Western Murray
Land Improvement Group

ENVIRONMENTAL ACCOUNTING

Carbon Trial

BACKGROUND

The Western Murray Land Improvement Group (WMLIG) compiled a scoping document called the Edward Wakool Land Stewardship Incentive Programme. This document outlines the attributes of the region for consideration for involvement in a regional pilot program, as well as scoping opportunities for landholders to receive an income for natural assets. The proposal is designed to diversify farm income streams to provide a financial buffer against adverse conditions such as drought.

National and international agreements under the United Nations Framework Convention on Climate Change (UNFCCC) enforces that nature-based solutions must be explored and implemented worldwide to reach net-zero greenhouse gas emissions by no later than 2050 (Hacking, J et al., 2021). Falling under the definition of ‘nature-based solutions’, reduction of carbon emissions and carbon offsetting has become the nucleus of mitigating climate change in many developed countries.

As such the development of carbon markets and carbon trading has grown exponentially since 2015.

In 2011 Australia passed The Carbon Credits (Carbon Farming Initiative) Bill. The focus of the Bill was to incentivise carbon abatement or avoidance projects within the farming sector. Up until now the carbon farming sector has not been a focal point of many farmers in Australia. However, in recent times the carbon markets, both nationally and internationally, have become more attractive to landowners due to both the demand for carbon offsetting and attractive potential financial gains. Project funding support has been provided by Local Government NSW under that Building Our Communities in Advance Program.

CARBON PILOT

WMLIG have investigated carbon opportunities for landholders in our region by undertaking a detailed analysis of the current markets and the opportunities present. As part of this process WMLIG ran a Pilot carbon assessment project. The Pilot was conducted on Peter and Wendy McDonald's property 'Glencoe', located in Caldwell on the Thule Lagoon. The Pilot consisted of employing FarmLab (a company that provide agronomy and natural capital project management software) to create a 'digital twin' of the property, and guide WMLIG through the process of taking soil carbon measurements.

Property Assessed	356.30ha
Ground Cover	75%
Forested	15%
Current Soil Carbon	1.2%
0.5$ Increase soil carbon sequestration (tCO2-e)	27,299
0.7% Increase soil carbon credit units (ACCU's)	38,218
Market Price Australian Carbon Credit Units (ACCU's)	$17-22
Limitations	• Medium rain fall area • Drought Prone

1)Australian Carbon Credit Unit's (ACCU's) are the credits generated and traded through the Australian Clean Energy Regulator (CER).

a)ACCU's can be either traded on the Australian carbon market at current market prices OR the landowner can enter into a carbon abatement agreement with the Australian Government at a set price per year.

2)International Emissions Reduction Unit (ERU) credits are generated when the international standard of the Kyoto Agreement is met when accounting for soil carbon.

a)An ERU can be traded on many differing International Private Market's often gaining a higher financial return on the credit than the Australian ACCU.

3)Carbon Insetting refers to the use of carbon credits (either ACCU's or ERU's) to officially offset one's own emissions footprint.

a)Carbon Insetting seeks to attach a higher value to the end commodity being generated on the property as the product can be officially deemed and marketed as "carbon neutral".
b)Niche market opportunities in discerning markets seeking carbon neutrality that command higher prices.

NOTE: Findings from our Pilot project at Glencoe have realised that climate limitations in our region limit potential for soil carbon gains to be made. This is due to multiple factors including our low rainfall.

c)As soil carbon gains don't appear to be particularly financially attractive, one option that is worth exploring is the generation of ACCU's through Environmental Plantings. This is a current and verified option under the ERF to do so. Although not explored in this pilot, WMLIG are currently working on another project to plan and implement a large scale ERF Environmental Planting. The benefits of improved soil carbon are borne out in improved productivity gains/soil moisture holding capacity rather than via the carbon market.

BIODIVERSITY PILOT

The idea of having a payment system in place for ecosystem services is not a new one. However, alongside new carbon trading market opportunities, both biodiversity offset credit trading and biodiversity stewardship programs are growing rapidly in Australia. The United Nations (UN) states that currently biodiversity is declining globally at unprecedented rates. The notion of creating a biodiversity market aims to encourage the restoration of existing biodiversity whilst discouraging further land clearing. The mechanism to support this is the development of a market (or in this case numerous markets) which provide financial incentives to landowners to manage land in an ecologically sensitive manner.
Biodiversity market opportunities to create land stewardship income markets are in their infancy in Australia, which leads to great opportunity for landowners and farmers alike. As such, it is imperative that landowners are provided with sound independent information. WMLIG aim to keep up to date with research, policy and market developments so that we are in the best position to inform our community.

Alongside the soil carbon pilot, WMLIG are undertaking a Biodiversity Pilot on the property 'Glencoe', located in Caldwell, NSW. Whilst embarking on this project under the Murray River Council's Building Our Community in Advance Program, it became apparent to WMLIG that extensive research is needed into the differing types of biodiversity assessment methodologies. This research will eventually allow WMLIG to decide what methodology will be the most appropriate for use on private land (i.e. farms) in NSW.
WMLIG have spent time undertaking an on-farm Pilot that targets an independent biodiversity market. However, we did also undertake a preliminary Biodiversity Offset assessment, that produced an estimation of value ($) of the NSW recognised biodiversity credits on ‘Glencoe’ at an indicative average of the market price per unit. This preliminary assessment was done by implementing a ‘desktop’ style assessment by an experienced ecologist from a private business 'Bio-Conservancy Australia. '

Description of picture/map/graphic etc

REGEN FARMERS MUTUAL

WMLIG have been involved in a co-designing a farmer owned mutual known as the Regen Farmers Mutual (RFM).
The RFM helps farmers be rewarded for stewardship by enabling access to environmental markets and creating a high value brand. WMLIG is a member of the RFM development Steering Committee. The mutual focuses on aggregation to increase the scale and reduce costs per farmer. WMLIG will provide landholder engagement services such as aggregating properties into a biolink and assist in taking a product to market. This reduces the scale and costs per farmer. WMLIG also has a role to provide working examples back to landholders, such as lessons learned.

WMLIG Biodiversity Pilot Overview of different biodiversity market options.

- Biodiversity Credit Offset Scheme (NSW Government)
- Biodiversity Credit Trading Private Market (Regen Farmers Mutual)
- Farming for the Future Pilot (partnering with National Farmers Federation)
- Endangered Flora and Fauna Species Offset Scheme (NSW Government)
- Carbon and Biodiversity Pilot (Australian Government)
- Enhancing remnant vegetation Pilot (Australian Government)
- National Stewardship Trading Platform (Australian Government)
- Farm Biodiversity Certification Scheme (Australian Government)
- Australian Ag Sustainability Framework (Australian Government)

As you can see by the myriad of options displayed above, the biodiversity market options are quite diverse in Australia at the moment. We have found it be complex to navigate thus far. Current opportunities span both governmental (State and Federal) as well as independent frameworks.

Document - A document by Western Murray Land Improvement Group Inc.

BIODIVERSITY ASSESSMENT METHODOLOGIES

The biodiversity pilot conducted at 'Glencoe' was oriented towards the private market. The first step was to identify the best biodiversity assessment methodology that could be implemented in an on-farm setting. Our findings were that the methods available for use in our region (NSW) are limited. Three different methodologies in-field. The research process was more time intensive than anticipated and unfortunately, we haven't yet achieved our initial goal of having a whole farm assessed with a report to take to the private market.

Scientific rigour and robustness were key elements in which we assessed methodologies against. Importantly the following parameters were also considered, including ease of application, pre-field work, in-field work, post-field work as well as the data manipulation and analysis phase. The conclusion was reached that the highly rigorous methodologies are perhaps too intensive and costly to be implemented at an initial farm assessment level. We began looking into a "staged approach" in which an initial property assessment could be done to provide landowners a high-level summary of natural capital potential. This would allow the landowner to then make an educated decision as to whether natural capital was something they wanted to pursuit, without a large outlay of costs to do so.

PRE 1750 BENCHMARK DATA

Although there are many methodologies available, it came to light that NSW doesn't have a lot of readily accessible published bench-mark biodiversity data. This became an issue when investigating methodologies available in different states. Many biodiversity assessments rely upon the use of this published reference data to treat the in-field data, post collection. What this means is that although the methodologies can be followed, in field, to collect the raw data, when the data is to be manipulated and analysed post-collection, the process couldn't be finished as the reference data is key to following these processes. As such, WMLIG identified a considerable hole for NSW in the available methodologies. After being in contact with Local Land Services it became clear that the best available method for this application is the NSW governments Rapid Assessment Method (RAM). The RAM requires small adjustments in its processes as it has been written for the assessment of roadside reserves. However, WMLIG are in the process of working with LLS and RAM creators to make the necessary changes so that the RAM can be used in on-farm settings. Although not progressing as far as we had hoped, this process has allowed WMLIG to gain considerable learnings and create valuable relationships within the industry.

A detailed report and assessment of differing methodologies is available upon request from WMLIG.

Murray River Council Leadership Team Engagement, Emergency Response, Natural Capital:

WMLIG met with a skilled community leadership team on a quarterly basis to share information, identify and respond to strategic priorities, track implementation of projects, identify emerging issues or amendments to MRC's Adverse Event Plan.

Feedback provided by the Leadership Team was that any landholder contracts that change the financial value of natural assets have implication s for emergency services and resource prioritisation. Contact information needs to be communicated.

Discussions on the day touched upon the priority rating system utilised in our region when emergency services are being deployed. The idea of specific sites that have particular Natural Capital value, being prioritised over sites without significant Natural Capital was raised. The idea received support and now being looked into. One such system of allowing priority to be given to areas of particular significance is the Biodiversity Stewardship and Biodiversity Credit platforms. Whereby sits that land registered under these frameworks could have the potential to be given priority in a disaster time such as fire/floods.

BIODIVERSITY PILOT METHODOLGY SUMMARIES

WMLIG reviewed a range of the methodologies that have been developed to conduct biodiversity assessments. Several assessment methods require reference back to pre-1750 landscape reference data to compare current landscape condition for analysis purposes. WMLIG could not find pre-1750 reference data available for use that was applicable for NSW. The data is more widely available in Queensland and Victoria. WMLIG welcomes feedback if our interpretations on findings are incorrect.

The following is a brief summary of our findings regarding biodiversity assessment methods:

Accounting for Nature

- Requires pre-1750 reference data for condition scoring and benchmarking purposes. This data was not published for our local region.
- Privately developed

Habitat Hectares

- Requires pre-1750 reference data, therefore not applicable to our region
- Method developed by Victorian Government
- Doesn't require multiple transect sites to be assessed to be used, which makes it an easy to implement method that provides a great, brief overview of natural capital of any given site

Biodiversity Assessment Method (BAM) (NSW Government Method)

- A qualified assessor is required to undertake this methodology
- There are only approximately 400 accredited assessors in the whole of NSW
- Results are incredibly robust
- Involves many transect sites per assessment and as such can be very costly

Rapid Assessment Method (RAM)

- NSW Government developed
- This method has been developed for NSW roadside reserves and requires some small changes to make the method suitable for private property use (WMLIG has been in contact with Local Land Services to create an updated version to accommodate private land assessments.)
- As its name suggests this method is rapid and easy to implement
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