate Danger Zone.

Removal of Sign - Every sign erected in accordance with the above must be immediately removed upon cessation of the hazard applicable to the particular sign.

Other

No person engaged in the lease operations is to behave in a manner likely to cause danger to themselves or to any other person.

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ENCUMBRANCES AND INTERESTS

ADMINISTRATIVE ADVICES - NIL UNREGISTERED DEALINGS - NIL

Corrections have occurred - Refer to Historical Search

** End of Current State Tenure Search **

Information provided under section 34 Land Title Act(1994) or section 281 Land Act(1994)