

## **Australian Landcare Council**

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### **Report on the Australian Regional Environmental Accounts Trials**

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**Wentworth Group of Concerned Scientists**

We have, for well over a generation, had an aspiration to live sustainably in Australia - to live off the interest rather than degrade the natural capital that this vast, ancient continent and the seas that surround it, provide us.

Despite the spending of billions of dollars and a sea of regulations, by any measure we have demonstrably failed.

Despite all the committees and all the studies and all the brochures and all the reports written over the past 30 years, we cannot even define what living sustainably in Australia actually means.

Our generation will not leave our environment in a better condition than the one we inherited. We have failed ourselves, and we have failed the generations of Australians who are to follow us.

What does living sustainably in Australia actually mean?

It means conserving our biodiversity - it means maintaining the environmental assets that underpin our food and fibre and freshwater in a healthy condition.

That is not a difficult concept to understand. So why have we failed?

That is quite simple: we do not provide the necessary resources to those people who are custodians of our land and water and marine resources to restore and maintain these assets in a healthy condition.

In plain English: we do not reward farmers for running ecologically sustainable farms.

These people can't afford to do it by themselves, and as a consequence our environment continues to degrade.

And even if we genuinely do decide to do this, we can't, because we have no way of measuring the condition of those environmental assets that we want maintained in a healthy condition. If you don't measure it, you can't manage it - and therefore you can't reward it.

That is the underlying motive for the Wentworth Group's involvement in environmental accounting.

If we do not have a system for measuring the condition of our environmental assets and if we do not find a way to reward farmers or other managers of our land and water resources for restoring and then maintaining these assets in a healthy condition, we will never – ever – live sustainably in Australia.

First and foremost is a set of environmental accounts capable of telling us the condition our environmental assets are in and whether their condition is improving or degrading.

And these assets accounts need to be at a scale that will inform both policy and investment decisions - and then monitor the effect of our policies and investments.

In 2008, in an effort to overcome this systemic failure in landscape conservation, the Wentworth Group worked with other science, statistics and economic experts to develop a method for measuring the condition of environmental assets - in a manner that can inform economic and policy decisions - at a catchment and sub-catchment scale.

Importantly for Landcare is that this same method should be able to be used to measure asset condition at the property scale - and that eventually this property scale account would be linked to investment deriving from the regional accounts. But that is for the future.

The model is called *Accounting for Nature*. It's available on our Wentworth Group website.

The *Accounting for Nature* model is founded around three concepts:

- Firstly, ecosystem services are produced by maintaining environmental assets in a healthy condition;
- Secondly, if they are to inform economic and policy decisions, accounts that measure asset condition need to be collected at a landscape scale, because it is at this scale that landscape processes function; and
- Thirdly, it creates a common unit of measure - a common currency for the environment - using the long established science of reference condition benchmarking – so that it is possible to construct the accounts.

This concept of a common unit of measure is fundamental to improving investment and policy decisions in natural resource management:

- it allows a comparison of the condition of one asset with any other asset – a river with a forest;
- it allows different indicators to be used to measure the same asset in different regions; and ...
- it allows the aggregation of the regional information to create national environmental asset condition accounts.

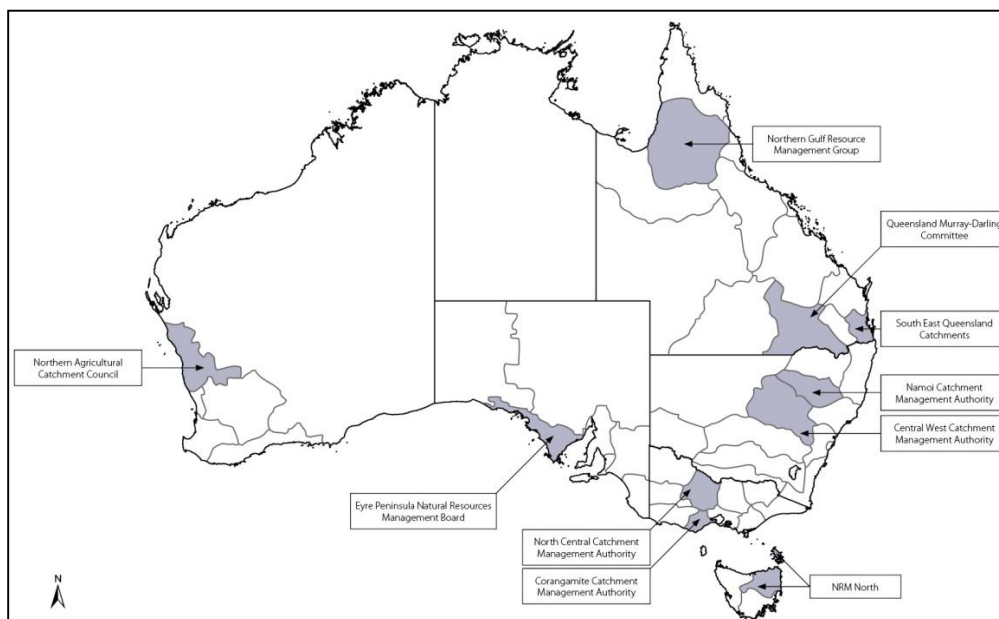
Despite some initial political setbacks, with the support from many dedicated scientists, statisticians and policy experts from both Commonwealth and State government agencies, universities, the ABS, the BOM and CSIRO, I am delighted to report significant progress.

In 2010, the NRM Chairs decided to conduct their own, continental scale, proof of concept trial of the *Accounting for Nature* model.

In doing so, they applied two tests:

- they would seek no new funding support from government, and
- they would, wherever possible, construct the accounts using existing data.

Ten of the 56 NRM regions across the country have been involved in the Regional Environmental Accounting Trial.



They reflect vastly different landscapes, vastly different environmental pressures, and comprise regions with vastly different resources and access to information.

The test is not whether well resourced, data rich regions can develop accounts – we know they can – they test is whether all regions with vastly different issues can do so.

The Wentworth Group was asked to support these trials, and with the generous support of the Ian Potter Foundation, we were able to employ a specialist of assist the regions put their accounts together, and to co-ordinate the scientific accreditation process.

Accreditation is fundamental to the success of environmental asset condition accounting, and I am delighted to report that largely as a result of our work, this has now been recognised by the international statistics community in the endorsement of what they are calling Experimental Ecosystem Accounts, by the UN Statistics Division last month.

The concept of asset condition accounting is quite simple, as is the concept of the common unit of measure. After all, we've had economic currencies for centuries.

The challenge for environmental accounting is that it is very difficult to measure some assets at scales that can inform economic decisions – soil health for example, and the cost

of data collection, particularly regular data collection to pick up trend and determine cause and effect, is very expensive.

For example, our science committee has rejected the use of spatial extent as an appropriate measure of condition of native vegetation.

Extent measures make very interesting tables, but Australian vegetation is subjected to a vast array of environmental pressures not just clearing of forests - weeds, feral animals, over grazing, inappropriate fire management.

If an extent measure alone was used to guide investment decisions they would produce very perverse outcomes. Our trials will demonstrate this.

You would end up funding for example, the expansion of invasive native scrub, instead of paying farmers to clear some to help restore a mosaic grassland landscape.

Measuring the quality of the vegetation is far more challenging than simply measuring spatial extent by satellite.

This is one example.

There are equally problematic issues with constructing regional scale soil conditions accounts that satisfy the public policy test that they can inform policy and investment in natural resource management.

This has been the focus of this program over the past two years - assisting regional NRM groups to construct regional-scale environmental asset condition accounts, including the development of scientific, accounting and accreditation standards and the implementation of an accounting framework that is capable of being implemented across a range of scales.

The focus of 2011 was the development of design standards and testing of a methodology for constructing regional accounts based on a common unit of measure.

We established two expert committees to assist with the trials:

- a *Scientific Standards and Accreditation Committee* to accredit the science, and
- a *Technical Accounting Committee* to ensure the information fits within an appropriate environmental-economic accounting framework.

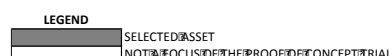
These Committees produced a set of resources that provide advice and structure to constructing the accounts, including:

- Guidelines, which set out a 6 step process for constructing the asset condition accounts;
- An Accreditation Manual, which sets the standards for their accreditation; and
- A series of Technical papers describing scientific methodologies determining for 'Econds' (the common unit of a condition measure) for some of the common and more technically challenging environmental assets.

Table 1 lists the 10 NRM regions participating in stage 1 ‘proof of concept’, and describes the current status of the accounts for each of assets in each of those regions.

**Table 1: Submitted Assets for Regional Environmental Accounts Trial, October 2012**

Region	Land				Water				Coast		Marine		
	Native Meg	Native Fauna	Soil	Novel	Rivers	Wetlands	Ground-water	Floodplains	Estuaries	Novel	Sensitive Species	Fisheries	Novel
EP													Southern Right Whales
NRM North													
NACC													
Northern Gulf													
QMDC				Native Flora									
SEQ													Moreton Bay
Corangamite													
North Central													
Namoi													
Central West													

**LEGEND**  


We are now in the process of compiling these ‘proof of concept’ environmental asset condition accounts, and then reviewing the results.

The regional Australian trials have also attracted significant international attention.

Because they are real world, continental scale trials, they have made a significant contribution to the development of an international standard for environmental accounting for ecosystems led by the United Nations Statistical Division.

The international statistical community has now accepted our argument that a condition measure must be based on science.

You have received in your papers a copy of the presentation we gave to the UNSEEA Committee last year.

I do not intend to take you through that paper today.

I will however, give you a couple of samples of what we are doing so that you can see what an asset condition account looks like and how these asset accounts:

- firstly, lead to better policy decisions;
- secondly, inform better investment decisions; and
- thirdly, provide the platform for measuring whether the investments are producing the benefits we expected.

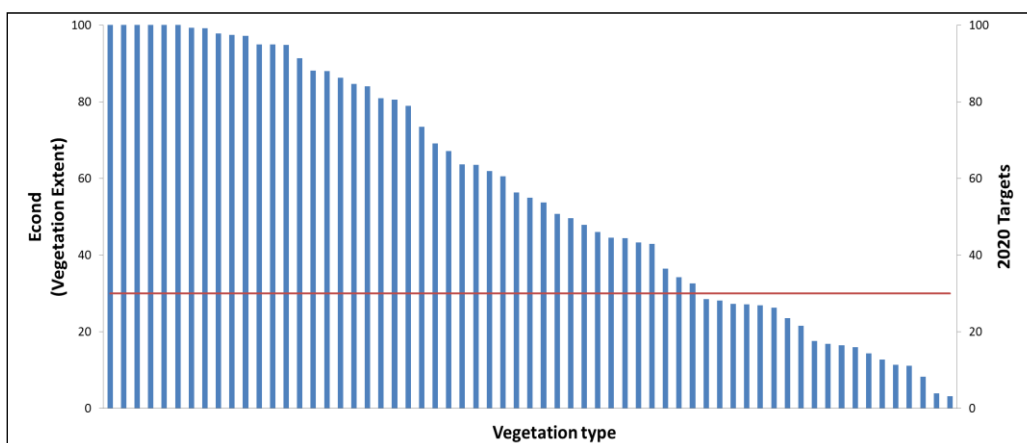
This is an example of what an actual account would look like.

**ASSET table (Native Vegetation)**

Native vegetation				2012	
				2012 Measure	2012 Condition Score
	Indicator*	Unit of Measure	Reference Condition Benchmark		
<b>Econd TOTAL</b>	extent+condition +connectivity (weighted by current area) for all veg types together	extent +condition +connectivity index	100.00	58.01	
<b>VA1 Econd</b>	extent+condition +connectivity		300.00	228.50	76.17
Arid & semi-arid acacia low open woodlands & shrublands with chenopods	Vegetation extent	Ha	186558.30	165245.94	88.58
	Vegetation condition	condition index	100.00	66.30	66.30
	Vegetation patch metric	Connectivity index	100.00	73.62	73.62
<b>VA2 Econd</b>	extent+condition +connectivity		300.00	127.84	42.61
Arid & semi-arid hummock grasslands	Vegetation extent	Ha	23319.79	5012.70	21.50
	Vegetation condition	condition index	100.00	59.67	59.67
	Vegetation patch metric	Connectivity index		46.67	46.67
<b>VA3 Econd</b>	extent+condition +connectivity		300.00	186.42	62.14
Callitris forests & woodlands	Vegetation extent	Ha	23319.79	17594.58	75.45
	Vegetation condition	condition index	100.00	62.80	62.80
	Vegetation patch metric	Connectivity index		48.17	48.17

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It is for the native vegetation asset in the Eyre Peninsula in South Australia, and shows the indicators, the units of measure, the reference condition benchmark, the measure for one accounting period (2012), and the condition score for each vegetation type – there are 23 in this region (eg Callitris forest has an Econd score of 62), and an overall condition score (the Econd) for the native vegetation asset in that region (58).



This example is from the Namoi CMA in NSW. It ranks the condition each of its 77 vegetation types, and used this to inform its catchment planning priorities.

On the RHS is the catchment target from their recently accredited catchment plan.

Their Catchment Plan process, conducted over a number of years, concluded that the Namoi valley would be a healthy and productive environment, taking into account social and economic factors, if over-cleared vegetation communities were restored to a 30% level.

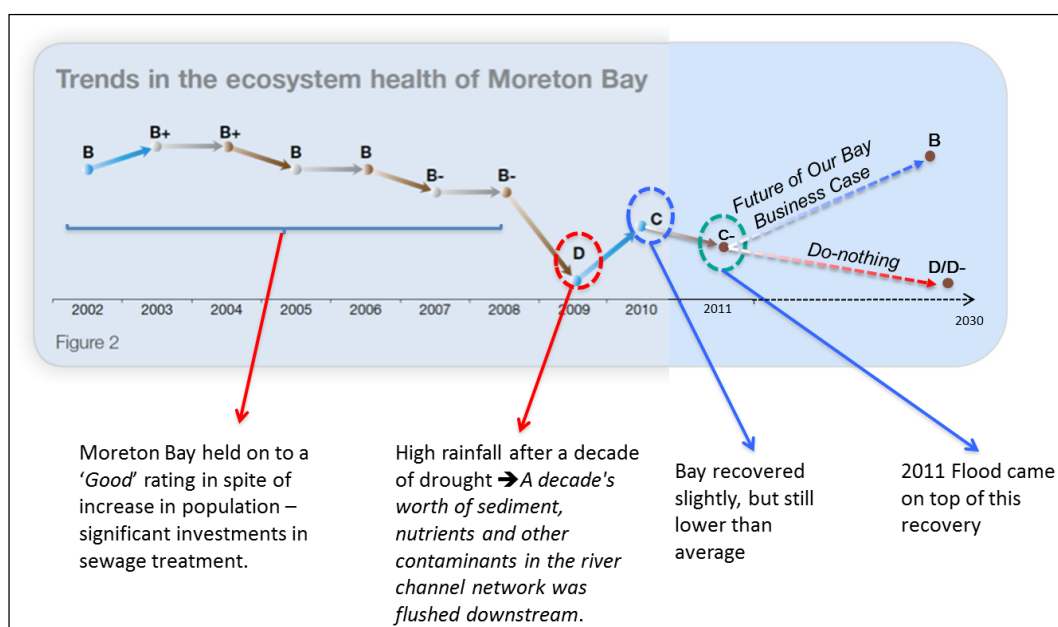
This same account that was used to inform that policy process can now be used to calculate the cost of meeting their 2020 target.

By taking the current extent of each under-represented vegetation type, it is possible to calculate the area of restoration required to achieve the 30% target, and based on previous project expenditure, you can estimate a total restoration cost.

They are only able to do this, because their environmental condition account is able to connect asset condition to policy targets and policy targets to investment decisions.

These two examples of native vegetation show what can be achieved with a single measure over one accounting period.

This final example shows how trend data can be incorporated into catchment models to estimate the likely impact of population growth in South East Queensland on the long term condition of the Morton Bay Ramsar listed Estuary - environmental asset of international significance.



With this information they are able to cost the infrastructure investments needed to satisfy the policy objective to maintain the waterways in their current condition.

That investment comes to \$570 million over 15 years - less than 1% of the overall infrastructure budget for SEQ.

And as you can see, over time, these same asset condition accounts will measure progress towards achieving those targets.

In conclusion, I hope in this short time, I have been able to demonstrate just how important a national system of regional scale environmental asset condition accounts is to the achievement of our national aspiration to maintain our natural capital in a healthy condition.

In the 1950s national economic accounts were constructed with little more than an educated guess. Look at their sophistication now. They don't guarantee humans will always make the right economic decision but look at what we have in material well-being today.

Just imagine how much healthier our environment will be when we develop national environmental accounts with the same sophistication.

I am sure you can tell, that as a result of the leadership from the country's NRM Regions, and the phenomenal level of cooperation we have been receiving from dedicated professionals in government agencies, universities and CSIRO, we hope to be in a position later this year to go back to government with the results of this continental scale proof of concept trial, and seek their commitment to setting up the world's first, comprehensive national scale environmental condition account.

Because only then, will it be possible to live sustainably in Australia.

Thank you.