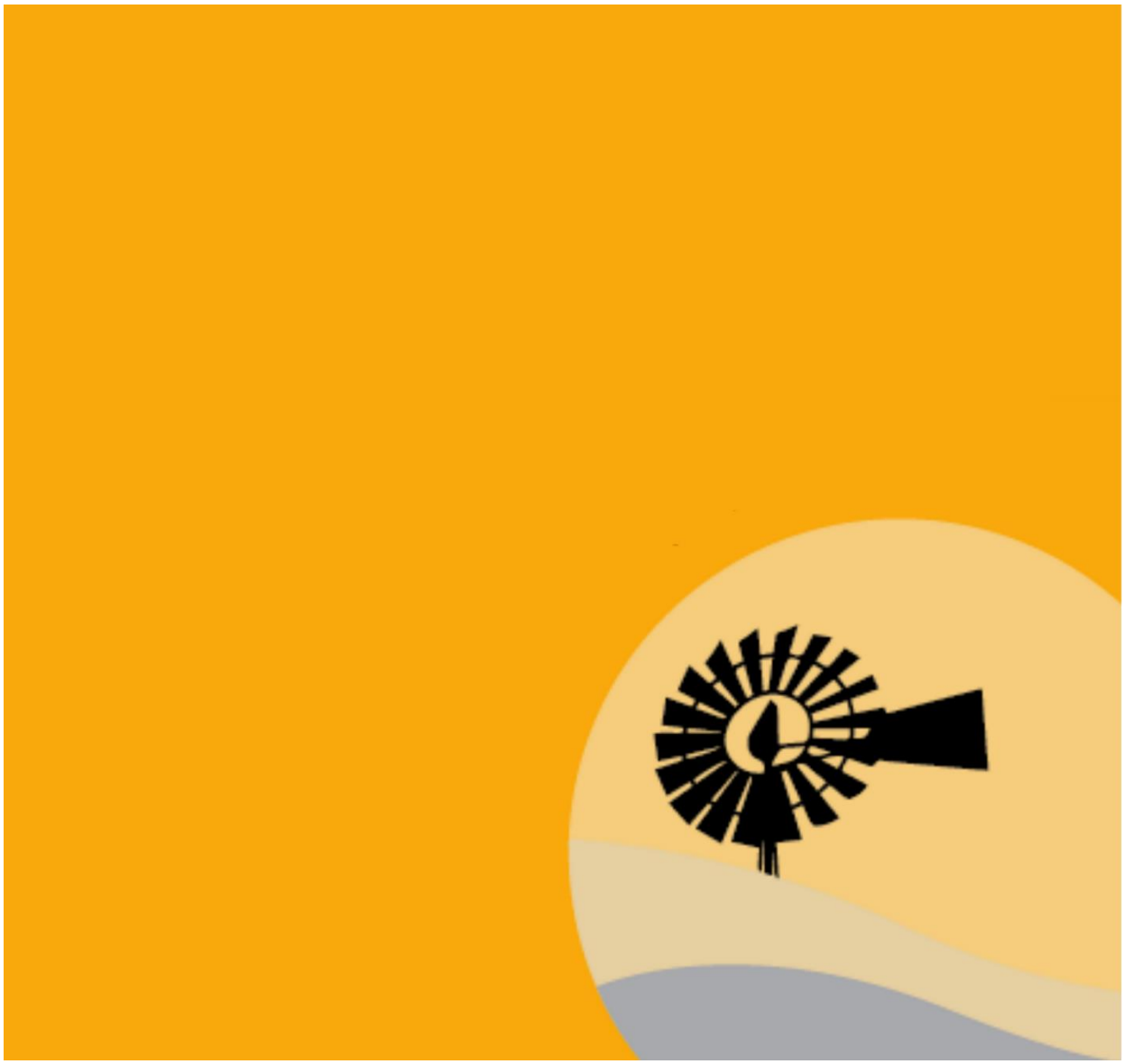
Western Murray
Land Improvement Group

Discussion Paper

Edward Wakool Land Stewardship Incentive Programme



Contents

Executive Summary

This discussion paper explores a range of past, current and emerging opportunities to incentivise the protection of biodiversity. The Edward Wakool Land Stewardship Incentive Program aims to improve the ability of farmers to financially support improved and verifiable environmental outcomes, such as increasing the abundance and diversity of native species and conducting grazing management that protects groundcover.

There is a growing market for environmental goods and services (EG&S) which will provide a new and more stable income stream to diversify and buffer farms against the cyclical and variable nature of farm incomes. This reduces the reliance on government farm subsidy and support schemes, such as emergency drought relief, and incentivises good holistic farm practices.

Since this discussion paper was initiated, a new Regen Farmers Mutual has been established which provides a sound governance structure and compelling value for farmers. Western Murray Land Improvement Group (WMLIG) is a partner in the program and has offered to field test EG&S value assessments on farms, providing information about growing environmental markets to the regions' farmers, and at the same time build capacity of staff to conduct EG&S value assessments.

The Mutual will help farmers access environmental markets as most farmers are too small to access them. The Regen Farmers Mutual enables farmers to aggregate, reducing transaction costs and deliver the scale investors need. The farmer-owned Mutual helps farmers to capture more value and negotiate the best possible deal. The Mutual places our region's farmers and our business at the forefront of future opportunities, and diversifies business income for WMLIG, which aligns to the WMLIG 2021-2023 Strategic Plan.

This Program will allow WMLIG and partners to develop a proposal to think big and attract investment from not only within Australia, but internationally from companies, ethical investor fund managers and impact offset schemes.

Introduction

The CSIRO estimates the Australian Environmental Market will be valued at $48 billion by 2050. Environmental markets and certification systems can reward farmers for protecting and improving biodiversity. They can diversify and boost farm income, providing alternative income sources to build resilience.

It is incumbent upon Western Murray Land Improvement Group (WMLIG) to position the regions farmers to take advantage of the current and emerging environmental market.

Australian agriculture depends on a biodiverse and well-managed natural resource base. Agricultural land managers play a key role in environmental management. They are responsible for managing 58% of our landmass.

There is currently a range of environmental goods and services (EG&S) programs, however many are in their infancy, and some markets, such as the carbon market have been very complex regarding the methodology and verification process. Value to the farmer is also questionable, with income split roughly 50:50 between the farmer and brokers and consultants.

New EG&S markets are opening up all the time, with government and the private sector increasingly interested in being involved. The government has provided investment into

Agriculture Biodiversity Stewardship Package, which will help farmers improve on-farm land management practices. It is developing arrangements to reward farmers for protecting biodiversity and identify other sustainability opportunities.

The private sector is pursuing environmental offsets as consumers and investors are increasingly demanding businesses provide environmental impact offsets, sustainability credentials and comply to ethical and fair trade standards.

EG&S markets allow Australian farmers to showcase best practice natural resource management. EG&S Certification will enable consumers to identify Australian produce from farms that sustain our biodiversity and promote community recognition of farmers' agricultural stewardship. This positions farmers to improve the profitability of farm businesses by supporting access to markets, creating price premiums for their produce, subsidising and lowering capital costs and giving farmers access to information about ways of improving land management practices

EG&S markets provide an additional income stream for a farms' natural capital, and in doing so diversifies income and builds economic and environmental resilience against adverse conditions such as drought. By its very nature, EG&S financially encourages best land management practice. One example is protecting groundcover in a drought conserving topsoil, and organic matter, which in turn improves soil moisture holding capacity and nutrients, so a farm can quickly respond and recover when seasonal conditions improve.

EG&S market-based mechanisms will incentivise objectives being sought by Natural Resource Management (NRM) bodies and Local Government Strategic Plans for improved environmental outcomes and diversified income streams. The alignment to these objectives and strategies include:

- Enhancement and protection of our waterways, landscapes and environmental assets.
- Encourage and develop community and neighbourhood initiatives to enhance and protect the natural environment.
- Manage and control pest plants and pest animals.
- Sustainable management of water resources to support local agricultural industries and value adding whilst managing and maintaining our beautiful natural environment.
- Review ecological communities and define their location, assess their health and encourage best practice land management.
- Encourage conservation on private land by providing financial opportunities to private landholders through offset and stewardship agreements.
- Build resilience with adaptive methods.
- Diversify the economy and capture value at home.
- Support landholders to become climate-change ready.
- Support education and awareness raising activities.

This discussion paper assesses the merits of a range of land stewardship programs as part of WMLIG's information gathering and due diligence review process.

As a result of the desktop review, it is recommended WMLIG partner with the Regen Ag Mutual. The Regen Ag Mutual is being designed using a bottom-up collaborative process, has a sound governance model and provides compelling value for the regions' farmers including support from Landcare and producer groups. Farmers will receive 80% of income generated, whilst Landcare and producer groups will share in 10% of EG&S market trades to deliver upon community engagement and EG&S transaction support. Governance, business systems maintenance, marketing etc. make up the other 10%.

Initially, WMLIG will be engaged in a local field trial for EG&S value assessments (baseline data collection) which will provide valuable knowledge and skills for WMLIG personnel and exposure of local farmers top the EG&S property assessment methodology. This trial work will prepare WMLIG to be program ready to support local farmers to be involved in emerging programs (such as regional pilots) and markets as they arise.

WMLIG will provide feedback on the outcomes of the farm EG&S value assessment field trials to the Regen Ag Mutual partners, the community and government agencies via funding from the Building our Communities in Advance Program partnered with Murray River Council.

It is anticipated WMLIG's field trial involvement in the Regen Ag Mutual development with will provide a right to commercialise the EG&S Value Assessment with other partners. This will provide an income stream share on any usage by a non-Partner thus diversifying WMLIG's income base.

WMLIG is also conducting a wildlife survey pilot funded by the Biodiversity Conservation Trust in 2021-22 FY. The trial methodology is based on the Murrakool Wildlife Survey Project proposal developed after extensive stakeholder engagement over the last 2.5 years.

The combination of the wildlife survey pilot, Regen Ag Mutual EG&S value assessment field trials and our unique and rich biodiverse environment places WMLIG in a prime leveraging opportunity to seek funding from government (such as delivery of post government Carbon + Biodiversity pilot schemes) and other EG&S stewardship incentive programs in the future.

Background: A Regional context and considerations for future pilot land stewardship programs

The Edward Wakool region is an anabranch of the Murray River and comprises a comprises a complex series of interconnecting rivers, creeks, billabongs, flood-runners, wetlands and lakes covering more than 1000 square kilometres between the Murray and Edward Rivers. This provides natural connectivity and important ecological pathways along river systems and floodplains through private property to existing RAMSAR sites and other conservation areas for native fish and migratory bird flyways (section 2 and Appendix A & B). These environmental attributes have led to considerable applied research (Appendix C), including novel industry research projects that promote and enhance both food production and environmental outcomes. A great example is the Bitterns in Rice Program, and the Sustainable Rice Platform.

Australia has a poor conservation record. Since European arrival roughly 230 years ago, 50 animal and 60 plant species have gone extinct, including the loss of some 30 native mammals. This bleak situation has been recognised by successive governments but never successfully addressed. Recher, 2015, stated that the 'reason Australia's system of conservation reserves fail to preserve continental biodiversity are historical and embedded in politics, emotion, and ideology. The conservation of biodiversity cannot be achieved by

reserves alone. Reserves are important but need to be part of a conservation system designed following ecological principles with the goal of protecting continental biota and integrated with comprehensive off-reserve nature conservation'.

The Edward Wakool region has a culture of land stewardship and community participation in natural resource management. A host of collaborative environmental projects have been conducted in the region such as the *Wakool and District Land and Water Management Plan* and other vegetation enhancement projects. These have been supported by WMLIG, Murray Irrigation Limited, Murray Local Land Services, Greening Australia, Murrakool Land for Wildlife, Nature Conservation Working Group and Environmental Trust to name a few. The region has many voluntary properties registered as 'Land for Wildlife' and was one of the first areas selected to adopt the NSW Biodiversity Conservation Trust (BCT) program – paying landholders for on-farm environmental stewardship. It is noted that demand for this program early on by landholders outstripped capacity of the BCT to accommodate the initial expression of interests and uptake demand for Biodiversity Stewardship Agreements.

Figure 1 – WMLIG Direct seeding machine demonstration by Rick Ellis (WMLIG Project Officer) at a community event at ''Moorakyle'', Lower Thule Rd, Thule

The funding bucket for improving environmental outcomes is only 'so big'. The reality is that economic pressures impact on how well farmers protect natural assets. The protection of natural assets cannot continue to rely on farmers providing mostly volunteer resources, such

as labour and equipment, to deliver environmental services that are of high importance that benefit the broader Australian public.

However, a market-based system would incentivise private property conservation outcomes and assign a monetary value for the delivery of ecosystem services. This market-based approach would build upon previous natural resource management investment and established community participation in the region.

WMLIG believe the region should be considered a priority location to further trials for a new market-based, outcome-driven model via natural capital investment opportunities. This is especially relevant due to the need to enhance both the region's rich environmental attributes, previous involvement and continued investment in NRM outcomes by the community, and the need to provide an additional income stream to land managers to provide a buffer against seasonal variability, such as droughts, commodity price fluctuation, and structural reform challenges impacting the socio-economic prosperity of the region.

There is ever increasing environmental credential scrutiny by consumers and key export markets. We need to be on the front foot and be prepared for future challenges. For example, the EU's intent is to have all of their products with an environmental label show the size of their footprint through a scheme called PEF – Product Environmental Footprint. AWI's Program Manager, Angus Ireland said 'The PEF project could soon be become the most influential market-facing reporting system for environmental credentials' (The Land, July 8th, 2021).

The National Farmers Federation (NFF) and consultancy firm KPMG Australia report, ''A Return on Nature – Enabling the market for sustainable finance and ecosystem services'' (KPMG Dec 2019), recommended a market-driven financial instrument that pays land managers for delivery of environmental outcomes. Recommendations to government from the report included the implementation of a $30 million pilot environmental stewardship program exploring financial instruments, the establishment of a $1 – Billion National Biodiversity Conservation Trust and the development of a Natural Capital Policy. See NFF Media Report (Appendix F), and NFF & KPMG Report.

The Australian Government took up the recommendation by providing $32.1 million in the 2021–22 Budget, building on the government's ongoing Agriculture Stewardship Package worth $34 million. A Carbon + Biodiversity Pilot is part of the biodiversity stewardship package in which six Natural Resource Management (NRM) regions were eligible:

- Burnett-Mary in QLD
- Central West in NSW
- North Central in Vic
- NRM North in Tasmania
- Eyre Peninsula in SA
- South West in WA

The six NRM regions were chosen to test the pilot across a range of farming systems, vegetation types and jurisdictions to generate the necessary data to effectively trial the pilot's policy objectives. Other NRM regions may be included in the future but have not been determined at this point in time.

WMLIG have drafted a Natural Capital Stewardship Project termed the 'Edward Wakool Land Stewardship Incentive Programme' (EWLSIP). This programme has considered National, State and Regional plans as well as other novel financial incentive products.

The EWLSIP would be delivered by a local level bottom-up approach. Community empowerment and a local 'stewardship thrust' are acknowledged as critical to achieving buy-in and project success. The Programme design would encourage the community to ''shake'' out the ultimate targets and program ensuring project buy in, and indirectly foster emerging nature champions and leaders.

This community empowerment model is backed up by Flitcroft *et al*, (2010) '*The importance of the human dimension in terms of relationship cannot be underestimated in changing the course of environmental degradation. Individuals working on their own, in groups, or through public policy will be the drivers of future restoration success. It is the job of the scientific community to continue the conversation about techniques, effectiveness, and success'.*

WMLIG is well placed to support future program trials such as a pilot scheme in the Edward Wakool region. WMLIG has a solid governance framework in place, extensive communication lines direct to landholders across a 7,500km^2 footprint and are a trusted deliverer of successful projects in the region. The group has extensive Landcare and Producer group networks and well established stakeholder relationships (see appendix H), that allow information to cascade from the local level, through to an overarching program governance framework.

The program will also support local jobs which will stimulate the economy, build capacity via the provision of new skills and knowledge, and assist with the decentralisation process away from overcrowded cities and bring professionals to rural areas and small towns, which is key to future transformational leadership.

It is envisioned labour required to deliver EWLSIP outputs would be hosted by WMLIG at a local level. This would be done in collaboration with the relevant financial sponsor providing the income stream. WMLIG could administer private property contracts. Depending on the size of the pilot Program. Labour needs may include:

- A Project Manager to oversee contract management and delivery of activities, liaison with stakeholders such as research institutions, government agencies, community groups and investors.
- Implementation Officer/s, GIS and mapping experts to assist in developing individual property plans and actions,
- Project Facilitator/s to deliver education and training programs and coordinate regional focus groups such as area specific integrated pest and weed control and species specific recovery action groups,
- Team Leader, Technical Officer/s to conduct site enhancement activities such as revegetation works and monitoring and evaluation of environmental outcomes.
- Contractor labour could include independent auditors, indigenous work crews, and specialist pest control and weed control contractors.

WMLIG is experienced in project management and site vegetation enhancement activities. The group has completed large and small scale revegetation projects totalling over 500 Ha on a diverse range of private and public land. These projects generally seek locally endemic native species to complement the biophysical aspects of a property. Species selection has been guided by the Native Vegetation Guide for the Riverina as a reference. WMLIG have their own direct seeding machine (Figure 1-1) for revegetation and has conducted research into direct seeding techniques that has led to led to improved germination success and survival rates of native plants in this region (WMLIG 2012).

The pilot EWLSIP is designed to be a tiered incentive scheme, flexible enough to accommodate different production systems, environmental objectives, and the needs of different private and public funding sources.

Edward –Wakool Economic Situational Analysis

Agriculture is the driver for regional economic prosperity and community cohesion in the region (Section 2.3). The economic importance of agriculture and linked industries is outlined in the economic profiles of Council areas around the Edward - Wakool Region (Appendix G).

The region is experiencing disproportionately high socio-economic impacts, particularly due to the water reform process, as well as other influences that impact on the economic viability of farms and the broader community (Appendix F). Drivers of volatility in the farming sector include;

- water reform,
- increased climatic seasonal variability (e.g. droughts, floods, fires, changes to rainfall patterns),
- technological change and farm consolidation,
- industry deregulation,
- rapid changes to consumer trends,
- agri-political exposure to export market access, trade barriers and associated flow-on impact to commodity prices (inputs and outputs).
- biosecurity incursions, risks and control measures etc.

The 2013-2023 Catchment Action Plan, captures the impact on reduced profit on the capacity of landholders to manage natural assets in the statement ‘’*Climate variability and uncertainty of water availability—coupled with our community’s reduced profit margins—are reducing the capacity for landholders to help improve NRM*’’ (Appendix I).

Project Linkages to Local, Regional and National Plans

The EWLSIP is in alignment to objectives, strategies and priority actions outlined in many local, regional, and national plans. Examples of these are outlined below:

Local

Murray River Council Community Strategic Plan 2018-2028

Strategic Theme 2: Natural Environment

Our Goal: We value our natural environment and expect it to be accessible, sustainable, managed, and healthy.

Our waterways underpin our agriculture related manufacturing, natural environment, lifestyle, tourism and amenity. Our communities highly value access to the waterways, as well as other natural assets.

- Enhancement and protection of our waterways, landscapes and environmental assets;
- Increased access to, and interaction with, the natural environment for recreation, amenity and enjoyment;

- Sustainable management of water resources to support local agricultural industries and value adding whilst managing and maintaining our beautiful natural environment;
- Management and control (prevention/eradication/reduction/containment) of pest plants and pest animals;
- Encouragement of individuals and communities to value and protect neighbourhoods and the natural environment.

Objectives and Strategies:

2.1 Protect and manage our unique natural environment

- Protect the water quality, aesthetic and environmental values of the Murray River, other waterways, and environs through consistent and aligned local and regional plans;
- Encourage and develop community and neighbourhood initiatives to enhance and protect the natural environment;
- Increase community awareness and education about the value of the natural environment;
- Manage and control pest plants and pest animals.

Murray River Council Local Strategic Planning Statement 2020-2040

Planning Priority 7 - Identify and protect environmental values

Pg. 60. The baseline data currently used to identify areas of environmental value is outdated and no longer accurately reflects conditions in our LGA. To ensure we can appropriately identify our environmental assets, Council will partner with the NSW Biodiversity Conservation Division and other government agencies to investigate biodiversity in our LGA and produce new biodiversity mapping. This investigation will include a review of ecological communities to define their location, assess their health and evaluate LEP mechanisms to protect the environment.

Council aims to encourage conservation on private land by publicising the financial opportunities available to private landholders through offset and stewardship agreements. By collaborating with the state government, local agencies and the community, we can better protect our environment while also delivering beneficial economic outcomes and improving public enjoyment of our natural settings.

WMLIG Agri-Innovation Program

An agricultural value adding project is currently being conducted by the WMLIG titled the Wakool Agri-innovation Program (project completion due date is April 2022). The Wakool Agri-innovation Program is funded via the Murray Darling Basin Economic Development Program (Round 1). A major element of this program is improving the value chain of regional produce by differentiating the product via environmental and sustainability principles. The project is exploring opportunities to validate food and fibre traceability back to the farm level and leverage back-stories of individual farm conservation activities to open up the market for niche branded products, commanding higher prices and financial returns to farmers. The products could be sold directly from paddock to plate or sold under a regional brand such as ‘River Country - *Naturally*’ supported by Murray River Council.

Building our Communities in Advance

Private Property Land Stewardship Program:

This project is being delivered in partnership with Murray River Council (MRC) via funding received from the Federal Government through the Drought Communities Program. MRC prepared an **Adverse Event Plan** (AEP) in 2020 via input from the local community including farm owners, local business owners, representatives from Progress Associations, crisis support and health services. Subsequently MRC has collaborated with Western Murray Land Improvement Group (WMLIG) to deliver upon the purpose and vision of the AEP building on resilience principles that focus on building community capacity.

Resilience Principles:

- A community-led recovery
- Plan in the good times to be prepared for the bad times
- Continuous learning and improvement

The AEP Strategy alignment to this program include:

- Build resilience with adaptive methods
- Diversify the economy and capture value at home
- Build the capacity of the community

WMLIG will deliver activities aligned to the strategy by encouraging innovative approaches to land management. One of these proposals is via investigation of a Private Property Land Stewardship Program. Funding from this program will be used in the development of and delivery of a landholder survey, a landholder value assessment and uptake interest in Environmental Goods and Services (EG&S) financial instruments and report on feedback.

Regional

2013 to 2023 Murray Catchment Strategic Plan.

Community priority actions were to:

1. Support innovative, productive and sustainable farming systems.
2. Develop integrated cross-tenure pest plant and animal control programs.
3. Improve access to information and services to facilitate local decision making and coordination.
4. Support landholders to become climate-change ready.
5. Build capacity within the Aboriginal community and promote cultural awareness among the community.
6. Create biodiverse corridors across the catchment.
7. Establish pathways for more effective community participation in environmental water management.
8. Support education and awareness initiatives for school-age children, young adults and the broader community.

To further elaborate on the Murray community priority action point No. 8, there is an opportunity to educate, raise awareness for school students and the broader community, including connecting urban and rural communities about the principles of reconciliation ecology (Appendix J), where food and fibre production can accommodate complimentary

biodiversity outcomes. Too often agricultural production and ecosystem service provision are seen to be an either/or scenario and in isolation from each other, when in fact there are many win-win ecological and agricultural outcomes that can be achieved.

National Plans

Drought in Australia. Coordinator-General for Drought's advice on a Strategy for Drought Preparedness and Resilience (April 2019)

Vision and Foundations:

To have farm businesses and rural communities that are prepared for, and capable of managing drought, in pursuit of a prosperous and sustainable future.

The EWLSIP is aligned to, but not limited to the priority target areas of:

1) **Stewardship of important natural resources**—To strengthen drought resilience in our agricultural sector and recognise the increasing challenge posed by a changing climate, a comprehensive understanding and strategic management of Australia's soil, vegetation and water resources is critical.

2) **Incentives for good practice**—The right research, regulatory and financial frameworks need to be in place to encourage farmers and communities to prepare and plan for drought.

3) **Improving planning and decision making**—Farmers and local businesses struggling with drought must understand their options and have the capacity to make decisions about their future. This will ensure that those businesses that are sustainable will prosper.

4) **Building community resilience**—Communities' resilience is in large part driven through their ability to plan for shocks and stresses. Effective planning, involving the community, needs strong leadership. Building leadership capability, with a focus on planning should strengthen a community's ability to cope and adapt to adverse events such as drought.

In addition, local food and fibre producers have an opportunity to promote their environmental value-add credentials, collectively helping 'Brand Australia' to promote a safe and wholesome image that commands higher prices from niche markets that differentiates Australian agricultural produce from other competitors.

This with the NSW DPIE report Western Enabling Regional Adaptation regarding a future cast change model for land management in the Riverina Murray region; ''Through the adoption of best practice and supported by new business models for private land management including carbon and biodiversity, the agricultural sector is more resilient to climate and commodity market cycles, strengthening the regional economy''.

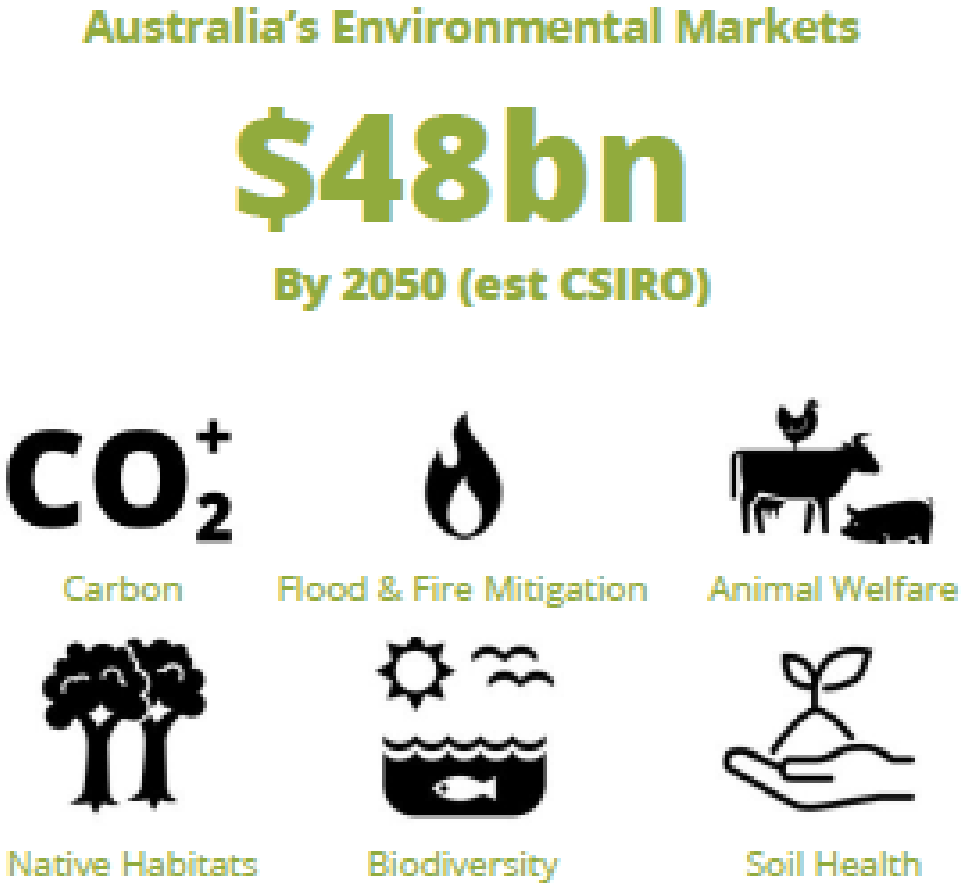
When taking into account the context of high regional biodiversity, agricultural economic diversification needs, local, regional, and National strategic alignment and WMLIG's experience in NRM, extensive networks and governance considerations, the Regen Farmers Mutual provides alignment to achieving improved NRM and agricultural outcomes. A overview of the Regen Farmers Mutual, other financial incentive products, and governance and management considerations are outlined below.

Regen Farmers Mutual

Regen Farmers Mutual

The Regen Farmers Mutual is a farmer-owned broker that helps farmers be rewarded for stewardship by enabling access to environmental markets and creating a high value brand. WMLIG is a member of the Mutual development Steering Committee. The

Figure 2: Australian environmental market focus areas and value estimate



How the Regen Ag Mutual Works:

Currently most farmers are too small to access environmental markets. For farmers that do access Australian Environmental markets @ 50% of the income is provided to brokers, and 50% to the farmer. The mutual focuses on aggregation to increase the scale and reduce costs per farmer.

Figure 3: Comparison between existing farmer environmental market returns vs Regen Farmers Mutual proposal

Regen Farmers Mutual unique value proposition

Current

Farmer / Broker
50% / 50%

Farmer-owned

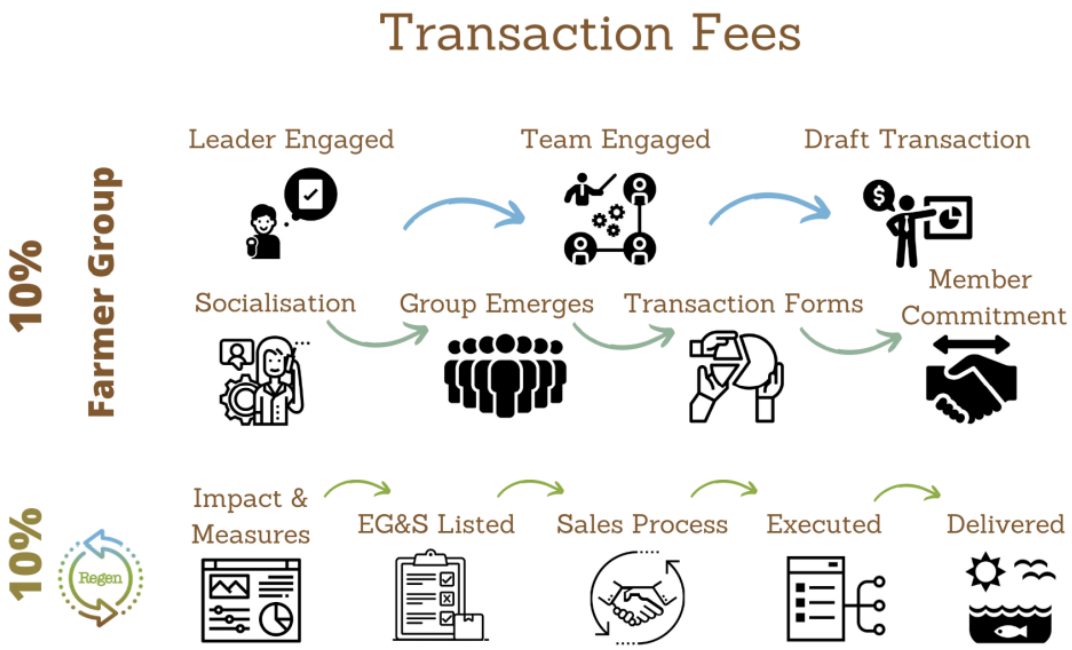
Regen Farmers Mutual

Farmer / Farm group / Mutual
80% / 10% / 10%

The Regen Ag Mutual business model provides a unique value proposition by providing an environmental market income return whereby:

- 80% of funds are returned to the farmer
- 10% is paid to local EG&S Coordinators and Farmer / Landcare Groups
- 10% is paid to the Regen Ag Mutual as a transaction fee for support such as program coordination, EG&S contract and verification systems, EG&S sales and marketing.

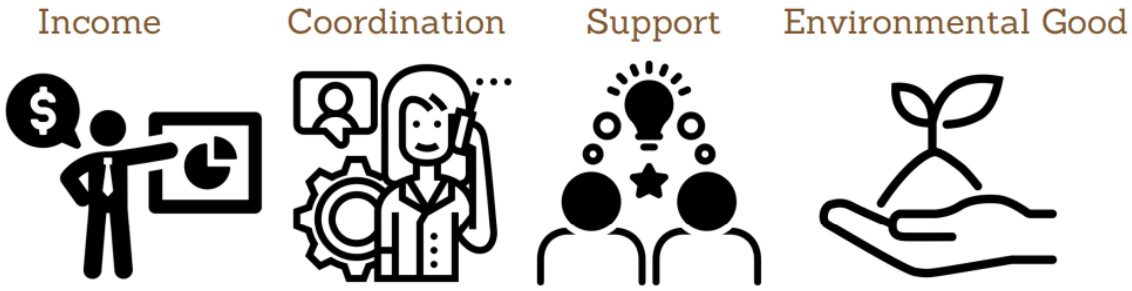
Figure 4: Transaction fee utilisation by delivery partners and the Regen Farmers Mutual



Benefits

1. Earn Money through EG&S aggregation and market power
2. Get timely support from local expert resources
3. Education and peer-support for credible land practices
4. Improve the planet (and your farm)

Figure 5: Regen Farmer Mutual process steps



In order to bring this EG&S Value Assessment to market the Regen Farmers Mutual intends to co-design an EG&S value assessment that combines the metrics from different programs and methods outlined above. The program entities are all Partners of the Regen Ag Mutual. The EG&S Value Assessment will be developed by a co-design project consisting of the Partners.

EG&S Farm Value Assessment Considerations

The EG&S Farm Value Assessment requires some tailoring depending on the farmers' context. For example, farmers that practice Holistic Management may be interested in the Land To Market evaluation, farmers that don't may not. Farmers banking with NAB will be interested in the NAB indexation as it applies to them and those not with NAB will only get an indication of indexation. Farmers producing fibre may have no interest in a food score etc.

Broadly speaking the assessment for each farm will contain a lot of mapping and desktop work by the assessor.

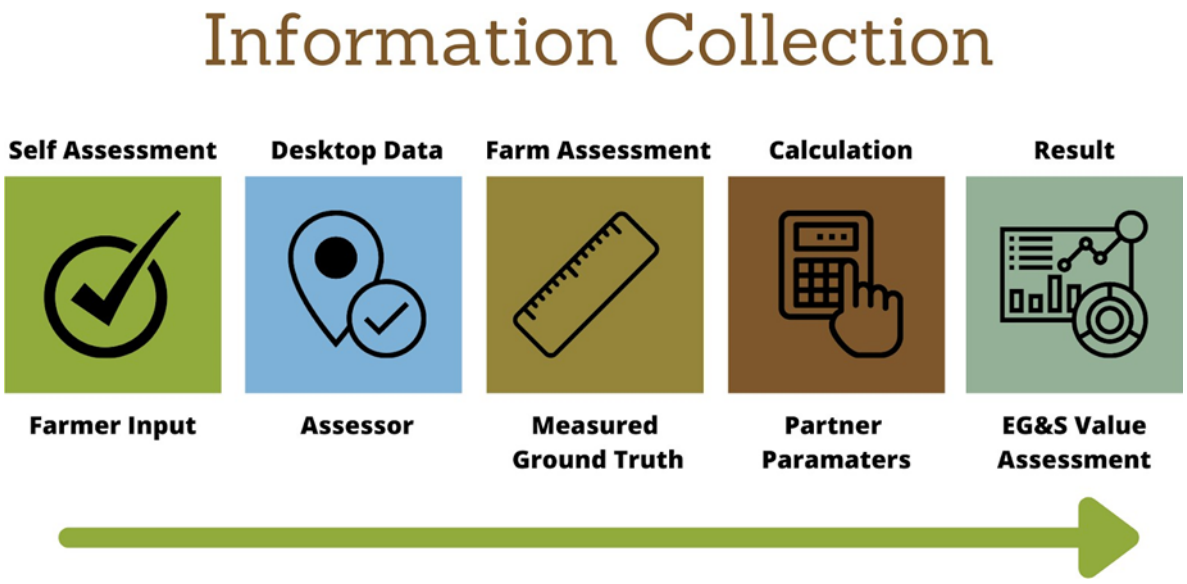
Borrowing from the AgCarE recent 25-farm trial the time spent per assessment is approximately 70% of the time is spent getting data from MapInfo for various layers - soil, vegetation etc. into the parameters, 20% of time was from inputting non map data by the assessor into the model and 10% comes verifying a farmers data inputs are accurate.

WMLIG Field Testing, Feedback and Deployment on EG&S Value Assessment

In-field trials of an EG&S Value Assessment taking into account different methodology from different programs outlined above will be conducted using the grant monies allocated by WMLIG as part of the Building our Communities in Advance project, being partnered with Murray River Council via funding received from the Federal Government through the Drought Communities Program.

Farmers receive a "starting point" to illustrate the potential commercial value from the conservation and regeneration of EG&S.

Figure 6: Information Collection Infographic



Environmental Goods & Services (EG&S) Value Assessment

As outlined previously, the best results are likely to come from a sustainability framework that connects and verifies current and emerging programs, providing farmers with choice.

There are several EG&S Value Assessment methods that are used to quantify the potential value of EG&S on a farm. In doing so they recognise the opportunity and opportunity-cost of farming practices.

The methods enable an accredited assessor and farmers to input data which informs an assessor to qualify the state of condition according to a range of metrics. The different methods collectively assess and provide back to the farmer a set of results:

- An estimated value of potential Environmental Goods and Services per farm
- A Whole-of-Farm Score showing the overall sustainability of the farm business
- An ISO Regenerative Agriculture Label indicating Farm Score and Food Score per farm
- An indicative EG&S interest offset that can be used by farmers to reduce interest costs on loans backed by the identified EG&S. This could be expressed as $ saved per $1000 borrowed.
- A valuable brand and management tool for those indicating a willingness to join the Land to Market Co-op.
- A set of maps detailing GIS derived values for soil cover, moisture topography and carbon potential.
- A SCOR (Soil Carbon Offset Report) that is suitable for soil carbon projects
- A Standing Carbon fullCAM map for your farm (suitable for tree planting carbon projects)

Different EG&S value assessment programs are summarised below:

Accounting for Nature:

Accounting for Nature (AfN) has methods that can provide scientific rigour and credibility. The breakthrough for AfN is the use of a unit of measure to describe Ecological Condition and this is measured as an “e-cond”. Baselines and changes in e-conds over time form the basis of the “Accounting” part of Accounting for Nature.

Accounting for Nature has a method for training assessors that is established.

There is a potential pilot between Accounting for Nature and the Regen Farmers Mutual that is working with farmers in FAN Farm Group (QLD).

Agforce:

Agforce has developed the AgCarE Assessment. This assessment is tiered and looks at the “whole of farm” to provide a score for the farmer. These scores and their change represent a more whole-of-farm approach including energy use, emissions and animal welfare.

Agforce has several existing use-cases. Agforce is currently doing in-field trials for their data collection.

The entry point for the program is a Natural Capital assessment. Participants answer a questionnaire which provides a basic score on landscape condition with particular focus on six outcomes areas:

1. Biodiversity.

2. Groundcover.

3. Increased biomass.

4. Water management.

5. Management of fire and grazing to protect and enhance remnant landscapes.

6. Landholder competencies in restoring, building and maintaining Natural Capital condition – this can include research, training and community involvement.

This assessment provides a benchmark for these areas of management and a basis for improving systems to deliver better outcomes and enhanced scores.

Carbon8:

Carbon8 is the Standard Owner for the International Standards Organisation (ISO:(number tbc)) for Regenerative Agriculture.

The “Standard” consists of a “farm score” and a “food score” (where food is the production output). The measurement requirements for the ISO are potentially able to be incorporated into the collection of data from other service providers (once trained).

Where a standard has been met and a ‘farm score’ and ‘food score’ applied, then that farmer can carry a label under the prestigious ISO program on their resulting food and fibre output.

It is yet to be tested, but this may allow a premium to be established for producers recognised in the market with an ISO standard of Regenerative Agriculture.

Carbon8 is expected to create a pilot with Regen Farmers Mutual in the near future. Helen and Mike McCosker (Co-founders of Carbon8) have been involved in the co-design courses and steering committee. Carbon8 and Landcare NSW have an agreement with each other in respect to Carbon8’s Tier 1 charity status, which enables donations from consumers to help farmers transition to Regenerative Agriculture.

Land To Market:

Land To Market provides an on-farm annual assessment program “Ecological Outcome Verification” that allows farmers, who are also Members of a Co-op, and practice Holistic Management, to take part in the assessment.

Annual assessment allows Members to carry the Land To Market label on their Food or Fibre. It also forms the basis of the farmers annual monitoring and management plans when using Holistic Management.

The Land To Market label was established by the Savory Institute and is linked to the Holistic Management processes. It is delivered by Certified Assessors trained by the Savory Institute, and linked to the Australian Savory Hubs. There is a small national network of assessors and educators in the Savory Hubs across Australia.

Carbon Farming Foundation

The Carbon Farming Foundation will allow assessment of the potential tons CO2e per hectare (carbon units) that could be yielded from native reforestation plantings under the FullCAM methodology. It allows the identification of sweet-spots within the target zones to profitably generate carbon revenue. The deliverable is a single map where you can browse across your property/s.

The Carbon Farming Foundation and Regen Farmers Mutual work closely together on solutions allowing farmers / farm groups to generate sales specifically around standing carbon. The East-West Biodiversity Corridor project with Loddon Plains Landcare being one such initiative rolling out in 2021.

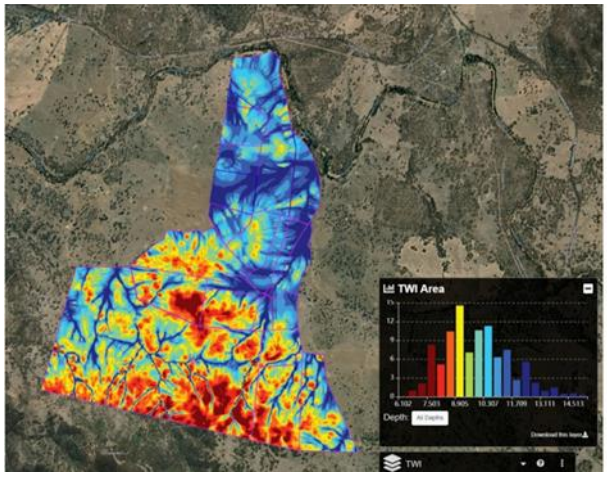
Any Bank (Rabo, NAB, ANZ, etc):

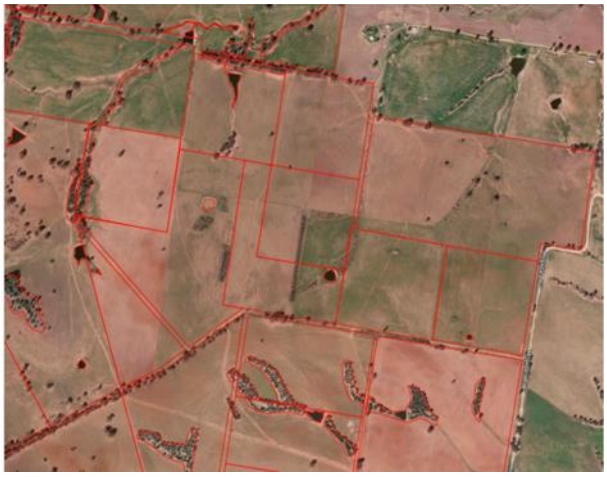
We understand that EG&S or Sustainability Linked Loans are a standard practice amongst banks i.e the Rabo Bank Client Photo process enables banks to in essence reduce their lending rate to farmers based on a “snap-shot” (client photo) of the sustainability practices.

Incorporating the criteria of a major lender into the design of the EG&S Value Assessment is a key point of value seeking clarification.

Figure 7: Hypothetical example of an EG&S Assessment

Figure 8: Example Farm Baseline Data Map





Commercial Outcomes Balanced with Collaboration

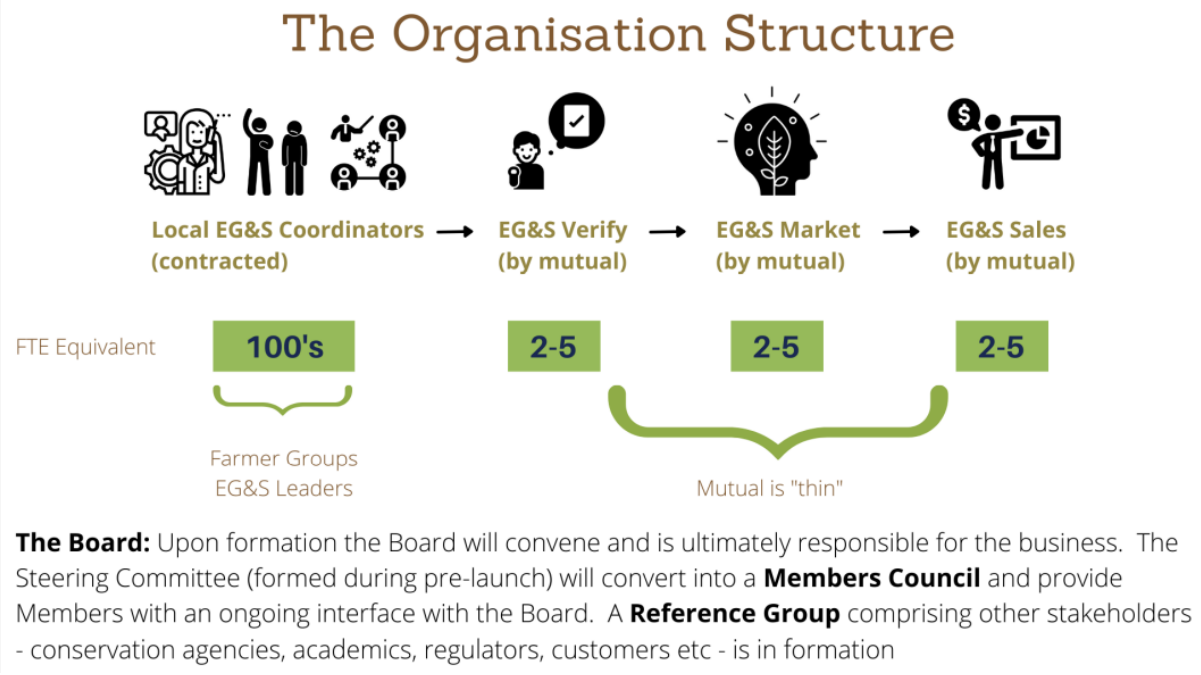
Done properly each Partner will be Co-owner of the Mutual and have a share and share alike right to commercialise the EG&S Value Assessment. Each Partner will have an income stream share on any usage by a non-Partner. Each Partner will have the ability to access a shared pool of assessors to assess these EG&S Value Assessment. The Regen Farmers Mutual will use the EG&S Value Assessments in their launch campaign.

Governance

The Regen Ag Mutual is a registered company under the Corporations Act 2001 and is taken to be registered in NSW. The Regen Ag Mutual is Limited by Guarantee and listed as a public company with ASIC as of 5thg July 2021. Refer to Certificate of Registration in Appendix N.

The Regen Ag Mutual will be governed by a **Board**. The Steering Committee which WMLIG is a member of, will convert into **Member Council** and provide Members with an ongoing interface with the Board. A **Reference Group** comprising other stakeholders – conservation agencies, academics, regulators, customers etc. is in transformation. Figure 9 outlines the organisational structure.

Figure 9: The organisational structure



The Board: Upon formation the Board will convene and is ultimately responsible for the business. The Steering Committee (formed during pre-launch) will convert into a **Members Council** and provide Members with an ongoing interface with the Board. A **Reference Group** comprising other stakeholders - conservation agencies, academics, regulators, customers etc - is in formation

The Regen Ag Mutual has a proposal for Field Testing, Feedback and Deployment on EG&S Value Assessment to be completed by 30th Sept 2021, a pilot launch by 30th March 2022 followed by the use of the first EG&S transaction, then scale and growth stages of the project with new environmental markets.

Figure 10: Regen Ag Mutual Development Milestones

Smart Stewardship Agreement (Smart Contracts) Project

The Regen Farmers Mutual is conducting a project to standardise stewardship documentation and release embedded value.

The objective is to transition the documenting and contracting of environmental market transactions onto interoperable smart contracts with partners Digital Law Technologies (DLT Co). DLT CO is the new entity developed out of the smart legal contract infrastructure collaboration between Herbert Smith Freehills (legal company providing pro-bono work), CSIRO and IBM. Much of the work was completed by Birchip Cropping Group, and this project provides the vehicle to move from a proof-of-concept prototype with a large-scale use case developed by the Regen Farmers Mutual.

This project benefits from using a collaborative approach being able to draw on the participants including farmer networks like the National Landcare Network, Landcare NSW, NRM Regions Australia, Australian Land Conservation Alliance, and state-based land trusts like Trust for Nature.

The project will explore the ways that stewardship agreements drafted as smart contracts cab be run on specialised digital infrastructure and connect with other digital systems. In this way, in addition to providing a legally enforceable contract, smart contracts can be used to automate workflows, collect organised and structured data, and to structure delivery management.

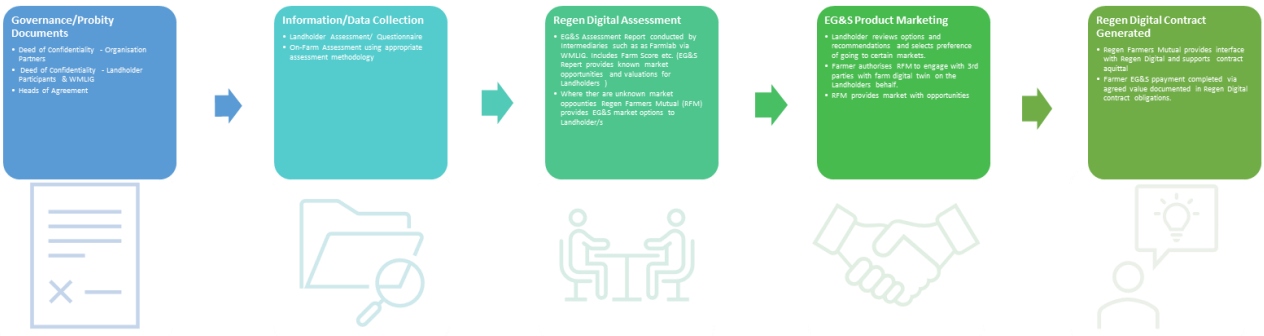
The benefits of this approach are likely to be wide-ranging. On the one hand, it can lead to increased efficiencies as contracts interact directly with on-farm sensors and remote measurement technologies. Then there is the opportunity for farmers to demonstrate provenance and differentiate products by farming practices using features of distributed ledger technology and smart contracts. Notably, by using the Regen Farmers Mutual to manage these contracts, farmers can retain control over data and the way these opportunities are realised, thereby maximising the benefits to Australian agriculture.

Outcomes will be:

- Reduced transaction costs – standardisation of documentation and simplification of execution processes
- Strengthened credibility & risk management – simpler and more transparent tracking against contract terms and conditions
- Enhanced value realisation – transparent and traceable provenance and measurement system integration
- Better data governance – greater integrity and control delivered to farmers and their authorised representatives
- Improved accountability – enhances reporting capabilities and reduces barriers to peer-based compliance

The Smart Stewardship Agreement will be conducted via Regen Digital, as new business established to manage the smart contracts.

The relationship between Regen Digital, Regen Farmers Mutual, Landcare groups and farmers is outlined in the figure below;


Governance/Probity Documents
• Deed of Confidentiality - Organisation Partners
• Deed of Confidentiality - Landholder Participants & WMLIG
• Heads of Agreement
Information/Data Collection
• Landholder Assessment/ Questionnaire
• On-Farm Assessment using appropriate assessment methodology
Regen Digital Assessment
• EG&S Assessment Report conducted by intermediaries such as as Farmlab via WMLIG. includes Farm Score etc. (EG&S Report provides known market opportunities and valuations for Landholders)
• Where ther are unknown market opoounties Regen Farmers Mutual (RFM) provides EG&S market options to Landholder/s
EG&S Product Marketing
• Landholder reviews options and recommendations and selects preference of going to certain markets.
• Farmer authorises RFM to engage with 3rd parties with farm digital twin on the Landholders behalf.
• RFM provides market with opportunities
Regen Digital Contract Generated
• Regen Farmers Mutual provides interface with Regen Digital and supports contract aquittal
• Farmer EG&S ppayment completed via agreed value documented in Regen Digital contract obligations.

Other Financial Incentive Products:

NSW BCT Conservation Agreement Incentive Scheme

The BCT sought expressions of interest in the Edward Wakool System in 2017. Uptake demand exceeded BCT capacity.

The BCT uses a Biodiversity Offset Scheme. This is a market-based scheme that brings together;

- landowners who create biodiversity credits by establishing a biodiversity stewardship site, and,
- purchasers who buy the credits created.

Purchasers may be the NSW BCT or developers wanting to 'offset' biodiversity loss from a new development site. Conservation groups, philanthropists and government departments may also be interested in conserving biodiversity in perpetuity.

The Biodiversity Offset Scheme provides funds for landowners to manage their land for conservation. The scheme is voluntary and supports landowners to take care of their bushland forever and pays for them to do it.

A Biodiversity Stewardship Agreement includes agreed management actions, such as fencing and control of weeds and feral animals. An Assessor may be able to help you determine the management actions for your site. The landowner needs to provide costings for these actions.

Biodiversity Credits

There are two types of biodiversity credits – species credits and ecosystem credits. Landowners who enter into a biodiversity stewardship agreement and sell their credits can receive an annual payment in return for actively managing their land's biodiversity.

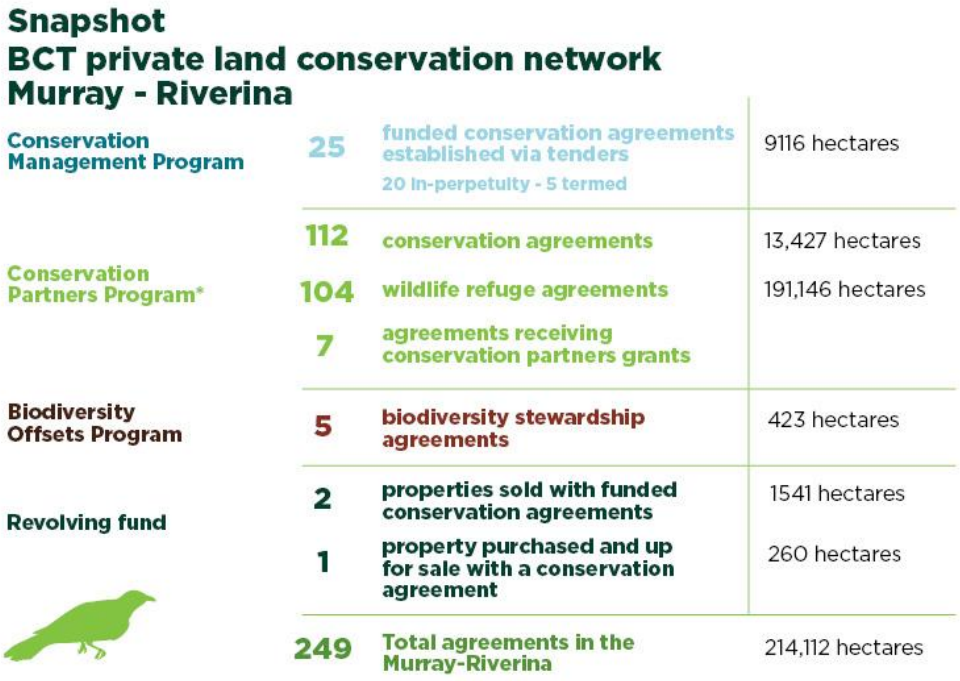
Biodiversity Stewardship Agreement

A Biodiversity Stewardship Agreement is an agreement that will provide for the permanent protection and management of biodiversity and allows for the creation of biodiversity credits. The agreement doesn't have to cover all of your land – you can set aside a portion as an agreement site to be protected and continue other activities on the remainder. You can even undertake some activities on a stewardship site - such as strategic grazing or an ecotourism venture - provided the activity doesn't have negative impacts on the biodiversity values of the land. When it comes to managing your agreement site, you can choose to undertake the biodiversity management activities yourself or use contracted bush regenerators. Either way, annual payments should cover your costs. The Biodiversity Offset Scheme helps you to diversify the income generated from your land.

The BCT have a range of pathways to secure long term funding for conservation areas including voluntary agreements, funded agreements and stewardship sites under the Biodiversity Offsets Scheme. Funding is set aside and managed in trust for all our funded agreements and stewardship sites.

A snapshot of the BCT conservation programs and uptake of on private land in the Murray – Riverina (2020) is outlined in Figure 4 below.

Figure 11 – Snapshot BCT Private Land Conservation Network Murray – Riverina (2020)



More information about what is offered in outlined in the Pathways to Conservation Factsheet. pathways to conservation factsheet**.**

For more information on the Biodiversity Conservation Trust conservation agreement guidelines. See links;

- https://www.bct.nsw.gov.au/sites/default/files/2018-04/offset_BSA_brochure.pdf
- https://www.bct.nsw.gov.au/sites/default/files/2018-05/Sample%20Conservation%20Agreement.pdf

Other incentive based ecosystem funding solutions are outlined in KPMG Report, 2019.

Applying the BCT Property Management Plan into a Local Hypothetical Case Study.

Landowner X in the Barham area was successful in the BCT application process and entered into a Biodiversity Stewardship Agreement on a 40 ha block of land. An initial payment from the BCT covered higher upfront costs such as a new fence, followed by an annual payment upon completion of an annual report against the agreed Property Management Plan.

The property Management Plan has Conservation Area Restrictions and Permissions, which are outlined in Appendix K.

For Landowner X, some of the applicable Management Plan requirements agreed upon included agreement that the owner must not do any one or more of the following:

- clear native vegetation;
- cultivate the land, sow crops or plant or promote growth of exotic plants;
- graze livestock or permit livestock or non-native fauna to occupy the Conservation Area;
- construct any Infrastructure, including tracks or fences, beyond that shown on the Tracks and Infrastructure Map;
- carry out earthworks, including soil disturbance or removal of rock, beyond that described in the Clearing and Earthworks Envelopes;
- remove fallen timber, dead wood or other dead vegetation;
- use fertilisers;
- use herbicides;
- use vehicles off tracks and roads shown on the Tracks and Infrastructure Map; or

However, there are Permitted Exceptions (Management Permissions) that permit any one or more of the following activities in the Conservation Area, such as;

- maintenance of Infrastructure shown on the Tracks and Infrastructure Map, and in accordance with Clearing and Earthworks Envelopes;
- collection of non-hollow fallen timber for the heating of the owner's dwelling on the Land and for camp fires in the Conservation Area;
- grazing of domestic stock if permitted in accordance with Part 5 of this Management Plan;
- Weed Control and Pest Control, and use of Pesticides for Weed Control and Pest Control in accordance with the label and registered off label use;
- use of Vehicles off tracks and roads shown on the Tracks and Infrastructure Map where undertaking:
    - mustering of stock that have entered the Conservation Area
    - Weed Control
    - erosion control works
    - Pest Control
    - maintaining Infrastructure shown on the Tracks and Infrastructure Map
- Seed Collection, where undertaken in accordance with the FloraBank Model Code of Practice;
- use of horses and dogs (including off the tracks marked on the Tracks and Infrastructure Map) when used for mustering stock that have entered the Conservation Area provided that they are under the control of the Owner or those authorised by the Owner;
- Passive Recreational Activities;
- Passive Commercial Activities

An example of a hypothetical completed Conservation Agreement Annual Report submitted as part of the BCT is outlined in Table 1, Appendix K. In this hypothetically scenario, the report

was deemed acceptable and an annual payment of $4,400 for 44 Ha or $110/ha, was provided to the landowner after initial infrastructure costs were covered.

Federal Government Agriculture Stewardship Package

The 2021–22 Budget delivered $32.1 million in funding promote biodiversity stewardship. This investment builds on the Australian Government's Agriculture Stewardship Package worth $34 million.

The Agriculture Stewardship Package will help farmers improve on-farm land management practices. It will develop arrangements to reward farmers for protecting biodiversity and identify other sustainability opportunities.

Environmental markets and certification systems can reward farmers for protecting and improving biodiversity. They can diversify and boost farm income, providing alternative income sources to build resilience.

The Australian National University is using a $3.4 million grant to design and develop the pilots in collaboration with the Australian Government Department of Agriculture, Water and the Environment. This includes the rules for participating and processes for measuring, reporting and verifying environmental outcomes.

Carbon + Biodiversity Pilot

The Carbon + Biodiversity Pilot will develop a market-based mechanism to reward farmers for increasing biodiversity.

Farmers who undertake plantings for carbon can receive additional payments for maximising the biodiversity benefits from these plantings by:

- Planting a mix of species
- Managing and looking after that vegetation

Plantings can also benefit farmers by providing shelter for animals, protecting dams and waterways and reducing erosion.

Payment for biodiversity and other environmental services can supplement traditional farm income.

The government is working with Professor Andrew Macintosh from The Australian National University to develop the program.

Find out more about the Carbon + Biodiversity Pilot.

Enhancing Remnant Vegetation Pilot

The Enhancing Remnant Vegetation Pilot will be a scientifically robust on-ground trial that aims to improve significant existing native vegetation on farms. It will test biodiversity protocols developed by the Australian National University.

Successful farmers would receive payments to protect, manage and enhance high conservation value remnant native vegetation on-farm. Examples include:

- installing fencing
- carrying out weeding
- pest control and replanting.

The Australian Farm Biodiversity Certification Scheme

The voluntary Australian Farm Biodiversity Certification Scheme will allow Australian farmers to showcase best practice natural resource management to sustain and build biodiversity. Certification will enable consumers to identify Australian produce from farms that sustain our biodiversity and promote community recognition of farmers' agricultural stewardship.

Biodiversity certification could help improve the profitability of farm businesses by supporting access to markets, creating price premiums for their produce, lowering capital costs and giving farmers access to information about ways of improving land management practices.

To be certified, farmers will need to undertake specified land management practices and report on-farm biodiversity outcomes. Trials will begin as part of the Carbon + Biodiversity Pilot.

The Biodiversity Trading Platform

The Biodiversity Trading Platform will enable farmers to connect with buyers of biodiversity outcomes and kick-start private sector biodiversity markets. The platform will integrate spatial information alongside buyer and seller information. This will allow verification, monitoring and reporting of biodiversity services, building transparency and credibility in the market.

A sustainability framework for Australian agriculture

The National Farmers' Federation (NFF) was provided with $4 million towards development of an Australian Farm Certification Scheme. They commissioned a report by the Australian Farm Institute (AFI): Recognising On-farm Biodiversity Management. This included research into verification schemes, sustainability and best management practices, domestically and internationally, to determine their applicability in Australian agricultural systems.

The report found that best results are likely to come from a framework that connects and verifies current and emerging programs, providing farmers with choice.

Based on this work, the NFF is developing a framework or meta-standard for Australian agriculture sustainability. This will include:

- delivering a meta-standard for agriculture sustainability, including considering any legal, privacy or other (e.g. tax) implications in delivering the meta-standard or for industry / farmers to adopt the meta-standard
- working with agriculture-related organisations, such as rural research and development corporations, industry and private / not-for-profit companies, to verify current standards and connect them within a meta-standard
- identifying data needed to underpin the meta-standard, and addressing any gaps
- considering market opportunities, and how the meta-standard could be used by domestic consumers, export markets or financial institutions to deliver positive outcomes for farmers (price premiums, increased market access, favourable interest rates)
- engage with farmers, the broader industry and other relevant stakeholders on the costs and benefits of participation.

The AFI report can be viewed at the National Farmers Federation website, a video summary of the report can be found at the Australian Farm Institute YouTube channel.

Agriculture Biodiversity Policy Statement

The policy statement will set out the role of Australian agriculture in protecting biodiversity. The statement will provide:

- A national vision for on-farm biodiversity, that sets out the benefits for farmers, the broader community and the environment
- A shared understanding of best practice land management for biodiversity
- An overview of the approach to promoting and rewarding farmers' environmental stewardship.

This will be developed later in 2021, building on the learnings from the pilot programs.

Key partners are the **Australian National University** and **National Farmers Federation**.

DESIGN CONSIDERATIONS FOR A LAND STEWARDSHIP INCENTIVE PROGRAM

Program Design Considerations

WMLIG considers that recommendations for the EWLSIP have been adapted from recommendation themes made by the Australian Land Conservation Alliance (ALCA See link https://alca.org.au/ (Appendix D) to the Draft Wildlife Corridors Plan submission, 2012. As such, the context of the ALCA submission has been used or adapted for consideration into the design for the pilot Edward Wakool Environmental Services Incentive Program.

An incentive scheme needs to be flexible enough account for the different individual property farm systems and site-specific environmental attributes, as well as support the coordination of activities that improve environmental outcomes on a localised and regional scale (landscape initiatives). The following are considerations for a pilot scale incentive Program;

- The Programme should ensure that areas needing to be recognised for special connectivity efforts are based around recognised biodiversity priorities, and include the development of an appropriate mechanism to help private landholders understand where and how their conservation contributions fit into other threatened species programs, such as NSW DPIE Saving our Species Program. A local list of species, threats and management plans for the region are outlined in Appendix B.
- The program should ensure that existing landowners who have already made a previous conservation commitment are, in turn, supported by this program.
- The barriers to conservation on private lands (e.g. financial, legal, technical) need to be addressed through coordinated, strategic activities. Integration of private property with the national reserve system in the region will likely fail should these barriers be ignored.
- It is important to involve Landcare and producer groups, in partnership with government, industry and conservation groups in the development and delivery of any national, regional or local conservation programs (See Table 1 below). At a local level they may be better placed than state NRM agencies to facilitate and deliver this work, as they are a non-government trusted independent entity to deliver local programs which ensures stakeholder buy-in.
- Landcare and community groups play a role in initiating, promoting and supporting private property biodiversity conservation by raising public awareness at a local level and delivering NRM planning and implementation activities in our community and

schools. Landcare organisations are well placed to encourage individual champions and their initiatives, as well as coordinate community-led programs.

- Partner agencies, such as NSW Local Land Services and Department of Planning, Industry and the Environment have a host of available NRM expert resources.
- Non-Government Organisations (NGO's) such as Landcare have the governance structures in place to host the anticipated resource requirements to support an EG&S program. Landcare Groups excel at delivering on ground activities where it matters most. It is anticipated these resources may include Program Managers, Project Implementation Officers, Technical Officers / Team Leaders. Appendix H outlines the Organisational and governance structure, project experience and communication networks of WMLIG as an example.
- It is recognised that partnerships at many levels need to be established and that the methodology, systems, plans and projects need to be co-designed, co-delivered, co-managed and co-governed. At a National level, there needs to be nationally-consistent methodology such as a metric for monitoring, evaluation, reporting and verification of conservation outcomes.
- There is a need for a strategic, long-term, whole of landscape approach that pertains to both private and publicly held lands that works from consistent and transparent principles with long-term measurable outcomes and objectives. A governance and management framework will extend from the National level, down to state, regional and the local level as outlined below.

Governance and Management Framework

It is proposed that the governance and management framework for the EWLSIP has National, State, regional, and local considerations (e.g. Edward-Wakool pilot), all the way to the individual farm scale level. At a local level existing environmental and biodiversity conservation plans will be used to develop regionally specific programs scaled down to the local action groups and site-based initiative level. An example of a tiered governance model is outlined in Table 1).

Program labour for a pilot activity, and subsequent landholder support at a local and regional scale needs to be further explored, however could include Program Managers, Implementation Officers, Facilitators, Technical Officers and Ecologists hosted by Community Landcare and Producer groups, supported by State and regional policy and planning Departments and various non-government and government entities (see Table below). Independent auditors will be engaged for compliance to environmental property management plans and environmental outcome verification.

Table 1 – Edward-Wakool Ecosystem Services Incentive Programme governance and management framework

Management functions / governance scale	Leading	Planning	Implementing	Evaluating
National	Current Farm Biodiversity Certification Scheme Steering Committee Australian Farm Institute, National Farmers Federation,	Natural Capital valuation methodology for Enterprises. Develop environmental parameters and benchmarks. Drive research into the role AgTech can play to measure, monitor and evaluate improvement in	Department of Agriculture and Water resources	Department of Agriculture and Water resources, State and National level Program feedback to stakeholders / investors regarding techniques,

Management functions / governance scale	Leading	Planning	Implementing	Evaluating
	Other suggested stakeholders , Department of Agriculture and Water resources, National Landcare Network, Indigenous Advisory Committee, Research Institutions (e.g. ANU & CSU), Bush Heritage Australia, Biodiversity Conservation Trust, Australian Land Conservation Alliance	environmental and biodiversity outcomes for farm enterprises at all scales. Develop a training framework and education program. Develop a market driven financial reward framework.		effectiveness, and success
State	Landcare NSW, NSW Farmers, Local Land Services, NSW DPIE, Land for Wildlife, Biodiversity Conservation Trust, Trust for Nature, Wetland Working Group, Universities (e.g. ANU. CSU, Deakin) , Ricegrowers Association, Environmental Champions Program	Facilitate opportunities to upskill farmers on ecosystem services opportunities through specific training or farmer exchange events.	Landcare NSW	Biodiversity Conservation Trust Regional and State level Program feedback loop from the scientific community to stakeholders / investors regarding techniques, effectiveness, and success
Regional	Murray Landcare Collective, Murray Local Land Services, NSW DPIE Murray, Biodiversity Conservation Trust	Facilitate regional delivery strategy and plans	Murray Landcare Collective collects data for Murray Local Land Services	Biodiversity Conservation Trust. Dissemination of local site data into sub regional and whole of regional impact.
Local	Local Landcare and Producer Groups, Local Councils (see below examples) Community-led Initiatives. Encourage individual champions and their initiatives. Public awareness.	Land use planning. Conservation Action Planning. Community level focus groups, Local plans	Management of locally held conservation lands. Local conservation Incentives. Fund raising.	On-ground monitoring, evaluation and reporting. Collating site project data
Local (Edward-Wakool Pilot)	WMLIG, RGA, Murrakool Land for Wildlife, local community action groups	WMLIG & RGA Program Manager & Ecologist developing E-W system strategy & plans.	Program Managers, Implementation Officers, ecologists and independent auditors. Align to NSW OEH Threatened species conservation initiatives	Ecologists, Field staff and independent auditors on site Monitoring, Evaluation and Reporting
Site	Individual conservation initiatives and stewardship. Leading by example.	Property management plans. Local knowledge and expertise. Independent assessment panel for site assessment score review	On-ground site Management. Income diversification and investment strategies.	On-ground monitoring, evaluation and reporting. Adaptive management approach

Adapted from Worboys *et al* 2010.

Financial Incentive Scheme Design

It is proposed that farmer income will be based on a range of onsite ecosystem service enhancement initiatives based on farmer resources and independent third party specialist inputs. For example a scale-able incentive scheme based on initiatives such as pest and weed control, vegetation exclusion fencing, revegetation, strategic grazing management regimes, specific threatened species management plans and toolbox measures. See Appendix B and M.

It is recognised that any financial payment system will require independent and robust audit systems to verify outcome integrity. Compliance and data collection needs to be done in collaboration with the scientific community and / or technical experts to ensure data collection is in line with analysis requirements (both should be working closely together to gather results).

The scientific community shall disseminate the information and provide a feedback loop to investors and land managers regarding the effectiveness and success of the program as well as any new scientific information and resources that can be used for education and skills development on ground.

The Edward-Wakool Land Stewardship Incentive Programme would incorporate a range of financial incentive product options to suit individual farm systems and conservation outcomes such as the NSW BCT. Details of the program are outlined below;

Draft Pilot Edward Wakool Land Stewardship Incentive Program Design

Landholder site assessment

A hypothetical landholder site assessment is derived from feedback from NSW OEH, 2017. Review of LLS incentive Delivery Mechanisms – Final Report. The following is noted as feedback from Murray LLS as part of this report:

Assessment: Note that Murray LLS use or used to use a site assessment sheet to provide a project score. Site assessment includes consideration of Patch Connectivity, Habitat Condition Value, Site Size and New Extent, Edge Effect and Cost Effectiveness (See Appendix M-1): A dollar per hectare figure is produced and landholders are made aware that their projects will be assessed on a value for money basis. This usually results in landholders trying to be as competitive as possible when quoting infrastructure costs. A project proposal is developed with the landholders and supplied to an independent assessment panel. Prioritisation based on the site assessment score is often dependant on the level of project interest from year to year. The assessment panel can use the site assessment to rank projects if need be. Reference: Murray LLS, 2016. The Plains Wanderer Connected Corridors Project 16/17.

Price: Project infrastructure and revegetation is fully funded up to a maximum cap of $3,000/ha. The Murray CMA incentives project (no longer active) did pay per hectare stewardship payments to landholders, as well as set rates for eligible project activities. In perpetuity Property Vegetation Plans (PVP's) paid $250/ha, Term PVP's <20 years paid $150/ha and 10-20 year term PVP's paid $100/ha.

Financial incentives and actions have considerations based on the Review of LLS Incentive Delivery Mechanisms Final Report, 2017, and the 'Paddocks for Plains-wanderers Incentive Program Guidelines – Bringing Plains-wanderers back from the brink' program. This program

outlines incentive scheme design considerations such as landholder identified incentive options (Appendix L-1) and Incentive Options Summary (Appendix L-2).

A site assessment property score calculation is based on the Connected Corridors Project Site Assessment & Application form, Appendix M1. Site assessment methodology also takes into account previous TSR assessment processes for consideration, Appendix M2.

Hypothetical application of site assessment property score with lost production opportunity cost calculation

A hypothetical incentive calculation proposal based on different property environmental attributes (using a Site Assessment Property Score, Appendix M), and lost production opportunity cost (accounting for differences in site soil type which is yet to be examined) and rainfall variation across the region. For example Mathoura in the Eastern section of the Edward Wakool region has an annual mean rainfall of 377mm, whereas Tooleybuc has an annual mean rainfall 310mm a difference of 17.8%. The calculation would need agreement by an independent assessor and review of a final management plan by the landholder (e.g. priority one areas may assign different financial incentives to account for no grazing for 5 years, followed by one month grazing per year or two months). This would need negotiation.

This calculation is as follows;

Table 2- Hypothetical example: Incentive calculation using Site Assessment Property Score and Lost Production Opportunity Cost Calculation

Property Name: _____

Property area name	Site Assessment Property Score	Paddock size (Ha)	Lost Production Opportunity Cost Calculation*	Rainfall Index*	Total	Management plan landholder agreement yes / no)	Calculation sign off by independent assessor (yes / No)
Yarran (*Acacia Melvillei*) EEC	X	X	X	X	X	X	X
Native pasture and vegetation grazing	X	X	X	X	X	X	X
Grazing modified pastures	X	X	X	X	X	X	X
Cropping	X	X	X	X	X	X	X

* Lost opportunity cost and rainfall calculation form to be developed.

Note also that the financial incentive values are indicative only for development of a pilot environmental services incentive scheme for the region and need further stakeholder review. See Table 4 example covering a hypothetical incentive scheme example.

Table 3 below provides a generic property conservation management plan incorporating information from Table 2 above, and hypothetical application of the plan on a local property.

Table 3- Mixed Property A – 550Ha Property (500Ha cropping area, Remnant Black Box 50ha with ephemeral wetland).

Actions	Incentive **rate per unit ($/ha/yr)	Unit Ha, hrs, km, metre	Total $
Pest control (rabbit). Warren ripping and baiting. Coordinated 1080 baiting contractor available	$2/ha plus $150/hr ripping	550 ha and 2 hrs ripping	$1400
Pest control (fox).	$2/ha landholder work plus $/ha contractor access	550 ha	$1100
Pest control (cats)	$2/ha landholder work	550 ha	$1100
Pest control (pigs)	$2/ha	N/A	N/A
Pest control (deer)	$2/ha	N/A	N/A
Secondary Control mechanism: Specialist regional pest control contractor targeting multi species will compliment landholder activities. A payment is provided for property access.	$2/ha	550 ha	$1100
Over abundant Kangaroos	$2/ha	N/A	N/A
Over abundant Noisy or Indian Minors	$2/ha	50Ha	$100
Weed control in primary habitat area – Box thorn (may be a part of toolbox measures below). *Note that indigenous groups provide a weed service if required.*	$150/hr physical Box Thorn control with machine. $35/hr chemical treatment	* 4 hrs tractor *2hrs chem	$670
Weed control in primary habitat area – other noxious and environmental weeds identified	$35/hr	N/A	N/A
Permanent fencing: Riparian, endangered ecological community, threatened species primary habitat or PVP	$7/metre (hinge joint) $5.60/metre (plain wire)	N/A	N/A
Temporary fencing (electric): For primary habitat grazing paddocks with identified threatened species for as part of tool box measure.	$3.50/m	N/A	N/A
Stock water points to improve grazing management in primary habitats. *Does not include payment for feed.*	* Polypipe (40mm) =$2.00/m, (50mm) = $3.00/m * Trough (4.9m) = $850 * Tank (22,700L) = $2,700	*500 m polypipe (50mm) = $1500 *Trough =$850 *Tank =$2700	$5050
Feeding infrastructure (i.e. feed trailers, lick feeders etc.). Subsidy available for key threatened species management where applicable (as identified in species toolbox). *Does not include payment for feed.*	$1000/tn capacity subsidy ($5,000 Cap)	N/A	N/A
Stock Management Area (SMA). Not to be set up in primary habitat). *Does not include payment for feed*	Fencing and stockwater and feeding infrastructure based on above costings ($10K cap)	N/A	N/A
Planting of saltbush away from identified species primary habitat	$1.72/m for direct seeding	N/A	N/A
Ongoing site management/maintenance (infrastructure). E.g. fencing	$2,1000/yr		$1,000
Strategic grazing management base incentive (may be part of toolbox measures below such as a maximum of month grazing per annum,). If not, payment will be based on minimum groundcover levels.	$50/ha	50	$2,500
Retaining regrowth, dead timber (as per BCT standard) and maintaining ground cover levels. GEOGLAM RAPP Map is a tool that could be used to monitor groundcover as an audit tool. *See below.*	$50/ha	50	$2,500

Actions	Incentive **rate per unit ($/ha/yr)	Unit Ha, hrs, km, metre	Total $
Habitat enhancement: Revegetation - deep ripping for tube stock for sites over 2000 plants (if applicable. i.e. soil type does not have sub-soil constraints). *Note that habitat enhanced sites automatically receive incentive funding based on categorisation into prioritisation categories (1-3) outlined below.*	$150/hr	2	$300
Data deficient species research – partner with research entities	$50/ha/yr	N/A	N/A
Allowing NGO, government agency staff on site for monitoring	An expectation of funding		
Allowing NGO, government agency staff and general community on to the site for field days	$250.00 per event	N/A	N/A
Regional action group member (e.g. integrated pest and weed control or threatened species focus group). Meeting attendance	$50 per meeting + travel	2	$200
Recommended threatened species enhancement actions undertaken (see generic farm or specific action toolbox). See categories 1 – 3 below. Incentive rates are based on site assessment, patch connectivity value score and est. lost opportunity production cost in the E-W system. A Site Assessment Project Score determines incentive rate categorisation.			
High priority (Category 1) protection areas (endangered remnant vegetation e.g. Bull-oak EEC). Specific toolbox measures carried out for Endangered species or EEC only found in this region and / or identified by the community as a local iconic species and / or is a priority investment species from an investor.	$400/ha/yr	N/A	N/A
Medium priority (Category 2) protection areas. Gazetted threatened ecological communities (e.g. Specific toolbox measures carried out for Endangered species or EEC only found in this region or several other adjacent areas)	$250/ha/yr	50	$12,500
Low priority* (Category 3) protection area (e.g. broad toolbox measures not related to any particular species, but supports general keystones species in the landscape)	$125/ha/yr	N/A	N/A
Total (one-off infrastructure payment)			**$5,050**
Total annual incentive scheme payment:			**$24,370 / yr**

***Indicative amounts only. The value shall be based on lost opportunity costs as well as site quality. In category 1 high priority sites such as Buloke (or Bull-oak) Endangered Ecological Community (EEC), the soil types found for these EEC's can be high quality soil types for agriculture, therefore the offset cost for site protection is higher.*

Application of the proposal applied across the Murray River Council Local Government Area (MRC LGA) is outlined in a hypothetical regional incentive scheme example outlined below in Table 4 for future costing purposes.

Hypothetical Application of the Incentive Scheme in the Murray River Council LGA based on Land use

Note that the following is based on anticipated landholder uptake of 70% in the MRC LGA after 10 years of Programme operation within the Edward Wakool region only. Note that the Edward River Council Area land use data within the footprint of the Edward-Wakool region has not been evaluation as yet.

Table 4 – Land use in MRC LGA, using anticipated Land Stewardship Incentive Scheme landholder uptake, hypothetical value proposition, program support and administration Year 10

Land use	Area (km2)	Area converted to Ha and based on anticipated Landholder uptake of 70% (ha)	Hypothetical average. value per Ha ($)	Hypothetical average value ($)**
Native pasture / vegetation	216.36	151,151	$125	$18,893,875
*Area of Native pasture vegetation with threatened ecological communities **(35%)****	116.55	84,585	$250	$21,146,250
Total native pasture / vegetation	**333**	**235,736**		**$37,787,750**
Cropping (dryland)	305	213,500	$8	$1,708,000
Cropping (irrigated)	216	151,200	$8	$1,209,600
Nature conservation	124	N/A	N/A	N/A
Grazing modified pastures	115	80,500	$8	$644,000
Production forestry	38	26,600	N/A	N/A
Residual native cover	36	25,200	$125	$315,0000
Reservoir / dam, channel	1.6	1,120	N/A	N/A
Other	16	N/A	N/A	N/A
Total:		**969,592**		**$44,499,350**
Up-front infrastructure costs (e.g. fencing, stock water, stock containment) for first 10 years.			$1M per year	$1,000,000
Revegetation and pest control services			$1M per year	$1,000,000
Programme Management, monitoring and evaluation, community engagement support and administration (13% of landholder turnover):				**$5,784,916**
Subtotal:				**$52,284,265**

*Source: Murray River Council Local Strategic Planning Statement 2020-2040, March 2020

** Note that payment would be tied to a tiered performance based system that will include a balloon payment upon meeting objectives. This needs to be further developed.

Note that the value of Agriculture in the MRC LGA is $344M annually. The environmental services incentive scheme represents 14.6% of agricultural turnover in the region. Additional incentive payments may be included as a reward payment for positive biodiversity outcomes.

Table 4 outlines a mature proposal which would take years to scale up. Landholder expressions of interest would consider historical landholder projects, and priority environmental asset protection opportunities and willingness for property access. The design would include initial ecosystem and biodiversity benchmark information with a tiered financial reward structure based on outcome targets. *Note: Suggest provision of a Project Gantt Chart to outline aspirational Programme growth timelines from pilot through to completion.*

Year 1 (current) – Seek partners to develop a pilot project in the Murray Valley. Project development phase: Test practical ideas with landholders and landholder groups. Develop project governance arrangements with stakeholders. Establish baseline information and benchmark management practices and develop contracts. Future years project plan assumes pilot scale funding and subsequent investment funding.

Pilot project

Year 2 - Test pilot on six to eight farms in the E-W Region (WMLIG). Other areas of the Murray Valley to be done by other Landcare and Producer groups (e.g. RGA ECP). Tweak and adapt pilot project for future investment opportunities. Project budget $1M??

Year 3 – Scale up program by 10% per year, Yr 3 to 10.

Year 10 – Anticipated uptake of 70% of farms join the scheme with 970,000 ha in the Edward Wakool system injecting $52M annually and XXXXX jobs.

Monitoring and Evaluation

Groundcover Monitoring Tools

GEOGLAM RAPP Map

It is noted that groundcover protection is an important management tool for monitoring the outcomes of incentivised actions. The GEOGLAM RAPP Map would likely be used for property assessment purposes.

RAPP Map is the spatial data platform for the Rangeland and Pasture Productivity activity which is part of the Group on Earth Observations Global Agricultural Monitoring (GEOGLAM) initiative.

This online tool gives access to information about the state and condition of global rangelands. It provides time-series data on the vegetation and environmental conditions, allowing national and regional tracking of the resources which sustains livestock production. It has been developed, and is currently hosted, by Data61 with the assistance of IT resources and services from the National Computational Infrastructure (NCI), and the AusCover facility.

RAPP Map is supported by CSIRO and through funding from the Australian Government's National Landcare Programme**.**

Other

Veg Machine

- Online tool that uses satellite imagery to summarise decades of change in Australia's grazing lands.
- Generate comprehensive ground cover monitoring reports
- Measure land cover change or estimate soil erosion rates
- View satellite image land cover products
- Better understand the links between management, climate & cover in grazing land

Farm Map 4D

- Developed by Western LLS
- Cost associated with the tool
- Digital farm mapping system
- Land type mapping
- Ground Cover time-series analysis & reporting

Fauna Surveys

Currently NSW DPIE and Universities conduct ad hoc fauna surveys in the region. Western Murray Land Improvement Group is developing a fauna survey for the Murrakool region over 45 farms.

A pilot fauna survey funding submission has been successful with the BCT (as of July 2021). This pilot will test a non-intrusive fauna survey technique on local BCT Stewardship Agreement Site in the Barham area.

, and shall determine if this program It is anticipated the learnings of the fauna surveys pilot can be tweaked to build a robust fauna survey technique and plan that can be spread across the Edward Wakool footprint in the future. The fauna survey could be conducted on an ongoing basis to inform the benefits of the incentive scheme on threatened species outcomes. It is proposed the environmental services scheme would be rewards based so that positive performance outcomes (KPI's) would be tied to financial benefits for Landholders.

Future cost / Benefit analysis investigation priorities

Note that this figure seems excessive, however needs further investigation in relation to cost/benefit analysis associated with the following (explore further);

- Offsetting the value of lost regional production due to water reform in the region which has had a reduction in water entitlements of 164 GL up until 2016, a reduction of 32.3% (Appendix F). *Action: Calculate the lost opportunity production cost of water $.....*
  Note that the Murray Darling Basin Plan has a budget of $13B to deliver environmental benefits for all Australians. There are 9,200 agricultural farms in the Basin, which works out as a cost equivalent of $1,413,044 per farm.
- Brand AUSTRALIA. *Action: Calculate the value of Australia's clean green image to agriculture exports, the local market and tourism in particular?*
- The value of environmental services such as water quality, clean air, pest control and pollination. *Action: Determine what the value to farm productivity is, and clean air and water for Australia?*
- Accounting for the uneven international world trade playing field. Australia is again increasingly competing against countries with protectionist policies, such as the USA which now affords support to the agricultural sector worth $28B of tariff subsidies annually. *Action: Calculate the costs to Australian agricultural sector for free trade and quantify the impact of this scheme in balancing against an incentive scheme against protectionist policies.*
- Costs already associated with drought disaster relief funding, including program administration. *Action: Calculate the costs associated with drought relief and whether an environmental incentive scheme could offset these costs. What is the difference of the long term?*
- What are Australians prepared to pay for biodiversity protection? *Action: Determine what Australia is prepared to pay for environmental services and biodiversity protection.*
- National and International investor opportunities based on social, environmental and governance principles. Ethical investors want transparency and control of their investments. They want to know how their money is affecting the environment or society in a negative or positive way. This programme can provide a conduit for investor funds as an offset programme. This opportunity needs to be explored. *Action: Need to determine if there a $ value that can be assigned to companies with ethical investment principles*.
- Non complaint / unscrupulous Behaviour Penalty offsets. *Action: Determining whether penalties for unethical businesses activities / behaviour, such as those identified in the Banking Royal Commission by the Australian Banking sector, are a*

viable proposition for government. Can penalties be directed into the not-for-profit sector for delivery of Environmental Services such as this proposal?

It is anticipated that a pilot Land Stewardship Incentive Programme would be on a much smaller scale, say several farms with different farm systems and environmental attributes to test this Programme proposal.

ABOUT THE EDWARD-WAKOOL SYSTEM

The Edward Wakool system is located in the Mid-Murray region containing diverse and rich natural environments. Its waterways provide water for domestic use, and support diverse agriculture, tourism and recreational activities and Aboriginal cultural values and practices.

Figure 12. Images of environmental, recreational and cultural assets in the Edward Wakool System

Image 1. An Aboriginal ring tree adjacent to the Wakool River in the Whymoul Forest. Image 2 – Remnant sandhill vegetation community. Image 3 – Wetland adjacent to a rice crop. Image 4 - Murray Cod caught in the Edward River.

Environmental Values:

The region is located in the Riverine Plains in the central part of the Murray Basin, and contains an array of floodplains, wetlands and freshwater lakes, together with nationally and internationally significant forests and National Parks (See Figure 2-3), including:

- Murray Valley National Park (incorporating Ramsar listed wetlands)
- Murray Valley Regional Park
- Perricoota State Forest
- Campbells Island State Forest

- Koondrook State Forest
- Yanga National Park
- Yanga State Conservation Area
- Yanga Nature reserve

Collectively, these forests, rivers and adjacent farmland support 550 plant and 270 animal species, including threatened and iconic species such as the Australasian Bittern, Painted Snipe, Gilberts Whistler, Grey Crowned Babbler, Bush Stone Curlew, Southern Bell Frog, Trout Cod, Bull-oak, Yarran, Blakeys Yellow Gum, and Turnip Copperburr.

The list of threatened species found or predicted in the Edward – Wakool system are outlined on the NSW Department of Planning, Industry and Environment, Saving Our Species Website. The Edward – Wakool system lies within the Murray Fans bioregion on the website. https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/saving-our-species-program

In total, 112 threatened species are listed for the Edward Wakool System (Appendix B, Table B1-10). In the faunal community there are 46 bird species, 5 bats, 4 marsupials, and 2 amphibians. In the flora community there are 12 herbs and forbes, 2 orchids, 2 shrubs, 1 tree and 1 fern / cycad listed, including 5 endangered ecological communities. Of the threatened species, 18 are endangered, 54 are vulnerable, and 3 are listed as critically endangered in NSW.

Figure 13 Environmental fast facts* (note that this does not match the NSW threatened species information as there is a mix of state and Federal listings…..I think!)

8 threatened terrestrial ecological communities (NSW Biodiversity Conservation Act 2016 and Commonwealth Environment Protection and Biodiversity Conservation Act 1999)	1 threatened aquatic ecological community (NSW Fisheries Management Act 1994)	38 threatened birds (Environment Protection and Biodiversity Conservation Act 1999)
6 threatened mammals (Environment Protection and Biodiversity Conservation Act 1999)	2 threatened frogs (Environment Protection and Biodiversity Conservation Act 1999)	13 threatened plants (Environment Protection and Biodiversity Conservation Act 1999)
27 nationally and internationally protected migratory bird species (Commonwealth Environment Protection and Biodiversity Conservation Act 1999)	70% LGA used for farming	11% LGA used for nature conservation

* Source: Murray River Council Local Strategic Planning Statement 2020-2040, March 2020

It must be noted that some species are listed as ‘’iconic’’ in Appendix B12. This is because of a weighting applied to the species based on a range of factors including;

- A species may have been identified as a local priority species in the Murray Biodiversity Management Plan because it is threatened or endangered locally or nationally.
- A species selected simply might be important culturally because it has a local community focus for recovery as a keystone species,
- A species has been recently identified as being in decline via expert feedback, monitoring and evaluation (e.g. a proposed follow up Murrakool Wildlife Survey),
- or because a species is important to local indigenous people as a totem species.

It is envisioned that locally important iconic species will be added to over time for targeted action based on community driven needs that select target species for recovery, such as from a facilitated focus group. A ‘’triangulation’’ priority method may be developed over time for the region that prioritises species for actions based on a range of data inputs.

There are 32 key threatening processes. Threats to species and ecological communities include disease, habitat loss / change, pests, weeds and connectivity. Individual threatened species, endangered ecological communities, threats and recovery management actions are listed in Appendix B. A threatened species recovery plan and associated action toolbox for the Freckled Duck is provided as an example in Appendix B, Table B12.

In the Murray River Council, around 35% of the LGA is mapped as containing vegetation with a number of biodiversity communities gazetted as threatened ecological communities under the protection of State and Federal legislation (See Figure 2.4).

The rich biodiversity values were acknowledged in the Draft Wildlife Corridors Plan, March 2012, (https://library.dbca.wa.gov.au/static/FullTextFiles/070942.pdf) as one of several key priority sites for public investment, however funding was not forthcoming due to community angst and distrust (i.e. it was not clear why an “Act” was needed, and the Water Act associated with the Murray Darling Basin Plan was fresh in people’s mind) regarding the need for an accompanying Wildlife Corridors Act that was to be enacted for the investment to be realised. (See Appendix A). The proposal for the Edward Wakool system Wildlife Corridor to be a priority prospective corridor, along with only three other sites in Australia, recognises the importance of the Edward Wakool system and the need to prioritise investment for biodiversity outcomes and connectivity to the existing conservation reserve system. River systems and wetlands are important ecological pathways that support movement of wildlife for foraging and breeding, and also provide refuge during droughts and dry seasons.

Figure 14 – Nationally and internationally significant wetlands in the Edward Wakool system (Part of the Mid-Murray region)

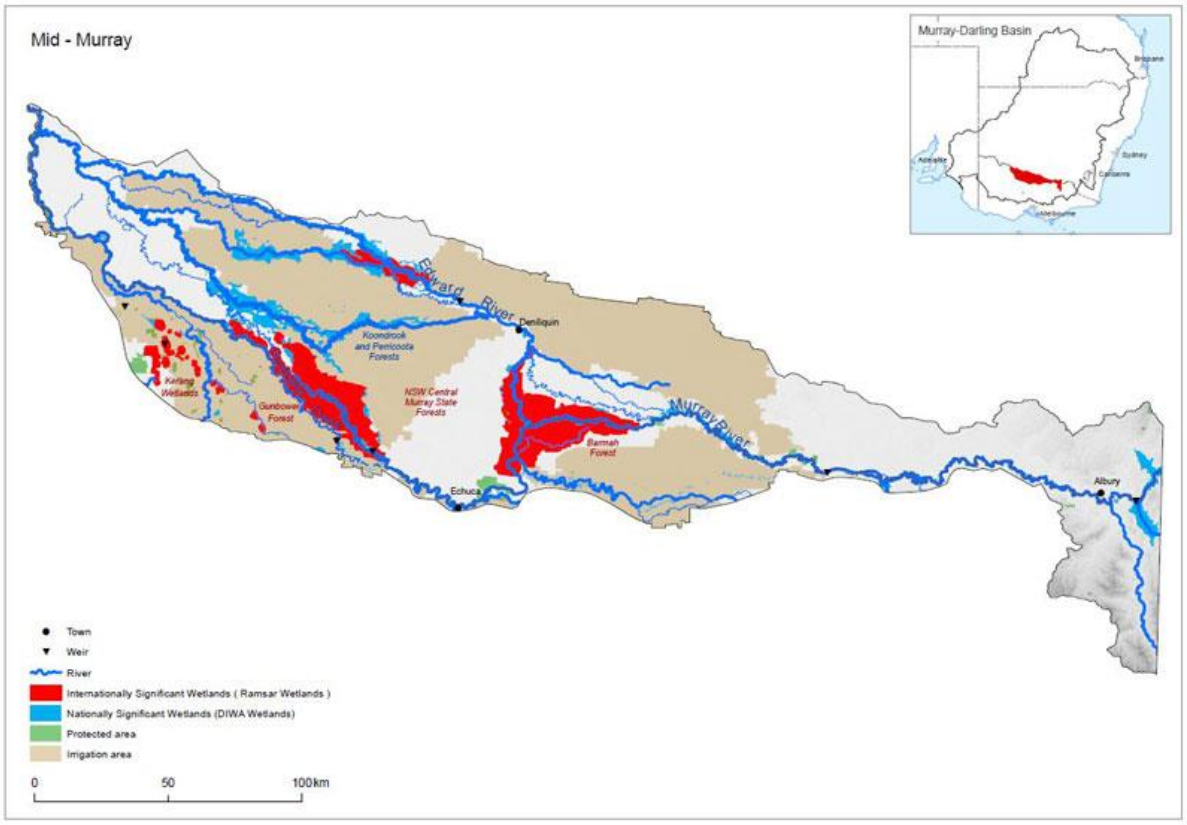
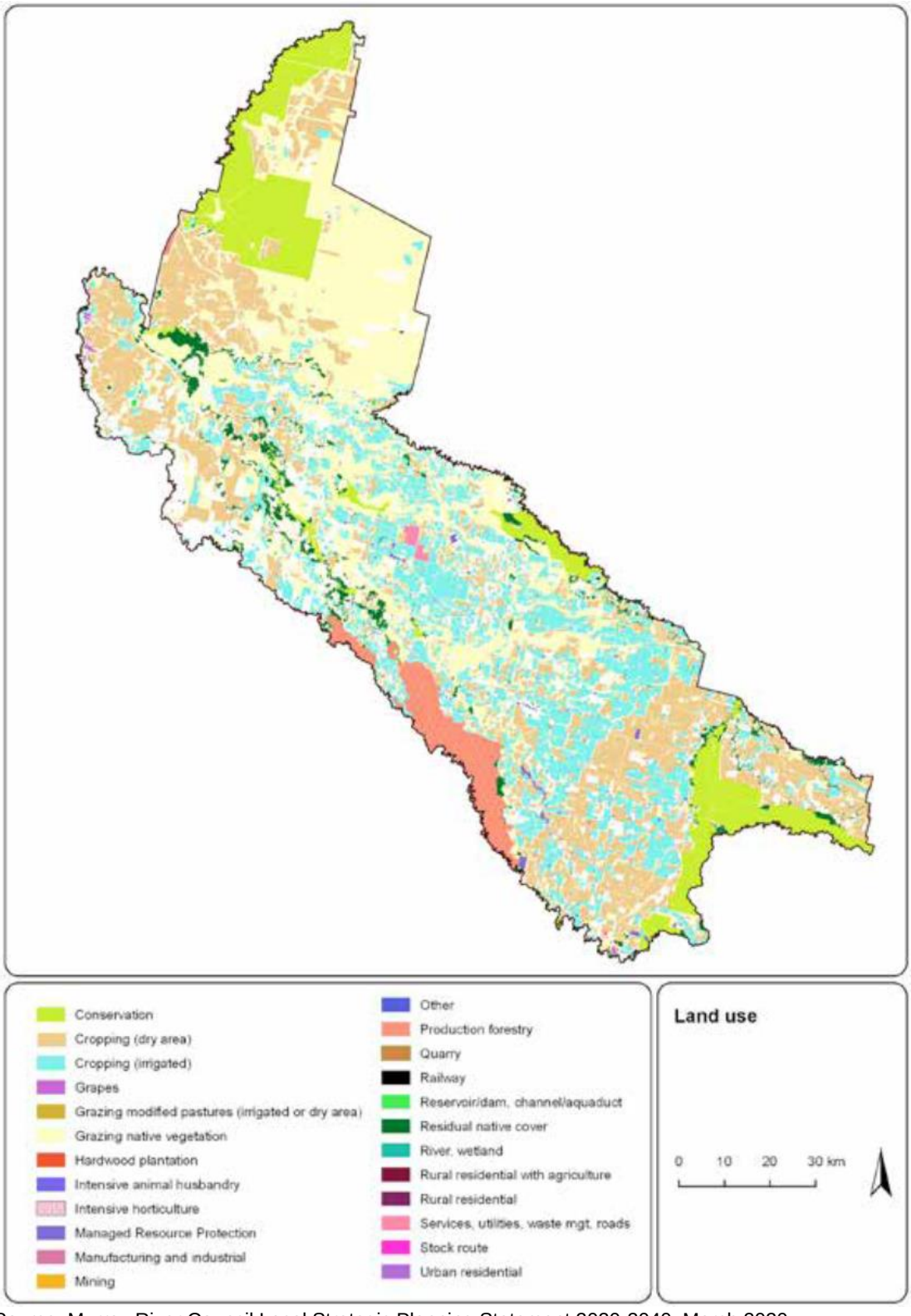


Figure 15 – Nationally and internationally significant wetlands in the Edward Wakool system (Part of the Mid-Murray region)



Source: Murray River Council Local Strategic Planning Statement 2020-2040, March 2020

Environmental Investment Priority Justification

WMLIG & RGA believe the Edward Wakool system is a prime candidate site for investment priority to deliver a pilot natural capital stewardship program as the region has the following environmental attributes;

- Many wetlands recognised under the Ramsar Convention, and are called 'Wetlands of National and International Importance'. Maintaining connectivity across Australia's wetlands through seasonal water flows and networks of riparian vegetation is essential if we are to support and maintain these areas, which contain important habitats for migratory species and are centres of biological diversity (Appendix A).
- Is recognised as having high biodiversity conservation value and concentrated scientific research in the region. This is noted in the following;
  - Recognition of the importance of the region in the Draft National Wildlife Corridors Plan as one of 4 key prospective corridors in Australia (see Appendix A).
  - Major investment and scientific research conducted on targeted environmental water use in the Edward Wakool System as part of the Commonwealth Environmental Water Office's 5 year Long-Term Intervention Monitoring Project, and now Monitoring, Engagement and Research (MER) project (see Appendix C).
  - Supporting wildlife survey and habitat data including recommendations for threatened species enhancement. Refer to Murrakool Wildlife Survey, ''Murrakool - Magnificent Diversity, Precarious Future, Herring, 2013'.
  - WMLIG and Murrakool Land for Wildlife are currently developing a new wildlife survey and Saving Our Species Program which would complement a local pilot scheme, especially in regard to monitoring and evaluation.
  - Community developed Murray Catchment Action Plan that aligns to the land management actions addressed in this proposal (Refer to Appendix I).
- A community engaged and active in NRM and regenerative agriculture practices.

The region should also be regarded as a high priority investment site to assist in alleviating the social and economic impacts as outlined in Section 2.4.

Agriculture

Agricultural enterprise in Murray River Council is the leading employment sector and plays an important role in delivering quality food and fibre to support Australian and international markets. As our strongest economic driver, agriculture in Murray River LGA produced over $344 million for the local economy. Quality soils, favourable growing climate and access to irrigation has created a diverse agricultural base, with broad acre cropping, meat, dairy, wool, cotton, and horticulture produced across the LGA. Agriculture is the dominant use of land within Murray River Council with approximately 70% (around 800,000 hectares) of our Council area harnessed for farming. The accompanying figure illustrates the predominant farming types and their locations within the LGA however this does not reflect the developing horticultural industry in the Tooleybuc region. Production of milk, rice, cotton, grapes, vegetables fruit and nuts are reliant on irrigation for success. Source: Murray River Council Local Strategic Planning Statement 2020-2040, March 2020.

Figure 16 – Land-use in the Murray River Council LGA

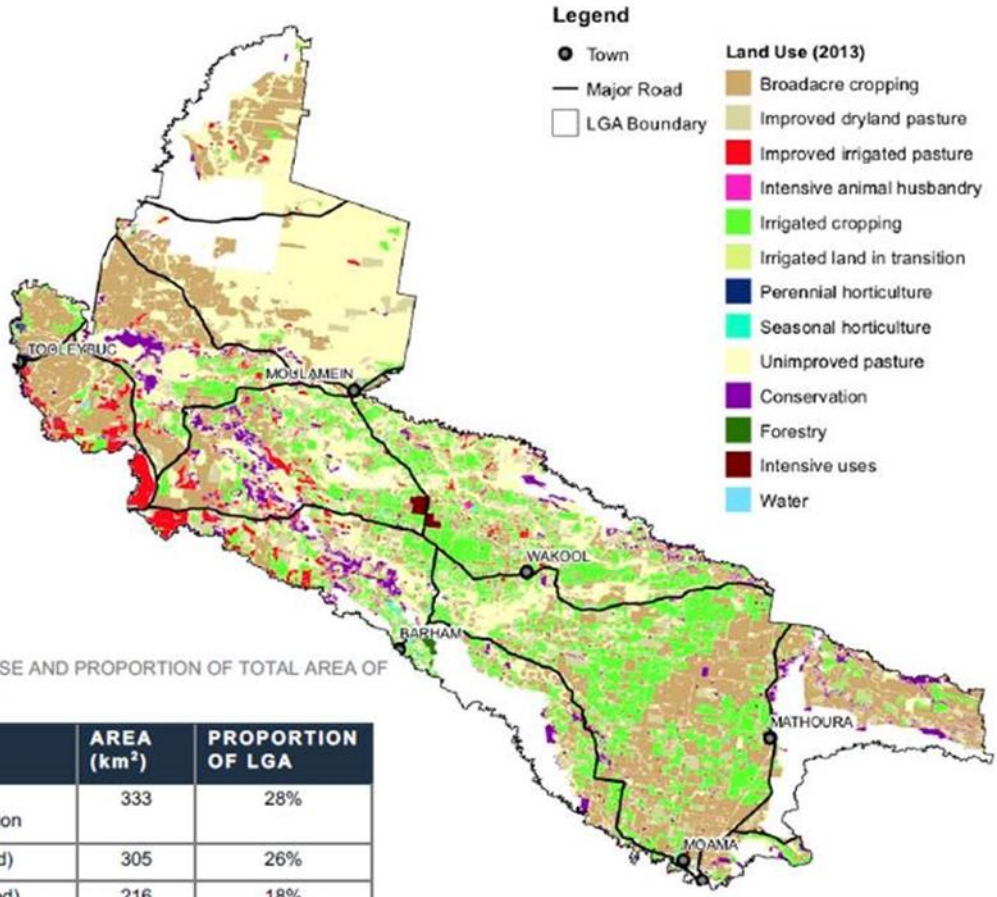


TABLE 3: LAND USE AND PROPORTION OF TOTAL AREA OF MURRAY RIVER[1]

LAND USE	AREA (km^2)	PROPORTION OF LGA
Grazing native pastures/vegetation	333	28%
Cropping (dryland)	305	26%
Cropping (irrigated)	216	18%
Nature conservation	124	11%
Grazing modified pastures	115	10%
Production forestry	38	3%
Residual native cover	36	3%
Reservoir/dam, channel/aqueduct	1.6	0.1%
Other	16	2%

Source: Murray River Council Local Strategic Planning Statement 2020-2040, March 2020

Socio-Economic Impacts in the Edward- Wakool System:

The Wakool Region, NSW: The community has been impacted by major challenges such as the Millennium Drought, the Murray Darling Basin Plan and associated water reform process, the creation of Red Gum National Parks (and associated loss of timber industry jobs) and farm consolidation. These changes have resulted in a reduction of employment opportunities, and community and government services in the area. The socio-economic wealth decile for this region has diminished considerably (dropping from 5 to 2 – *i.e. the region is now in the bottom 20% of socio-economic decile ratings in Australia*) reducing financial capacity for businesses to adapt to change. A reduction in the long-term water availability of greater than 20% will result in many farm businesses becoming unviable with

direct flow on impacts occurring at a community level. Reference: MDBA report, NSW Central Murray Community Profile, 2012.

Between 2001 and 2016, the Wakool community had a reduction in water entitlements of 98 GL, which is reduction of 38% of entitlement allocations. When taking into account the surrounding communities of Denimein and Deniboota, all west of Deniliquin NSW, there is a combined total reduction in water entitlements of 164 GL. Source: Southern Basin Community Profiles, 2016.

Socio-economic statistics in the Wakool Community Profile analysis along with neighbour affected communities of the Western Murray Valley in the period 2001-2016 are outlined in Appendix F.

GDP data comparing regional NSW GDP growth compared to Sydney is compelling and clearly depicts the negative impact of the GDP in the Mid Murray Region of NSW and Northern Victoria compared to the rest of the Murray Darling Basin, and other regions in Eastern Australia (Figure 17 below). Figure 18 illustrates a declining trend line of GDP growth (-25% GDP growth p.a.) in the region from 1990 to 2018. Source: GDP report: Economic Performance of Australia's Cities and Regions, SGS Economics and Planning. Dec. 2019. Note that recession areas are classified as having at least -1% GDP growth p.a. and depression areas -10% p.a.

Figure 17 – Map of GDP data comparing regional NSW GDP growth to Sydney

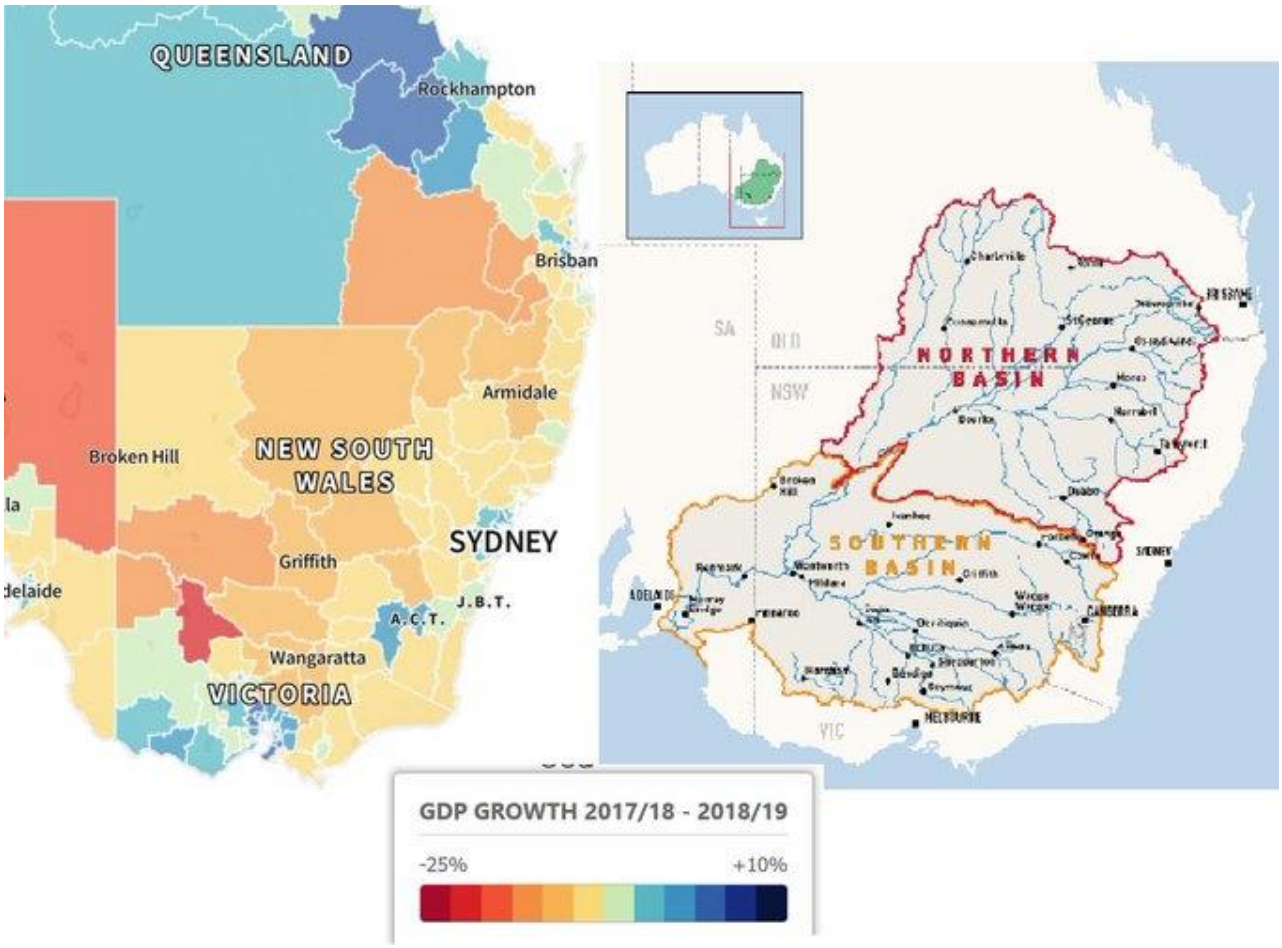
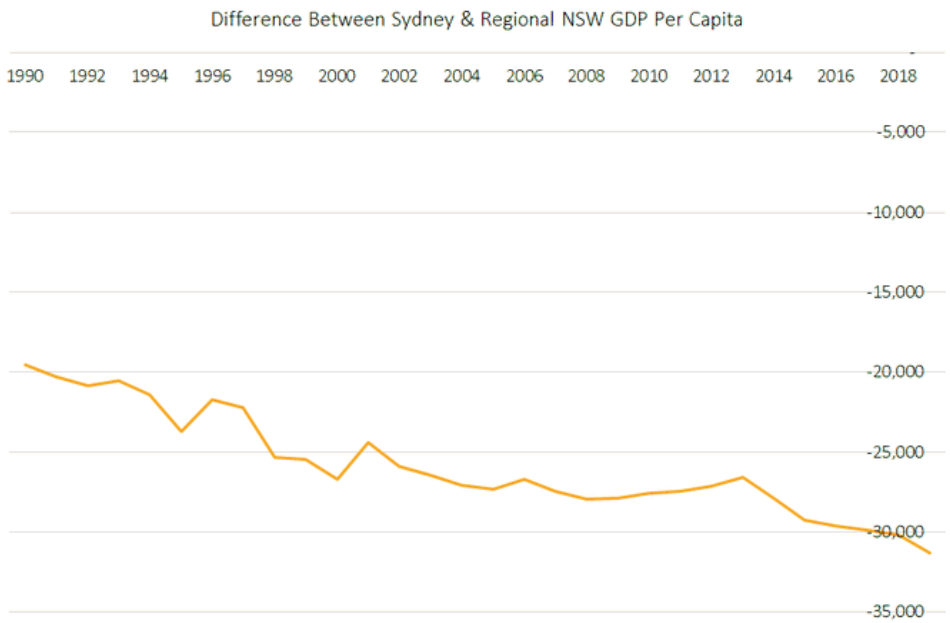


Figure 18 – Annual graph of GDP data comparing regional NSW GDP growth to Sydney



1. REGIONAL FOOD BRANDING OPPORTUNITIES - PROVENANCE AND FARMER 'BACKSTORIES'

(To be explored further – Regionality input?)

There is an opportunity to market the Edward Wakool System as a provenance for regional food branding leveraging the unique floodplain environment. Rural Industries Research and Development Corporation (RIRDC) conducted a research summary titled 'Provenance of Australian Food Products – is there a place for geographical indications? Research shows that GI's have generated two effects that may bring regional benefits, namely a reciprocal spill-over effect (e.g. tourism) and an investment-in-quality effect'. Information of note from this report includes:

''Regional economies dependent upon agriculture have experienced unprecedented change in Australia over the past 100 years. Increasing production efficiencies, integrated supply chains and increasing commoditisation have seen a decline of agriculture as a major driver of national growth and decline in regionally based jobs''.

To sustain themselves, regional communities increasingly need to either diversify or intensify their economies – often requiring external investment which brings with it the risks associated with the loss of control of local assets and infrastructure.

Australia's regions have the potential to turn some of their products into 'íconic' local products. Currently the potential value of such products may not be fully realised because of a lack of marketing strategies around provenance or because other actors in the value chain'.

Australian producers are generally focused on producing high quality products, relying on accumulated skill, know-how and innovation, but involvement with selling their products 'stops at the farm gate'. Premium quality, sometimes associated with certain locations, is

therefore not apparent to end consumers and thus fails to generate premium returns. Consumers do not learn the 'backstory' of the production of the food they consume.

Some producers found that shifting from a strategy of pursuing undifferentiated commodities to produced food differentiated by quality and reference to origin and local backstories have worked to improve margins and increase profitability.

WMLIG is currently conducting the 'Wakool Agri-innovation Program' as part of the Murray Darling Basin Economic Development program (Round 1). The project is exploring opportunities to value add local produce based on a regional food brand, including food and fibre traceability back to the farm level. As part of this process the unique landholder 'back-story' would be captured as part of a regional produce marketing campaign that differentiates our region by provenance. Environmental, land stewardship, and food production quality safety systems employed by the landholder are an integral part of the story and seek to reward the producer with higher prices for outputs that better reflect the 'backstory' of their product. It is anticipated provenance branding strategies will emphasis place, images, and local individuals to substantiate and strengthen the backstory.

The Wakool Agri-innovation Program aligns to the Murray River Council area regional branding strategy initiative termed 'River Country – *Naturally*' (note that I have the word *naturally* as it was part of a previous council strategy). The Edward Wakool Natural Capital Stewardship pilot program will foster an expansion of conservation outcomes and associated stories that can be leveraged with regional branding to extract an improved value proposition for regional produce.

Feedback from Laura: ***This is already quite an in-depth document, is the regional branding really relevant for the project. A brief mention about the Wakool Agri-Innovation/branding opportunities is a great selling point, but not sure it warrants its own paragraph.***

Appendix A

Draft National Wildlife Corridors Plan, March 2012

Wetlands of National and International Importance

Australia has many wetlands that are recognised under international treaties, such as the Ramsar Convention, and are also afforded protection under the Environment Protection and Biodiversity Conservation Act 1999. They are called 'Wetlands of National and International Importance'. Maintaining connectivity across Australia's wetlands through seasonal water flows and networks of riparian vegetation is essential if we are to support and maintain these areas, which contain important habitats for migratory species and are centres of biological diversity.

Private land conservation

Much of Australia's highest quality remnant native habitat exists on private land. These valuable areas have often been afforded both formal and informal protection by the good custodianship of private landholders. Private landholders may voluntarily wish to manage these areas as part of wildlife corridors. For example, landholders may choose to become involved in a variety of conservation programs and incentives, such as Environmental Stewardship, Landcare projects, conservation covenants, voluntary conservation agreements and farm management plans.

'We are in our infancy of experiencing the changes that this site will undertake under the Environmental Stewardship Program. Last spring and summer was the first year in our time as owners of the property that we received average rainfall. The site bounded into its full glory, harbouring a diverse range of forbs, lilies, orchids and grasses. We have also witnessed extensive natural regeneration of native trees'. Selwyn and Pip Job. Contracted for 15 years under the Environmental Stewardship program to manage Box Gum Grassy Woodland on a cattle property in central west NSW.

Ecological and cultural pathways

Ecological pathways—for example, river systems and migratory bird flyways—provide important natural connectivity within our landscapes. Ecological networks also provide the basis for many traditional Indigenous pathways, such as songlines and trading routes which for millennia have connected Indigenous communities through trade and seasonal travel.

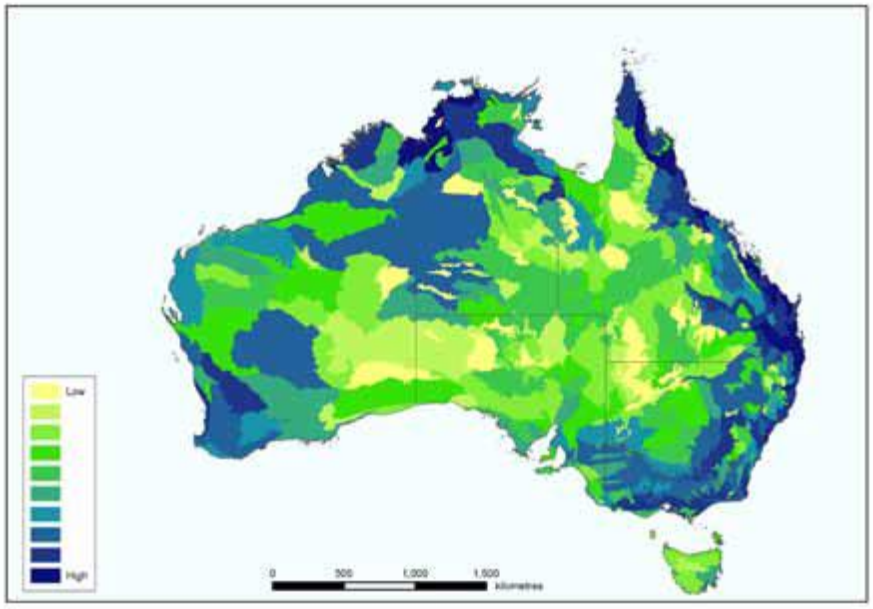
Many of these routes followed watercourses or linked water points. European explorers also took advantage of these existing pathways, some of which then developed to become the travelling stock route network. These ecological and cultural pathways provide a natural planning framework for wildlife corridors.

Existing major corridor initiatives

Existing major corridor initiatives are important foundation stones for the national network of wildlife corridors. The most developed projects are important models for building corridors across Australia and are characterised by integrated conservation planning over large areas, diverse ecosystem types and multiple tenures. Collaboration and community engagement are features of such initiatives, with action driven through a variety of incentive and support mechanisms. Some corridor initiatives have been led by non-government organisations,

while others have been initiated by state government agencies and regional natural resource management organisations.

Figure A1 Species richness in Australia's bioregions



Source: Australian National Heritage Assessment Tool (2011)

Existing major corridors:

- Gondwana Link, Western Australia
- Great Eastern Ranges, New South Wales
- Habitat 141°, Victoria/New South Wales/South Australia
- NatureLinks, South Australia
- Tasmanian Midlandscapes, Tasmania
- Trans-Australia Eco-link, Northern Territory/South Australia

Prospective corridors:

- Kimberley region, Western Australia
- Cape York Peninsula, Queensland
- Noosa to Ballina region
- Edward-Wakool Rivers region

Edward-Wakool Rivers region

The Edward-Wakool system is located in the Murray-Darling Basin between Deniliquin in NSW and Swan Hill in Victoria. It is an anabranch of the Murray River and comprises a complex series of interconnecting rivers, creeks, billabongs, flood-runners, wetlands and lakes covering more than 1000 square kilometres between the Murray and Edward Rivers.

The area was developed for irrigated agriculture after the construction of the Hume Dam in the 1950s. A corridor in the Edward-Wakool Rivers region would be the first of many potential corridor initiatives in the Murray-Darling Basin that may, in future, form part of the national network of wildlife corridors or be considered for nomination as a National Wildlife

Corridor. A range of opportunities also exist for alignment and integration with existing conservation and corridor initiatives in the Murray-Darling Basin.

Landscapes and biodiversity

The ecosystems of the area include areas of river red gum forest, black box woodland and lignum shrubland as well as extensive wetland areas and floodplains. Permanent and semi-permanent wetlands and billabongs provide important refuges during drought and are important nurseries for fish breeding. Nationally listed threatened species present include Murray Cod, Trout Cod, Eel-tailed Catfish and Silver Perch. River red gum forests within the Edward-Wakool support breeding events of hundreds of waterbirds including listed migratory species during periods of inundation. The Edward-Wakool also provides habitat for species such as the nationally vulnerable Growling Grass Frog, endangered Australasian Bittern and listed migratory species such as the Black-tailed Godwit and Curlew Sandpiper.

Conservation areas

In 2012 seven per cent is managed under less formal conservation agreements.

Conservation areas found in the region include the Werai Forest, part of which is an Indigenous Protected Area and also listed as part of the NSW Central Murray State Forests Ramsar site. The area is also bounded by Barmah-Millewa Ramsar site to the east and to the Koondrook-Perricoota and Gunbower forests to the south. These are icon sites under The Living Murray program and provide important opportunities to increase regional ecological connectivity.

Past and current pressures

Parts of the Edward-Wakool system are very degraded. More than a century of water regulation, altered water regimes and prolonged periods of drought have led to salinity problems, declines in water quality and the condition of wetland dependent vegetation. Feral animals, such as rabbits, goats, foxes and deer and increases in the severity and frequency of fire are also ongoing threats. There is still uncertainty regarding the specific impacts of climate change on water availability throughout the Murray-Darling Basin. However, most scenarios for the mid-Murray region predict reduced runoff and flows associated with reduced winter rainfall.

Activities

Although water extraction and the construction of infrastructure have reduced environmental flows in the river systems over many years, environmental water is being delivered to private and public property to restore wetland and river red gum environments in the area. The benefits of these flows can be optimised by complementary land management such as revegetation projects, modification of grazing and cropping regimes, and infrastructure projects to increase hydrological connectivity, such as replacing low level crossings and building fish weirs. Many private landholders in the region already have environmental management plans for their properties. Coordination of all conservation efforts, through a wildlife corridor initiative may help galvanise efforts across land tenure types and administrative boundaries to restore ecological condition and processes throughout the area.

Community and potential participants

Most land in the Edward-Wakool region is privately owned and 82 per cent of the landuse is agricultural, with grazing, cropping and irrigation enterprises predominating. There is considerable local support for protecting and maintaining the region's environmental values.

In recent years, Murray Irrigation, the NSW Murray Wetlands Working Group and local community members have provided environmental flows to over 93 wetlands within the region.

The Commonwealth Environmental Water Holder has also been working closely with local landholders, other local stakeholders, the Murray Catchment Management Authority and the NSW Office of Environment and Heritage (OEH) to develop environmental watering regimes.

Appendix B

NSW DPIE (previously NSW OEH) Murray Fans Bioregion Threatened Species List

NSW DPIE provides a range of management resources to enhance threatened species outcomes for the region. Management plans are outlined for specific flora and fauna species as well as vegetation classes and endangered ecological communities and key threatening processes such as disease, habitat loss, pest animals and weeds.

Threatened species management plans outline objectives, information about species habitat and ecology and critical actions needed for species recovery. Table B1 to B10 outlines below lists threatened species in the region. *Note that the distribution number listed in each table represents the number of bioregions the species occurs in NSW.*

Table B11 provides a summary list of key threatened species on the endangered / critically endangered list having a regional distribution concentrated in this and the surrounding bioregion/s.

Table B12 provides an example of critical actions for species recovery and a species action toolbox, in this case for the Freckled Duck.

Table B1- Murray Fans threatened species Amphibian List,

Animal > Amphibians						
Scientific Name	**Common Name**	**NSW status**	**Commonwealth status**	**Occurrence**	**Distribution**	**Action Plans**
Crinia sloanei	Southern Bell Frog	Endangered	Vulnerable	Known	5	site managed species
Litoria raniformis	Sloane's Froglet	Vulnerable	Endangered	Known	7	site managed species

Table B2- Murray Fans threatened species Bat List

Animal > Bats						
Scientific Name	**Common Name**	**NSW status**	**Commonwealth status**	**Occurrence**	**Distribution**	**Action Plans**
Miniopterus orianae oceanensis	Large Bent-winged Bat	Vulnerable	Not Listed	Known	11	site managed species
Myotis macropus	Southern Myotis	Vulnerable	Not Listed	Known	12	landscape species
Chalinolobus picatus	Little Pied Bat	Vulnerable	Not Listed	Known	12	landscape species
Nyctophilus corbeni	Corben's Long-eared Bat	Vulnerable	Vulnerable	Known	13	landscape species
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	Vulnerable	Not Listed	Known	18	landscape species

Table B3- Murray Fans threatened species Bird List

Animal > Birds						
Scientific Name	**Common Name**	**NSW status**	**Commonwealth status**	**Occurrence**	**Distribution**	**Action Plans**
Polytelis anthopeplus monarchoides	Regent Parrot (eastern subspecies)	Endangered	Vulnerable	Known	3	site managed species
Cinclosoma castanotum	Chestnut Quail-thrush	Vulnerable	Not Listed	Know	4	landscape species
Glossopsitta porphyrocephala	Purple-crowned Lorikeet	Vulnerable	Not Listed	Known	4	partnership (widespread)
Pedionomus torquatus	Plains-wanderer	Endangered	Critically Endangered	Known	6	Iconic Species
Calidris tenuirostris	Great Knot	Vulnerable	Critically endangered	Known	6	partnership (range-restricted)
Pachycephala inornata	Gilbert's Whistler	Vulnerable	Not Listed	Known	7	landscape species
Polytelis swainsonii	Superb Parrot	Vulnerable	Vulnerable	Known	7	landscape species
Pachycephala olivacea	Olive Whistler	Vulnerable	Not Listed	Known	8	landscape species
Ardeotis australis	Australian Bustard	Endangered	Not Listed	Known	9	partnership (widespread)
Lophochroa leadbeateri	Major Mitchell's Cockatoo	Vulnerable	Not Listed	Known	9	landscape species
Falco hypoleucos	Grey Falcon	Endangered	Not Listed	Known	10	data-deficient species
Anthochaera phrygia	Regent Honeyeater	Critically Endangered	Critically Endangered	Known	11	site managed species
Glossopsitta pusilla	Little Lorikeet	Vulnerable	Not Listed	Known	11	landscape species
Certhionyx variegatus	Pied Honeyeater	Vulnerable	Not Listed	Known	11	landscape species
Ninox strenua	Powerful Owl	Vulnerable	Not Listed	Known	12	landscape species
Hamirostra melanosternon	Black-breasted Buzzard	Vulnerable	Not Listed	Predicted	12	partnership (widespread)
Lathamus discolor	Swift Parrot	Endangered	critically endangered	Known	13	landscape species
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	Vulnerable	Not Listed	Known	13	landscape species
Neophema pulchella	Turquoise Parrot	Vulnerable	Not Listed	Known	13	landscape species
Petroica boodang	Scarlet Robin	Vulnerable	Not Listed	Known	13	landscape species
Anseranas semipalmata	Magpie Goose	Vulnerable	Not Listed	Known	13	partnership (widespread)
Chthonicola sagittata	Speckled Warbler	Vulnerable	Not Listed	Known	14	landscape species
Botaurus poiciloptilus	Australasian Bittern	Endangered	Endangered	Known	15	landscape species

Animal > Birds						
Scientific Name	**Common Name**	**NSW status**	**Commonwealth status**	**Occurrence**	**Distribution**	**Action Plans**
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	Vulnerable	Not Listed	Known	15	landscape species
Petroica phoenicea	Flame Robin	Vulnerable	Not Listed	Known	15	landscape species
Grantiella picta	Painted Honeyeater	Vulnerable	Vulnerable	Known	15	landscape species
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	Vulnerable	Not Listed	Known	15	landscape species
Calidris ferruginea	Curlew Sandpiper	Endangered	Critically Endangered	Known	16	partnership (range-restricted)
Haliaeetus leucogaster	White-bellied Sea-Eagle	Vulnerable	Not Listed	Known	16	landscape species
Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	Vulnerable	Not Listed	Known	16	landscape species
Oxyura australis	Blue-billed Duck	Vulnerable	Not Listed	Known	16	landscape species
Grus rubicunda	Brolga	Vulnerable	Not Listed	Known	16	partnership (widespread)
Burhinus grallarius	Bush Stone-curlew	Endangered	Not Listed	Known	17	landscape species
Rostratula australis	Australian Painted Snipe	Endangered	Endangered	Known	17	landscape species
Lophoictinia isura	Square-tailed Kite	Vulnerable	Not Listed	Known	17	landscape species
Falco subniger	Black Falcon	Vulnerable	Not Listed	Known	17	landscape species
Daphoenositta chrysoptera	Varied Sittella	Vulnerable	Not Listed	Known	17	landscape species
Stagonopleura guttata	Diamond Firetail	Vulnerable	Not Listed	Known	17	landscape species
Stictonetta naevosa	Freckled Duck	Vulnerable	Not Listed	Known	17	landscape species
Ninox connivens	Barking Owl	Vulnerable	Not Listed	Known	18	landscape species
Tyto novaehollandiae	Masked Owl	Vulnerable	Not Listed	Known	18	landscape species
Limosa limosa	Black-tailed Godwit	Vulnerable	Not Listed	Known	18	partnership (range-restricted)
Epthianura albifrons	White-fronted Chat	Vulnerable	Not Listed	Known	19	landscape species
Artamus cyanopterus cyanopterus	Dusky Woodswallow	Vulnerable	Not Listed	Known	19	landscape species
Hieraaetus morphnoides	Little Eagle	Vulnerable	Not Listed	Known	19	landscape species
Circus assimilis	Spotted Harrier	Vulnerable	Not Listed	Known	19	landscape species

Table B4- Murray Fans threatened species Marsupial List

Animal > Marsupials						
Scientific Name	**Common Name**	**NSW status**	**Commonwealth status**	**Occurrence**	**Distribution**	**Action Plans**
Petaurus norfolcensis	Squirrel Glider	Vulnerable	Not Listed	Known	12	landscape species
Phascogale tapoatafa	Brush-tailed Phascogale	Vulnerable	Not Listed	Known	13	landscape species
Dasyurus maculatus	Spotted-tailed Quoll	Vulnerable	Endangered	Known	14	landscape species
Phascolarctos cinereus	Koala	Vulnerable	Vulnerable	Known	16	Iconic Species

Table B5- Murray Fans threatened species Herb and Forb List

Plant > Herbs and Forbs						
Scientific Name	**Common Name**	**NSW status**	**Commonwealth status**	**Occurrence**	**Distribution**	**Action Plans**
Lepidium pseudopapillosum	Formbe Peppercress	Endangered	Vulnerable	Predicted	1	data-deficient species
Lepidium monoplocoides	Winged Peppercress	Endangered	Endangered	Known	1	site managed species
Cullen parvum	Small Scurf-pea	Endangered	Not listed	Known	2	site managed species
Maireana cheelii	Chariot Wheels	Vulnerable	Vulnerable	Known	2	data-deficient species
Brachyscome muelleroides	Claypan Daisy	Vulnerable	Vulnerable	Predicted	2	site managed species
Swainsona plagiotropis	Red Darling Pea	Vulnerable	Vulnerable	Predicted	2	site managed species
Austrostipa wakoolica	A spear-grass	Endangered	Endangered	Known	3	Keep-watch species
Eriocaulon australasicum	Austral Pipewort	Endangered	Endangered	Predicted	3	site managed species
Amphibromus fluitans	Floating Swamp Wallaby-grass	Vulnerable	Vulnerable	Known	3	Keep-watch species
Austrostipa metatoris	A spear-grass	Vulnerable	Vulnerable	Known	4	data-deficient species
Swainsona murrayana	Slender Darling Pea	Vulnerable	Vulnerable	Known	8	Keep-watch species
Swainsona sericea	Silky Swainson-pea	Vulnerable	Not listed	Known	12	Keep-watch species

Table B6- Murray Fans threatened species Fern and Cycad List

Plant > Ferns and Cycads

Scientific Name	Common Name	NSW status	Commonwealth status	Occurrence	Distribution	Action Plans
Pilularia novae-hollandiae	Austral Pillwort	Vulnerable	Not listed	Known	4	site managed species

Table B7- Murray Fans threatened species Shrub List,

Plant > Shrubs						
Scientific Name	**Common Name**	**NSW status**	**Commonwealth status**	**Occurrence**	**Distribution**	**Action Plans**
Sclerolaena napiformis	Turnip Copperburr	Endangered	Endangered	Known	1	site managed species
Wilsonia rotundifolia	Round-leafed Wilsonia	Endangered	Not listed	Known	4	Keep-watch species

Table B8- Murray Fans threatened species Orchid List,

Plant > Orchids						
Scientific Name	**Common Name**	**NSW status**	**Commonwealth status**	**Occurrence**	**Distribution**	**Action Plans**
Prasophyllum sp. Moama	*Prasophyllum* sp. Moama	Critically Endangered	Not Listed	Known	1	data-deficient species
Pterostylis despectans	lowly rustyhood	Critically Endangered	Endangered	Known	1	site managed species

Table B9- Murray Fans threatened species Trees List

Plant > Trees						
Scientific Name	**Common Name**	**NSW status**	**Commonwealth status**	**Occurrence**	**Distribution**	**Action Plans**
Eucalyptus leucoxylon subsp. *pruinosa*	Yellow Gum	Vulnerable	Not Listed	Known	2	partnership (widespread)

Table B10- Murray Fans threatened species Endangered Ecological Community List

Endangered Ecological Community						
Scientific Name	**Common Name**	**NSW status**	**Commonwealth status**	**Occurrence**	**Distribution**	**Action Plans**
Allocasuarina luehmannii Woodland in the Riverina and Murray-Darling Depression Bioregions	*Allocasuarina luehmannii* Woodland in the Riverina and Murray-Darling Depression Bioregions	Endangered Ecological Community	Endangered	Known	1	Threatened ecological community
Acacia melvillei Shrubland in the Riverina and Murray-Darling	*Acacia melvillei* Shrubland in the Riverina and Murray-Darling	Endangered Ecological Community	Not Listed	Known	2	Unknown

Depression bioregions	Depression bioregions					
Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions	Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions	Endangered Ecological Community	Not Listed	Known	3	Unknown
Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South Western Slopes bioregions	Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South Western Slopes bioregions	Endangered Ecological Community	Endangered	Known	6	Unknown
Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	Endangered Ecological Community	Endangered	Known	6	Unknown

Table B11 – Summary list of key threatened species on the endangered / critically endangered list having a regional distribution concentrated in this and the surrounding bioregion/s.

Local key threatened species						
Scientific Name	**Common Name**	**NSW status**	**Commonwealth status**	**Occurrence**	**Distribution***	**Action Plans**
Allocasuarina luehmannii Woodland in the Riverina and Murray-Darling Depression Bioregions	*Allocasuarina luehmannii* Woodland in the Riverina and Murray-Darling Depression Bioregions	Endangered Ecological Community	Endangered	Known	1	Threatened ecological community
	Prasophyllum sp. Moama	Critically Endangered	Not Listed		1	
Pterostylis despectans	lowly rustyhood	Critically Endangered	Endangered		1	
Lepidium pseudopapillosum	Formbe Peppercress	Endangered	Vulnerable		1	
Lepidium monoplocoides	Winged Peppercress	Endangered	Endangered		1	
Sclerolaena napiformis	Turnip Copperburr	Endangered	Endangered		1	

* Note green depicts that the species or EEC is only found in the Murray Fan bioregion of NSW

Table B12 – Local Iconic species

Local Iconic species						
Scientific Name	**Common Name**	**NSW status**	**Commonwealth status**	**Occurrence**	**Distribution**	**Action Plans**
Crinia sloanei	Southern Bell Frog	Endangered	Vulnerable	Known	5	site managed species
Miniopterus orianae oceanensis	Large Bent-winged Bat	Vulnerable	Not Listed	Known	11	site managed species
Myotis macropus	Southern Myotis	Vulnerable	Not Listed	Known	12	landscape species
Chalinolobus picatus	Little Pied Bat	Vulnerable	Not Listed	Known	12	landscape species
Nyctophilus corbeni	Corben's Long-eared Bat	Vulnerable	Vulnerable	Known	13	landscape species
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	Vulnerable	Not Listed	Known	18	landscape species
Polytelis anthopeplus monarchoides	Regent Parrot (eastern subspecies)	Endangered	Vulnerable	Known	3	site managed species
Pedionomus torquatus	Plains-wanderer	Endangered	Critically Endangered	Known	6	Iconic Species
Botaurus poiciloptilus	Australasian Bittern	Endangered	Endangered	Known	15	landscape species
Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	Vulnerable	Not Listed	Known	16	landscape species
Stictonetta naevosa	Freckled Duck	Vulnerable	Not Listed	Known	17	landscape species
Pachycephala inornata	Gilbert's Whistler	Vulnerable	Not Listed	Known	7	landscape species
Polytelis swainsonii	Superb Parrot	Vulnerable	Vulnerable	Known	7	landscape species
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	Vulnerable	Not Listed	Known	15	landscape species
Burhinus grallarius	Bush Stone-curlew	Endangered	Not Listed	Known	17	landscape species
Rostratula australis	Australian Painted Snipe	Endangered	Endangered	Known	17	landscape species
Oxyura australis	Blue-billed Duck	Vulnerable	Not Listed	Known	16	landscape species
Grus rubicunda	Brolga	Vulnerable	Not Listed	Known	16	partnership (widespread)
Anthochaera phrygia	Regent Honeyeater	Critically Endangered	Critically Endangered	Known	11	site managed species
Lathamus discolor	Swift Parrot	Endangered	critically endangered	Known	13	landscape species
Calidris ferruginea	Curlew Sandpiper	Endangered	Critically Endangered	Known	16	partnership (range-restricted)
Ardeotis australis	Australian Bustard	Endangered	Not Listed	Known	9	partnership (widespread)

Falco hypoleucos	Grey Falcon	Endangered	Not Listed	Known	10	data-deficient species
Acacia melvillei Shrubland in the Riverina and Murray-Darling Depression bioregions	*Acacia melvillei* Shrubland in the Riverina and Murray-Darling Depression bioregions	Endangered Ecological Community	Not Listed	Known	2	Unknown
Antechinus flavipes	Yellow-footed antechinus			Known		
Acrobates pygmaeus	Feathertail glider			Known		
Chelodina expansa	Murray board shell turtle			Known		

Table B13 – Freckled Duck: Example Threatened Species Recovery Plan and Action Toolbox.

Action Description	Scale
Conduct targeted survey to identify and map wetlands with significant breeding activity, for the purposes of protection and strategic threat abatement.	Site
Negotiate with relevant authorities to ensure that water flows to important breeding wetlands are maintained in order to support a vegetation structure that will support nesting.	Area
Encourage landholders to enter into land management agreements that focus on protecting lignum creeks and swamps and maintaining key habitat features such as cumbungi, lignum and appropriate water flows and salinity.	Site
Ensure that any relevant land managers or agencies are aware of the location and its sensitivity to fire of important breeding wetlands, prior to conducting hazard reduction burns.	Area
Control feral pigs and goats using appropriate techniques, where they are impacting on wetland habitat known to be used by the species.	Site

Appendix C

Commonwealth Environmental Water Edward Wakool Long Term Intervention Monitoring (LTIM) Project and Monitoring Evaluation and Research (MER) program

The Mid-Murray region contains diverse and rich natural environments and is one of several sites selected for scientific evaluation due to its recognition as an important site with high biodiversity values.

Monitoring occurred under the Commonwealth Environmental Water Office's Long-Term Intervention Monitoring Project, researchers from Charles Sturt University collected fish eggs likely to be silver perch in the Yallakool River at four focal sites between September and December 2018. Nationally endangered Trout cod, protected under the Environmental Protection and Biodiversity Conservation Act, were also detected for the first time by Charles Sturt University monitoring team in Yallakool Creek downstream of Stevens Weir during the 2019 winter environmental flow, extending their range in the Edward-River system.

Commonwealth environmental water use is planned, delivered and managed in partnership with a number of individuals and organisations in the Mid-Murray, including:

- NSW Department of Planning, Industry and Environment
- New South Wales Department of Primary Industries – Fisheries
- Murray Irrigation Limited
- New South Wales Local Land Services
- Murray-Darling Wetlands Working Group Ltd
- Murray-Lower Darling Environmental Water Advisory Group
- Local landholders and community members
- Murray-Darling Basin Authority

Monitoring Evaluation and Research Program

The Commonwealth Environmental Water Office (CEWO) Monitoring, Evaluation and Research (MER) Program integrates and replaces monitoring and research activities under the Long-Term Intervention Monitoring (LTIM) and Environmental Water Knowledge and Research (EWKR) projects.

The CEWO MER Program will provide the critical evidence we need to understand how water for the environment is helping maintain, protect, and restore the ecosystems and native species across the Murray–Darling Basin. The program will demonstrate outcomes, inform management of Commonwealth water for the environment and help meet our legislative reporting requirements through to June 2022.

Figure C1 –Reed Beds Wetland

Reed Beds Wetland, Barmah-Millewa Forest. Photo by Heather McGinness (CSIRO).

The MER program has the following components:

- **Basin scale** – Basin evaluation, research and engagement - The Basin-scale Evaluation and Research Plan has been developed to set out the schedule of evaluation, research and engagement activities to be undertaken in the Basin to June 2022.
  The Basin scale evaluation and research plan is available at: Commonwealth Environmental Water Office Monitoring Evaluation and Research Program: Basin Scale Evaluation and Research Plan

- **Seven selected areas** - on-ground monitoring, evaluation, research and engagement

The selected areas are:

- Junction of the Warrego and Darling rivers
- Gwydir river system
- Lachlan river system
- Murrumbidgee river system
- Edward- Wakool river system
- Goulburn River
- Lower Murray River

Appendix D

Australian Land Conservation Alliance, 20/04/2012

Comments on the Draft National Wildlife Corridors Plan, March 2012

The Australian Land Conservation Alliance (ALCA) (formerly referred to as the Conservation Land Trusts Alliance - CLTA) was formed in 2011 to establish a formal network of organisations working towards implementation of the National Reserve System (NRS) through private land conservation mechanisms. A key driver behind the ALCA's formation was recognition of the fact that private land conservation efforts in Australia appear fragmented across States, including a range of different approaches in pursuing NRS outcomes on private land. ALCA currently represents the NSW Nature Conservation Trust, The Nature Conservancy (Australia), the Queensland Trust for Nature, the Nature Foundation SA, the Tasmanian Land Conservancy, the Trust for Nature Victoria and the National Trust WA, together representing private landholders already responsible for protecting up to 200,000 hectares across Australia.

ALCA wishes to complement the National Wildlife Corridors Plan Advisory Group with the preparation of the Draft National Wildlife Corridors Plan, March 2012 and thanks you for the opportunity to comment.

ALCA supports the Australian Government efforts to establish a National Wildlife Corridors Plan and wishes to assist government officials to plan an implementation strategy for ensuring effective integration of the National Wildlife Corridors Plan with existing private land conservation activities undertaken by the organisations it represents.

In analysing the Draft National Wildlife Corridors Plan, March 2012, ALCA wishes to make the following comments:
1. ALCA emphasises the need to recognise the critical, central role and value of private land protected areas in the development of national wildlife corridors. Within this, we note:

- That the plan should recognise that the long term security of the wildlife corridors is closely tied to securing private land as protected areas through a variety of mechanisms (i.e. covenants, offsets, stewardship agreements etc.), including those that are not strictly part of the National Reserve System (NRS). The plan should recognise that secure covenants and purchased areas are core to the success of habitat connectivity and landscape initiatives, and develop coordinated structures to support these activities.

- The plan should recognise the barriers to conservation on private lands (e.g. financial, legal, technical) and work to address these through coordinated, strategic activities. Development of national corridors will likely fail should these barriers be ignored.

- That the plan should ensure that areas to be recognised for special connectivity efforts are based around recognised biodiversity priorities, and include the development of an appropriate mechanism to help private landholders understand where and how their conservation contributions fit into the wildlife corridors and national conservation objectives. For instance, to which corridors and protected areas their land is or could be connected.

- On the basis that the program should also reflect and support the importance of private land conservation, this initiative should ensure that existing landowners who have already made a conservation commitment are, in turn, supported by this program.

2. ALCA emphasises the need to recognise the important role that conservation organisations can play in initiating, promoting and supporting wildlife corridors that contain private land. Within this, we note:

• The plan should better recognise conservation organisations as being key partners in the development and delivery of any national, regional or local conservation programs, particularly for developing wildlife corridors that extend across catchments and state borders, where in some cases they are better placed than state NRM agencies to facilitate this work.

• The plan should recognise that the future security of wildlife corridors is closely tied to long term funding and management arrangements. ALCA member organisations are well placed to assist in this work, having extensive voluntary and philanthropic networks, long term stability, as well as extensive local private land conservation experience to support private landowners participating in the national wildlife corridors program and beyond.

• The plan should better reflect and further emphasise the important role that ALCA member organisations play in the development of the NRS, particularly their support and encouragement of landholders in their private land conservation efforts, and should include mechanisms to further support and strengthen these activities, including strategic coordination and funding arrangements.

3. ALCA supports the promotion of wildlife corridors that improve ecological connectivity and promote conservation connectivity at all levels ranging from continental to national, regional and local. In this context, we:

• Emphasise that corridors should not be restricted to the current named corridors - connectivity is important everywhere and there are some landscapes across Australia with significant high value biodiversity values and they should, in particular, be considered for investment beyond what is already in the plan.

• Emphasise the need for a strategic, long-term, whole of landscape approach that pertains to both private and publicly held lands that works from consistent and transparent principles with long-term measurable outcomes and objectives for wildlife corridors.

• Emphasise the need to strengthen the empirical body of data and understanding about the biodiversity and socio-economic effects of “wildlife corridors” in the landscape.

• Emphasise the need to establish a nationally-consistent conservation metric for monitoring, evaluation, reporting and verification on wildlife corridors, and for supporting adaptive wildlife corridor management, thereby further contributing to wildlife corridor sustainability and permanence.

• Emphasise the need to remove policy and legal barriers to the effective integration of relevant government programs pertaining to biodiversity conservation in Australia.

4. ALCA supports the cooperative building of wildlife corridors that respect the existing rights of private landholders and benefit local communities. In this context, we:

• Emphasise the need for effective private landholder participation in wildlife corridor design and implementation in order to ensure optimised, multiple benefits that are equitable and sustainable.

- Support the inclusion of participatory mechanisms that capture scientific, traditional indigenous and practitioner knowledge and experience, particularly in the conceptualisation, design, implementation and sustained management of wildlife corridors.

- Emphasise the need to support, recognise and acknowledge the valuable role private land holders have played in conservation in Australia and the vital role they could play in wildlife corridor design, implementation and sustained management.

- Emphasise the need to not only increase community knowledge and understanding of wildlife corridors and connectivity conservation, but also address critical institutional, policy and legal barriers as well as capacity gaps that might negatively affect the implementation of wildlife corridors.

Again, ALCA would like to express its interest in working with government officials to address the above issues. In case you need any further clarification, please contact Stephen van der Mark or Mat Hardy (contact details on attached cover sheet).

Yours sincerely,
Stephen van der Mark
Chief Executive Officer
Australian Land Conservation Alliance

Appendix E

Media report - NFF and KPMG report released into natural capital, The Stock Journal, 6th Dec 2019

Australia's peak farming body has called for a system where farmers are paid for the management of their natural resources, replacing Landcare style grants with a market-driven 'financial instrument' that pays on delivery.

In a report released today, the National Farmers' Federation and consultancy firm KPMG Australia claim there has been a significant market failure when it comes to managing 'natural capital' such as soil, water, native flora and fauna and the best way forward was to implement a stewardship program that rewarded farmers for their environmental work.

NFF president Fiona Simson said farmers manage 51 per cent of Australia's biomass and should be rewarded for working toward good environmental outcomes which benefit the community as a whole.

"The regulatory stick is the only tool we have now, and it overlooks the benefits and environmental service farmers provide," she said.

"The initiation of a market that can deliver income to farmers will be more effective, because it has been proven that carrots are more effective than sticks.

"In terms of our strategy, we talk about diverse income streams, environmental sustainability and ecosystems services, this initiative would tick off all three boxes."

Ms Simson said previous environmental mechanisms had been short-term, or ad-hoc, which limited their ability to deliver industry wide outcomes.

"We see farmers going above and beyond what they are required to do in terms of creating sustainable, healthy farms and environments, whether that is fencing off riparian zones, maintaining biodiversity or wildlife corridors," she said.

"But there is a cost to it, and in the past some of these initiatives have been funded by various government programs, which have been ad-hoc with fixed timelines and objectives.

"They have also been interfered with through complex and poorly understood regulatory requirements.

"We need a comprehensive approach that delivers the right incentives, and the right outcomes for farmers and the environment."

Ms Simson said key recommendations to government from the report included the implementation of a $30 million pilot agricultural stewardship program exploring financial instruments, the establishment of a $1 billion national biodiversity conservation trust and the development of a natural capital policy.

KPMG national food and agribusiness lead partner Robert Poole said the tools were available to make these recommendations happen.

"There is an increasing opportunity to provide enhanced and new investment vehicles to the market that deliver ongoing financial incentives and rewards to farmers for improving environmental outcomes," he said.

"Through newly constructed financial instruments, such as green bonds and pay for outcome funds, we can provide investable agricultural options for institutional investors, government,

industry and philanthropists directed towards improving the environment and delivering social finance options for the market.

"These options provide a return for the community, environment, investors, farming sector and society at large."

Ms Simson said while she acknowledged preliminary moves by government in this area, more needed to be done.

"We've seen the Federal Government commit $30 million to pilot an agricultural stewardship program in the coming years. But in order to be transformational, this pilot must pave the way for the $1 billion fund as recommended by the recent Craik Review of the interactions between agriculture and Environment Protection and Biodiversity Conservation Act," she said.

"We look forward to working closely with government on the next phase of this important work."

Appendix F

Edward Wakool Socio-economic evaluation statistics

According to the 2012 MDBA report, NSW Central Murray Community Profile (Appendix A2), a reduction in the long-term water availability of greater than 20% will result in many farm businesses becoming unviable with direct flow on impacts occurring at a community level. The Guide to the proposed Basin Plan Technical background Part III, pg. 964, stated that ‘’There is limited scope for farm transformation for Murray Irrigation farms in the area west of Deniliquin, due to heavier soils and low rainfall. Most farms are too small to become viable dryland farm businesses’’.

The MDBA has completed Community profile evaluations for 40 basin communities. MDBA Community Profile evaluations completed for Wakool, Deniboota and Denimein are compelling (see Table AF-1).

MDBA Community Profile Evaluations (June 2018)

Across the MDBA Community profile evaluation period 2001 to 2016, the average change in total employment across the 40 irrigation-dependent communities in the Murray Darling Basin was a decrease of 24.1%. This comprised a decrease of 2.8% between 2001 and 2006, 8.1% between 20016 and 2011, 13.1% between 2011 and 2016. In 2001, average participation rates across irrigation-dependent communities were 34.6 full-time equivalents per 100 people. In 2016, the average participation rate had fallen to 28.7 full-time equivalents per 100 people.

The timeframe covered in the profiles means the observed changes incorporate shifts in agricultural production, technology and climate, in addition to the changes in water available for irrigated production.

MDBA Wakool Community Profile

Trends in social and economic conditions

- From 2001-2016, local farm employment from irrigated production fell 72%. In Wakool specifically, the population declined by 45.6%. Government services dropped by 35.1%. The socio-economic wealth decile category has dropped from 5 in 2001 to 2 in 2016. This has created a diminished financial capacity for adaption to change in response to their circumstances.

The Edward – Wakool Region has lost a considerable quantity of water entitlements as a result of the water reform process. Up until 2016, the Wakool, Denimein and Deniboota irrigation District communities have had a reduction in water entitlements of 164 GL, a reduction of 32.3%. The impacts on the community include the following;

Key findings in the MDBA Wakool Community Profile analysis of the period between 2001-2016 was that the;

- Area population decreased by 45.6% (715 people)
- Total area workforce decreased by 53.7% (288 Full Time Equivalent jobs)
- Agricultural workforce decreased by 61.5% (158 FTE)
- Agricultural manufacturing workforce decreased by 44% (8 FTE)
- Non-agricultural private workforce decreased by 57.3% (96 FTE)
- Government service workforce decreased by 35.1% (34 FTE)

- Socio-economic wealth decile ranking for town went from a wealth rating of 5 in 2001 to a wealth ranking of 2, which leads to diminished capacity for adaption or change in response to circumstances.

When taking into account Wakool and neighbour affected communities of the Western Murray Valley (Deniboota and Denimein) between 2001-2016, the;

- Area population declined by 29.1% (1254 people)
- Total area workforce decreased by 40% (1518 Full Time Equivalent jobs)
- Agricultural workforce decreased by 57.8% (339 FTE)
- Non-agricultural private workforce decreased by 42.2% (232 FTE)
- Government service workforce decreased by 14% (27 FTE)

Table F1. Summary tables of MDBA Community Profile statistics of Wakool, Deniboota, Denimein and Kerang-Cohuna from 2001 - 2016

Changes to Water Entitlements 2001 - 2016

	Water entitlements (WE) before Basin Plan (BP) (GL)	WE Recovered	% Reduction in WE	WE after BP	WE after BP (GL)*	Change to WE (GL)*	WE change (%)*
Community				Net without efficiency	net with efficency infrastucture	net with efficency infrastucture	net with efficency infrastucture
NSW Murray Valley							
Wakool	258	-97.9	-37.9%	160.1	170	-88	-34.5%
Deniboota	175	-49.5	-28.3%	125.5	133.1	-41.9	-24.3%
Denimein	72.7	-16.1	-22.1%	56.6	63.6	-9.1	-13.4%
Total:	**505.7**	**-163.5**	**-32.3%**	**342.2**	**366.7**	**-139**	**-27%**
Nth Vic Mallee & GMID							
Kerang-Cohuna	350.7	-64.6	-18.4%	286.1	292.9	-57.8	-16.6%
Cohuna SEIFA							
Total (all):	**856.4**	**-228.1**	**-26.6%**	**628.3**	**659.6**	**-196.8**	**-23%**

Population Change and Total Workforce Statistics 2001-2011

	Area population		Area workforce	Total area workforce (FTE)	
Community	No. of people	% of population	2011	Change in FTE's	% of population
NSW W-MV					
Wakool	-715	-45.6%	537	-288	-53.7%
Deniboota	-332	-15.8%	754	-195	-25.8%
Denimein	-207	-32.5%	227	-90	-39.6%
Total:	**-1254**	**-29.1%**	**1518**	**-573**	**-37.7%**
Nth Vic Mallee & GMID					
Kerang-Cohuna	873	8.8%	3379	-338	-10%
Total:	**-381**	**-8.8%**	**4897**	**-911**	**-18.6%**

Workforce statistics by sector 2001-2016								
	Agricultural workforce		Ag Manufacturing workforce		Non-ag private workforce		Govt services workforce	
Community	No. of people	% of population	No. of FTE's	% of population	No. of FTE's	% of population	No. of FTE's	% of population
NSW W-MV								
Wakool	-158	-61.5%	-8	-44.0%	-96	-57.3%	-34	-35.1%
Deniboota	-129	-51.5%			-99	-29.1%	14	11.3%
Denimein	-52	-60.4%			-37	-40.1%	-7	-15.2%
Total:	**-339**	**-57.8%**	**-8**	**-44.0%**	**-232**	**-42.2%**	**-27**	**-13.0%**
Nth Vic Mallee & GMID								
Kerang-Cohuna	-437	-30.8%	-101	-44.3%	-134	-10.8%	211	41.8%
Total:	**-776**	**-44.3%**	**-109**	**-44.2%**	**-366**	**-26.5%**	**184**	**14.4%**

SEIFA Rating 2001-2011												
Community	**Disadvantage**			**Adv/disadvantage**			**Wealth**			**Education**		
	2001	**2011**	**Change**	**2001**	**2011**	**Change**	**2001**	**2011**	**Change**	**2001**	**2011**	**Change**
NSW W-Murray Valley												
Wakool	2	2	-	2	2	-	5	2	-3	2	3	1
Deniboota	2	3	1	1	2	1	2	3	1	1	1	0
Denimein												
Total:									-1			
Nth Vic Mallee & GMID												
Kerang-Cohuna	7	5	-2	5	5	0	4	4	0	6	5	-1
Cohuna SEIFA	8	4	-4	5	4	-1	4	4	0	4	5	1

**Note that red fill denotes negative outcome, and green fill denotes positive outcome*

Explanation of ABS SEIFA Indices: Decile scores are used to represent the four ABS socio-economic indices for area (prepared by the Australian Bureau of Statistics from the census data) at the town scale for 2001, 2006, 2011. The four SEIFA measures compare the relative levels of disadvantage, advantage, wealth and qualifications/occupations across all communities in Australia.

A decile score of 1 for a community indicates it is amongst the 10% most challenged locations across Australia for that measure. A decile of 10 indicates the community is ranked amongst the top 10% of communities for that measure. A change in relative ranking of two deciles or more between 2001 and 2011 indicates a considerable degree of change. If there is a change to three or four of the indices across time, it provides further evidence for the strength of the changing social conditions experienced by the community.

Rural communities experiencing relatively good social and economic conditions tend to have decile scores around 4, 5 or 6 across the four indices. Communities with lower decile scores or scores declining by at least two deciles are likely to have a reduced capacity to initiate change than communities with higher decile values. When used in combination with other data in the profiles, the SEIFA scores and changes provide insights to the overall adaptive capacity of communities.

Appendix G

Economic Profiles of Council Areas around the Edward - Wakool Region

Table G1: Economic Profile of Murray River Council (based on 2016 census)

Region and measure	Data
Murray River Council (includes the Wakool Region)	
Population	11,956 people
Employment*	4,446 (Moama and Deni East, 2365 people)
Largest employment sector is Agriculture, Forestry and Fisheries*	1,138 jobs or 25.6% of jobs. (the largest sector of employment) $29.041M in wages and salaries
Gross Regional Product	$0.637M
Output	$1.321B
Agriculture, Forestry & Fishing industry value	$348.663
Tourism Output	$145.7M
Tourism employment	742 jobs

**Not converted to full time equivalence*

Table G2: Economic Profile of Surrounding Councils (based on 2016 census)

Region and measure	Data
Gannawarra Shire Council	
Population	10,570
Employment	4752
Largest employment sector is Agriculture, Forestry and Fisheries*	1048 or 26% of jobs
Gross Regional Product	$0.56 billion
Swan Hill Rural City Council	
Population	20,850
Employment*	9,126
Largest employment sector is Agriculture, Forestry and Fisheries*	1632 jobs or 17.9% (the largest sector of employment) $50.017M in wages & salaries
Gross Regional Product	$1.276B
Value Added	$1.183B
Agriculture, Forestry & Fishing industry value	$495.943M
Tourism Output	$104.905M
Tourism employment	594 jobs

To be added - socio-economic data for Edward River Council

Appendix H

Western Murray Land Improvement Group (WMLIG) Organisational Overview

Purpose:

WMLIG captures the purpose and aims of the organisation in the mission statement; ***'Western Murray Land Improvement Group promotes sustainable farm and land management practices to enhance our unique natural environment through innovation, education and strong community networks''***.

WMLIG is an incorporated non-profit Landcare Group with an office based in Barham; the organisation is supported by 150 members. In 2003 the organisation was created to respond to community needs in the capacity building, farm productivity and environment space. The group is a key natural resource management and sustainable agriculture service provider and represents the region as part of Murray Landcare in the NSW Murray Catchment. See website for further information https://www.westernmurraylig.org/about.html

The group has a 12 member committee consisting of community members with broad skill sets that are geographically located across the region and have well connected stakeholder networks that represent a diversity of local community needs. New members are welcome to join the group.

Our area of operation covers approximately 750,000 ha within the Murray River Council Local Government Area. WMLIG supports 12 local Landcare, producer and indigenous groups through a range of projects and mentoring services. WMLIG is one of the largest community groups in the area, having built expansive networks with community, industry and external stakeholders. WMLIG have a proud record of delivering applied research, development and extension projects to their community. These works are undertaken in partnership with other organisations to ensure a high-quality product can be delivered to end users. WMLIG collaborates with local government, industry groups, state and federal agencies to provide community networking opportunities and develop projects which will benefit the local region.

Since its inception, the group have delivered over 170 projects ranging from NRM, sustainable agriculture and community capacity building projects delivered to several thousand people. We have a reach of more than 1500 people, through diverse communication platforms; including social media, the Landcare network and industry connections. Community input is considered in the development of all projects to ensure beneficial outcomes for end users. For examples of WMLIG projects, follow this link: www.westernmurraylig.org/past-events-2018.html

WMLIG is a healthy organisation with the following attributes;

- Extensive community networks and well developed, positive and collaborative relationships with community groups, local government, industry groups, State and Federal agencies to deliver key community-based projects and provide the best available knowledge about the local region.
- A strong and steady membership base of 150 plus members.
- Projects have been managed in a fiscally responsible manner with a proportion of turnover set aside as security to buffer against the cyclical nature of funding programs. This has enabled the group to fund positions and develop new projects identified in priority areas. WMLIG has maintained a healthy bank balance over the last ten years with an account balance that has grown concurrent with the size, diversity and complexity of projects.

- An experienced team and employ professional personnel specialising in agronomy, NRM, marketing, business and project management, policy, quality systems and general practical on-ground skills that provide a solid platform for operational functions and governance.
- Hosts the employment of a Local Landcare Co-ordinator (0.5FTE). This role contributes to the delivery of strategies around local decision making, on ground change, strengthening networks and the capacity of groups and landholders.
- Have recently received funding to employ a Community Support Officer (0.5FTE) to support the co-working space, provide drought support and community adaptation.

Activities:

The group is represented in regionally based steering/stakeholder committees and advisory groups. Examples include the Edward Wakool Basin Reference Group (Co-ordinated by WMLIG), Commonwealth Environmental Water Reference Group for the Edward Wakool System, Murray Local Land Services (MLLS) Local Community Advisory Group and Murray Landcare Collective.

It is ensured that projects selected by WMLIG have outcomes that are beneficial to members of the community/community groups. Proof that projects are meeting community needs is borne out of healthy attendance rates (See Table 1 below). Projects, events and collaborative planning meetings so far have delivered research extension, training, and capacity building programs to more than 4,000 people in the Wakool region from 178 activities in the last eight years.

Table H1- WMLIG Community Engagement Statistics

Financial Year	Attendees	Engagement / Project Activities (No of events and collaborative planning meetings)
2010 - 2011	32	3
2011 - 2012	289	8
2012 - 2013	254	12
2013 – 2014	444	18
2014 – 2015	232	15
2015 - 2016	423	30
2016 – 2017	493	23
2017 - 2018	684	29
2018 – 2019	729	26
2019 – 2020 (Financial YTD)	617	14
Total:	4077	178

WMLIG is working collaboratively on projects in the 2019-20 financial year including;

- Managing Rice Stubble Post Harvest
- Tackling Tough Times Together
- Economically Viable Options for Retired Irrigation Land (EVORIL)
- Pollack Swamp wetland enhancement
- 2019-2023 NSW Landcare program
- Annual Wakool Sheep Night
- Breaking New Ground forum
- Saving our Species
- Murrakool Wildlife Survey
- Noraleigh Farm revegetation & Balpool Piggery revegetation
- Managing Environmental Pest Animals and Weeds (MEPAAW)

- Swan Hill Show Sheep benchmarking competition
- TTTT - Tackling tough Times Together 2 interactive workshops. Speakers Goterra & Farmers 2 Founders
- Murray Darling Basin Economic Development Program, Wakool Agri-innovation program.
- Mentoring – Deakin University Integrated Learning
- Environmental Services Incentive Program pilot

Examples of projects and case studies can be found on the WMLIG website: https://www.westernmurraylig.org/past-events-2018.html and NSW Landcare Gateway https://landcare.nsw.gov.au/groups/western-murray-land-improvement-group-inc/casestudy-listing/.
Newsletters and other written products are communicated via the membership base and 275 email contacts, its own website, use of NSW Landcare Gateway website, social media platforms of Twitter, Facebook and YouTube.

Recently WMLIG relocated to the old Barham Catholic School building in Barham (located in the Kerang – Cohuna Community profile area) and has developed a new community co-working space hub. This co-working space is designed to facilitate a multi-purpose hub for innovation, education and further develop strong community networks. The hub has ideal infrastructure and is ideally located to service some educational programme deliverables for local, regional and urban schools visiting the region.

Update WMLIG info with 2020/21 FY and a more succinct summary

Appendix I

Catchment Action Plan 2013 -2023, Murray CMA 2013 – Mallee Kool & Cadell

Mallee Kool - *Using self-motivation to adapt to changing conditions*

The Mallee Kool area is home to a unique array of wildlife and ecosystems. The rural landscape is crisscrossed with more than 2000 kilometres of creeks and rivers and associated riverine forests and woodlands—including the Murray, Edward-Kolety and Wakool rivers, Poon Boon Lakes and river red gum forests— giving our area its aesthetic value.

Natural resources are economically and culturally significant to our communities. Reliable access to water and maintaining the ecological condition of riverine systems are important to support agricultural production, forestry, recreation, tourism and lifestyle. The local economy is very reliant on irrigation for rice and cereal production, dairying and grazing. The landscape has been highly modified to suit agricultural use, and for flood management and protection. The rivers are also highly regulated, and issues such as sulfidic sediments and salinity are challenges that need to be well managed.

Swan Hill maintains many services for the area and, due to its location on the river, continues to attract new residents and visitors to enjoy the area's natural beauty. However, the remaining areas are declining in population.

Our communities are supported by a range of ecosystems and agricultural industries. Our landholders are held up by strong social networks with other landholders and have a willingness to learn and adapt to change. However, debt reduction is a priority for many—leaving little time or capacity for NRM. To support our recovery and build capacity through actions, we need plans that are sensitive of time and financial constraints.

Mallee Kool strengths and constraints

The Mallee Kool landscape lacks human capital, which is largely due to outmigration. Events such as the Millennium Drought and unpredictable climatic conditions have led to a decrease in employment opportunities and people relocating from the area. These factors have increased pressures on environmental, financial and social capital, largely due to time constraints and the lack of available labour, leaving less time for natural resource and social commitments. However, social and human capital is supported by a community willing to learn and adapt to change.

Priorities

Habitat connectivity. We need to invest in projects that provide habitat connectivity to support social and environmental values. We will achieve this by working with government and landholders to create corridors to link the mountains in the east to the Riverland country in the west. We will place particular emphasis on key riparian assets such as the Edward–Wakool River systems. This will also aid our native fish populations.

Pest animals and noxious weeds effectively controlled. We want to secure a long-term, coordinated commitment to the control of pest plants and animals across all land tenures. This is best achieved by providing resources to the community who know the local priorities. Key species to control at present are boxthorn, foxes, pigs, carp and rabbits, which are negatively affecting agricultural production, farm profitability and threatened species.

Other areas we need to address:

- Support local groups to empower them to make decisions, and support local people engaging with government on local issues.
- Develop partnerships with local groups to continue improving the environment, and the aesthetic, spiritual and cultural connections.
- Support protection of local species—such as bush stone curlew—by revegetation using seed of local provenance and purchasing direct seeding equipment.
- Promote NRM planning and implementation activities in our community and schools.

Cadell—*Appreciating a wealth of natural resources*

Natural resources are economically and culturally important to our communities. Our landscape contains a wealth of natural features, developed from uplift in the area tens of thousands of years ago. This uplift caused the Murray River to change course and form features such as Green Gully, riverine plains, and extensive river red gum forests and wetlands. These features are almost totally surrounded by the Murray River and its tributaries, namely the Edward–Wakool River and Gulpa Creek.

The less flood-prone grasslands and woodlands have been developed for a range of agriculture enterprises. Here, small family properties and landowners form the basis of our rural communities, with agriculture providing the economic base to larger towns. Echuca–Moama maintains many services for the area and—due to its location on the river—continues to attract new residents and visitors to enjoy this natural asset. However, our remaining communities are declining in population.

Climate variability and uncertainty of water availability—coupled with our community's reduced profit margins—are reducing the capacity for landholders to help improve NRM. We need plans that support our recovery and build capacity and are sensitive of current environmental and financial capacity constraints.

Cadell strengths and constraints

The Cadell landscape is supported by strong human and financial capital with growing population and tourism numbers within the area. Physical capital is also strong with access to larger centres such as Moama, and Echuca on the Victorian side of the Murray River. Social capital within the area is moderate, with residents feeling disenfranchised with government decision-making processes.

Priorities

Support the active management of the Central Murray Forests Ramsar site. This site is important to our community because it provides a range of values—it supports Aboriginal heritage, timber production, recreation, conservation, threatened species habitat and more. We need to work with Ramsar site managers and adjoining landholders to design and implement programs that ensure the site's wise use and management, in accordance with the Ramsar Convention.

Other areas we need to address:

- Promote and share aesthetic, spiritual and cultural heritage values, Aboriginal culture (including access to natural resources) and build on the relationships with communities.

- Support local and external research and development to expand our agricultural diversity, and capitalise on NRM opportunities.
- Make better use of existing local networks to enable knowledge sharing.

Appendix J

Reconciliation Ecology

Reconciliation ecology is the branch of ecology which studies ways to encourage biodiversity in human-dominated ecosystems. Michael Rosenzweig first articulated the concept in his book Win-Win Ecology, based on the theory that there is not enough area for all of earth's biodiversity to be saved within designated nature preserves. Therefore, humans should increase biodiversity in human-dominated landscapes. By managing for biodiversity in ways that do not decrease human utility of the system, it is a "win-win" situation for both human use and native biodiversity. The science is based in the ecological foundation of human land-use trends and species-area relationships. It has many benefits beyond protection of biodiversity, and there are numerous examples of it around the globe. Aspects of reconciliation ecology can already be found in management legislation, but there are challenges in both public acceptance and ecological success of reconciliation attempts.

Multifunctional Landscapes in the UK: Tools for policy and practice

The multifunctional landscape (MFL) approach recognises that, in addition to food, landscapes provide a range of natural resource provisions and ecosystem services. In the absence of MFL thinking, increasing the provision of one ecosystem service can come at the expense of others.

There has been a global shift from traditional agricultural practices towards intensive food production. Intensification has contributed to environmental degradation, reducing the resilience of vulnerable rural communities to external shocks. This, in association with the increase in global demand for land and aquatic resources, has heightened the urgency to transform our food systems for health and sustainability using the principles of an ecosystem-based approach. Taking a nexus or 'paradigm thinking' approach to landscape multifunctionality allows the recognition of services provided by the natural environment, the analysis of trade-offs amongst them and the identification of win-win scenarios, which will be key to developing the policies reqired to guide long term, sustainable food production.

Refer to Franco S.C. et al 2020. Multifunctional landscapes in the UK: tools for policy and practice. Takeaway information for consideration in the Edward Wakool Ecosystem Services Incentive Scheme from this report include:

Key findings

- Valuation of ecosystem services and exploratory tools are useful to map and model services within landscapes, guiding interventions to achieve a desired outcome.
- The development of MFL management strategies requires a case-by-case approach, however it can be guided by common principles that have been drawn from existing initiatives. These relate to adequate organisational structure and functioning, participatory approaches and stakeholder engagement, governance and incentives, and performance assessment.

Knowledge gaps

- Extensive comparative analysis of existing and emerging tools relevant to MFL management.
- Review of metrics and development of new approaches to monitor and evaluate the performance of MFL, with particular focus on socio-economic metrics.

The structures and processes within a landscape which arise from interactions between its biological, chemical and physical components, determine the function it delivers. When these functions provide goods and services to humanity these are commonly referred to as ecosystem services. These can range from provisioning services (e.g. food production) and regulating services (e.g. air quality) to cultural services (e.g. wellbeing) and supporting services (e.g. biodiversity).

Valuation of ecosystem services for landscape functions

'Total economic value' offers a useful framework for analysis by considering *use values* (direct and indirect use values associated with the resource and *non-use values* (benefits derived simply from the knowledge that the ecosystem service is maintained). Marketable and tradable ecosystem services, often associated with provisioning services such as food production, are generally easier to value than regulating- or cultural services, which are harder to translate to financial terms.

Integrative exploratory tools for landscape assessing and planning

Tools range from Geographical Information Systems (GIS), scenario planning, which explores a range of future states, outcomes and alternatives to establish a communication pathway on alternative futures, key drivers, desired states and ideal landscapes. Mixed models use more than one exploratory and valuation tool. Examples include ARIES model, InVEST model, and SELS model.

Participatory approaches and stakeholder consultation

Participatory approaches are valuable as they can provide rapid assessment of ecosystem services, particularly in data-poor areas where use of mapping tools can be limited. This can affect reproducibility and accuracy however, so it is essential to combine local knowledge with objective metrics and land management expertise to avoid these. *Note that a participatory approach could include photo point monitoring by landholders.*

Organisational structure and functioning

Learning organisations are informal groups that are assembled to tackle a problem as well as share and develop knowledge, resources and ideas towards a common goal.

Transdisciplinary involves the collaboration between scientists of different disciplines, practitioners and professionals involved in land use, who share a vision and approach.

Success factors: Solid organisational structures, clear objectives, defined timeline, strong facilitators, and secure funding. Learning organisations further have built-in flexibility and well-developed monitoring systems, with good feed-back mechanisms.

Co-management systems are an arrangement between governments and local groups for shared resource management. Co-management overcomes the issue of central ruling being detached from local context and the difficulty in centralised bureaucracies to rapidly respond to rapid socio-economic change.

Success factors: Trust and respect between the community and other stakeholders, common understanding, structures for local influence, motivation by market potential, and the existence of funding.

Community engagement and local knowledge are essential for identification, mapping, and valuation of ecosystem services, as well as to support decision making.

External governance and incentives

Government (central and local) and policy (national and international) play an important role in supporting self-organisation of multi-stakeholder initiatives and adaptive co-management systems.

The economic valuation of landscapes enables the development of payment schemes for ecosystem services (PES), encouraging sustainable land use and providing financial incentives for the service providers. The success of PES is dependent upon correct valuation.

Performance assessment

Monitoring and evaluation. Monitoring is the systematic collection of data to measure change over times in a given variable. Evaluation is the objective assessment of performance against set objectives.

Standardised protocols for both monitoring and evaluation are necessary to assess whether initiatives employing the MFL approach achieved their outcome. When developing monitoring strategies consider:

- Select suitable indicators to measure change over time. These indicators may be qualitative (biophysical, chemical or ecological), qualitative (people perceptions or nature of relationships) or proxy (which do not directly measure the variable of interest but can be assumed to be associated with change).
- Standardised protocols need to be created or adopted for every indicator, to ensure that data is collected and analysed systematically and consistently over time and is comparable between different landscapes and allow for wider benchmarking.
- Resources and capacity need to be in place to support suitable data processing, data analysis, and the interpretation of results, facilitating safe storage of data, its correct usage, minimisation of errors and acting as a platform for collaboration.
- Data collection for any monitoring protocols should begin before any interventions are undertaken, to provide baseline data. This is essential to track changes caused by the intervention.

Combining scientific and participatory methods facilitates stakeholder engagement and sense of ownership and may also integrate educational objectives.

Appendix K

NSW Biodiversity Conservation Trust, Biodiversity Stewardship Agreement Management Plan

Part 2. Management of the Conservation Area Restrictions and Permissions

Owner Duties

1. The Owner agrees to manage the Conservation Area in accordance with this Management Plan and will not carry out or permit to be carried out any act or omission that may harm:
(a) Biodiversity Values, or
(b) Biodiversity, including any Protected Animals, Native Plants, Threatened Species, Threatened Ecological Communities, and their habitats,
in, on, under or in relation to the Conservation Area, except to the extent that the act or omission is a Permitted Exception or inconsistent with an Identified Legal Requirement.

Management Restrictions

2. Without limiting the activities that are prohibited under clause 1 of this Part 2 of this Management Plan, the Owner must not do any one or more of the following:
(a) clear Native Vegetation;
(b) cultivate the land, sow crops or plant or promote growth of exotic plants;
(c) graze livestock or permit livestock or non-native fauna to occupy the Conservation Area;
(d) carry out, or allow to be carried out, any Development in, on, under or in relation to the Conservation Area;
(e) construct any Infrastructure, including tracks or fences, beyond that shown on the Tracks and Infrastructure Map;
(f) carry out earthworks, including soil disturbance or removal of rock, beyond that described in the Clearing and Earthworks Envelopes;
(g) remove fallen timber, dead wood or other dead vegetation;
(h) use fertilisers;
(i) use herbicides;
(j) use Vehicles off tracks and roads shown on the Tracks and Infrastructure Map; or
(k) Subdivide:

(i) the Conservation Area; or
(ii) the Land, except where it has satisfied the NSW BCT that the Subdivision will not have any negative impact on the Biodiversity or Biodiversity Values in on or in relation to Conservation Area. The Owner must obtain the NSW BCT's written consent prior to taking any steps to Subdivide the Land,

except, in the case of each activity set out above, to the extent that the activity is a Permitted Exception or inconsistent with an Identified Legal Requirement.

Permitted Exceptions (Management Permissions)

3. Despite the restrictions in clause 2 of Part 2 of the Management Plan, the Owner may conduct, or cause or permit any one or more of the following activities in the Conservation Area:
(a) maintenance of Infrastructure shown on the Tracks and Infrastructure Map, and in accordance with Clearing and Earthworks Envelopes
(b) collection of non-hollow fallen timber for the heating of the Owner's dwelling on the Land and for camp fires in the Conservation Area
(c) grazing of domestic stock if permitted in accordance with Part 5 of this Management Plan

(d) Weed Control and Pest Control, and use of Pesticides for Weed Control and Pest Control in accordance with the label and registered off label use
(e) erosion control
(f) use of Vehicles off tracks and roads shown on the Tracks and Infrastructure Map where undertaking:

(i) mustering of stock that have entered the Conservation Area
(ii) Weed Control
(iii) erosion control works
(iv) Pest Control
(v) maintaining Infrastructure shown on the Tracks and Infrastructure Map
(vi) any Funded Management Actions the Owner is required to undertake under the Funded Management Attachment in accordance with the standards specified in that Attachment
(g) any Funded Management Actions the Owner is required to undertake under the Funded Management Attachment in accordance with the standards specified in that Attachment
(h) Seed Collection, where undertaken in accordance with the FloraBank Model Code of Practice
(i) use of horses and dogs (including off the tracks marked on the Tracks and Infrastructure Map) when used for mustering stock that have entered the Conservation Area provided that they are under the control of the Owner or those authorised by the Owner
(j) Passive Recreational Activities
(k) Passive Commercial Activities

Part 3. Tracks and Infrastructure within the Conservation Area

The Infrastructure present in the Conservation Area at the Agreement Date is described in table below under the heading “Tracks and Infrastructure within the Conservation Area” and shown in the Tracks and Infrastructure Map below.

Table K1 - Example for Landholder X. Tracks and Infrastructure within the Conservation Area

	Description
Buildings	There are no buildings in the conservation area
Roads and tracks	There are no tracks throughout the conservation area but not all have been mapped. No new tracks can be constructed within the conservation area but all existing tracks can be maintained in accordance with Table 2 in Part 4.
Fences	The tracks and infrastructure map shows current boundary around the conservation area. New fences will be required and poor condition fencing replaced to control livestock.
Dams/other water infrastructure	Temporary stock water points will be used during targeted conservation grazing periods.
Bushfire hazard reduction works	The current tracks are used for bushfire management and should be maintained for this use.
Stockyards	There are no stockyards inside the agreement area.
Electricity transmission	There is a transmission line crossing the southern section of the property as indicated on the map.

Part 4. Clearing and Earthworks Envelopes

Clearing and earthworks may only be undertaken in the Conservation Area:

(a) to the minimum extent necessary where required to maintain the Infrastructure specified in Part 3 of the Management Plan; and
(b) in any case, to the maximum distances set out in the table in this Part 4, being distances:
(i) of the total width for linear Infrastructure (such as tracks and fences); or
(ii) from the outer edge of the structure for point Infrastructure
(c) plantings for 'shelter belts' can be undertaken in the areas identified on the Management Zones Map, and should use species endemic to the local area (or be consistent with the ''Native Vegetation Guide for the Riverina''-
https://www.csu.edu.au/faculty/science/herbarium/riverina/index.htm

Part 5. Grazing and Ground Cover Management

Note: clause 3(c) of Part 2 of this Attachment states that grazing by livestock is permissible if in accordance with and permitted by this part.

In many types of vegetation, exclusion of grazing by livestock will be appropriate. However, in some grassy ecosystems (e.g., grasslands and grassy woodlands), appropriate grazing by livestock may be an important management action, for example to encourage regeneration of native plants by controlling exotic weeds and/or by limiting the amount of grassy 'biomass' on site.

This will depend on the current condition of the site, and, the type of grazing management that is proposed.

The NSW BCT recommends that either the Conservation Grazing clause, or Targeted Conservation Grazing clause (below) be included, where grazing of grassy ecosystem sites is appropriate. The NSW BCT officer will discuss with each landholder an appropriate grazing regime for each paddock, prior to drafting of this part and will address all conditions 2(a) to (f).

1. The Owner may allow livestock to graze within the Conservation Area, in areas of grassy ecosystems, provided that grazing is undertaken in accordance with the following and the conditions specified in clause 2 of this Part 5 below: Select one of the following

Conservation Grazing: Zone [XPaddock] may be grazed by livestock for a maximum period of [X] days per year, and must not be grazed by livestock from the start of [XX] month to the end of [YY] month.
OR
Targeted Conservation Grazing: Zone [XPaddock] may be grazed by livestock for short periods for a total maximum period of [X] days per year, and only during [Xseason/month] to limit seed set of [Xweeds], and during [Xseason/month] to control grass biomass, whilst maintaining ground cover in Good Condition.

2. Standard conditions for all allowable grazing:

(a) If the ground cover within a paddock is observed by the Owner or deemed by the NSW BCT to be below the defined threshold of Good Condition, livestock must be removed from the paddock, or not introduced into the paddock.
(b) Numbers/type of stock and duration of grazing period in the Conservation Area must be recorded by the Owner on the Stock Grazing Monitoring Form to assist with on-going management and monitoring.

(c) The NSW BCT acknowledges that the condition of the ground cover may be affected by native herbivores. If native herbivore control is carried out, it must be conducted in accordance with Special Conditions in Item J of this Deed.
(d) Use of the Conservation Area for stock shelter is appropriate for the duration of sheepweather warnings, as issued by the Bureau of Meteorology.
(e) If necessary, extended use of stock grazing for Weed Control or fire hazard reduction (for short periods of up to one month) may occur outside of these conditions with prior written agreement from the NSW BCT and provided grazed paddocks are maintained in Good Condition.
(f) During an extended period of serious or severe rainfall deficiency (as defined by the Bureau of Meteorology based on a prior 12 month period), the Owner may graze the Conservation Area for an additional 30 days for the purpose of retention of property breeding stock, provided notification is given to the NSW BCT. After this period, stock must be removed. Further extension to the allowed period of grazing must be approved in writing by the NSW BCT.

Table K2 – Example Conservation Agreement Annual Report

Conservation Agreement Annual Report					
Location Details					
Conservation Agreement No: X **Reporting Date:**		**Name of Landowners:** X **Property Address:** XXX			
Records of Management actions undertaken					
Actions	**Required completion time and frequency**	**Action Completed** (Y/N)	**Actual Completion Date/s**	**Description of Actions Undertaken,** including where undertaken, any variations and the reasons for variation	**Visual observations and other comments,** including progress towards management action goal and reasons for non-compliance
Management Options					
Weed Control	As necessary	Yes, boxthorn control summer 2018 (Appendix 1)	Summer 2018	Boxthorn cut; base painted with Roundup	90% control; some regrowth noted in southern section of property May 2019
Domestic Stock Grazing	Not applicable yet			More tree guards have been erected	
Fencing	Control of stock access	Yes. 1st stage Fencing complete (2.1 km). Both designed for stock exclusion and eventually stock control	Due for completion by 30/06/2020.	8 strand, high tensile plain wire, 6 metre spacing steel posts (Waratah) with each third post a MaxiPost.	Complete stock barrier. Kangaroos (5 kangaroos sighted since completion)
Pest Control	As necessary	Four foxes shot at or near conservation area through year (Appendix 1) Three rabbits shot	Spotlighting each visitation (monthly)	Spotlight shooting	Foxes observed most trips when spotlighting. Cats seem rare; estimate 6 or so rabbits on the property in lignum.
Enhance Options					
Weed Control					

Domestic Stock Grazing					
Pest Control					
Restore Actions					
Habitat enhancement		Box trees, eromophila, old man saltbush added to marked planting area (circular on map)			
Other					

Incident or Event that has adverse effect on biodiversity values on conservation area	
Incident or event including adverse impacts (prohibited or natural)	**Action taken and proposed recommended actions**
Very dry conditions (half annual average rainfall) with above average temperatures (average month +2 degrees) led to very high evapotranspiration rates…little spring seed set….and some sapling death (**See Appendix 2**)	

Records Submitted with this report

- Photos taken at Photo Points set in the Conservation Agreement
- Results of Inspections required to be conducted in Attachment 3
- Results of any monitoring, inspections or surveys required (Part F, Clause 12)
- Evidence of Completion of Funded Management Activities (Attachment 3, Part 5, Clause 2)

Signature and certification

I hereby declare that the information supplied in this report is accurate and complies with the reporting requirements under Attachment 3, Part 5, Clause 2 to the Conservation Agreement.
Note: If the land that forms the conservation agreement area is owned by multiple persons, each landowner must sign:

Signed:	
Dated:	Dated:

Appendix L

Example Inclusion / Exclusion Project Incentive Options and Standards

Table L1 Inclusion / exclusion of project incentive options

16 Appendices

16.1 Inclusion/exclusion of project incentive options

	OPTION	INCLUDED/EXCLUDED	REASON
	CHANGE IN MANAGEMENT PRACTICES		
	Fencing (to habitat type/ soil type/ PW habitat)	Included	
	Fencing to allow easier management of stock (i.e. laneways)	Excluded	Too expensive and not enough benefit to Plains-wanderer
	Fencing repair	Included	
	Movement of watering points	Included	
	Installation of new watering points	Included	
	Management of introduced grass species (i.e. Rye grass) as they are not ideal for PW	Excluded	Structure of pw habitat is more important than species type.
	Stock management area	Included	
	Feeding infrastructure (i.e. feed trailers, lick feeders etc.)	Included	
	Using sacrificial paddocks (like utilising containment yards but on a large paddock scale)	Excluded	Too expensive with little outcome.
	Establishment of firebreaks	Excluded	Should already be part of farm management. Large scale resources required.
	Stewardship payments for land conserved for PW	Included	
	Providing money to encourage destocking during dryer times	Excluded	Out of timeframe of the project. We have to spend the money within timeframe.
	Payments for feed in dry times	Excluded	Out of timeframe of the project. We have to spend the money within timeframe.
	Bird sighting payment	Excluded	Outside the focus of the project.
	Offset program	Excluded	Out of the focus of the project.
	PEST AND WEED CONTROL		
FOX	Coordinated 1080 baiting using contractor	Included	
	Coordinated baiting using LLS staff to lay baits	Excluded	Utilising existing or employing new LLS staff member to undertake baiting was not considered a viable option
	Coordinated 1080 baiting by LLS providing free baits and labour by landholders	Included	
	Canine Pest Ejector	Excluded	Other mechanisms have been shown to be more effective methods

	Shooting Incentive (Pest Animals)	Included	May involve a lump sum payment, and be offered as an additional incentive to baiting or a standalone incentive
	Shooting: ammunition subsidy	Excluded	Difficult to enforce that ammunition is just being used for target species
	Shooting: ammunition provided at cost price	Excluded	Difficult to enforce that ammunition is just being used for target species
	Shooting: contractor shooter	Excluded	Expensive and hard to coordinate over a larger scale. Landholders may choose to use their shooting incentive to contract a shooter of their choice
	Shooting: bounty incentive	Excluded	Past projects using this type of mechanism have found that it is difficult to carry out and enforce
	Fox exclusion zone	Excluded	Too expensive
CAT	Trapping	Excluded	Traps are available free of charge through various offices, but are not within the scope of this project
	Shooting Incentive (Pest Animals)	Included	May involve a lump sum payment
	Shooting: ammunition subsidy	Excluded	Difficult to enforce that ammunition is just being used for target species
	Shooting: ammunition provided at cost price	Excluded	Difficult to enforce that ammunition is just being used for target species
	Shooting: contractor shooter	Excluded	Expensive and hard to coordinate over a larger scale. Landholders may choose to use their shooting incentive to contract a shooter of their choice
	Shooting: bounty incentive	Excluded	Past projects using this type of mechanism have found that it is difficult to carry out and enforce
ROO	Roo focused shooting by contractor	Excluded	Natural impact. Already mechanisms in place by OEH. Not part of LLS control
	Construction of kangaroo exclusion zones	Excluded	Too expensive.
	Increase in tags used on private properties	Excluded	Natural impact. Already mechanisms in place by OEH. Not part of LLS control
PIG	Shooting/ Hunting by contractor	Excluded	Not enough of a relationship in primary habitat.
	Shooting by helicopter	Excluded	Not enough of a relationship in primary habitat.
	Shooting/ Hunting by landholder i.e. provide ammunition	Excluded	Not enough of a relationship in primary habitat.
	Baiting by landholder	Excluded	Not enough of a relationship in primary habitat.
	Baiting with grain by contractor	Excluded	Not enough of a relationship in primary habitat.

RABBITS	Baiting	Included	
	Ripping	Included	
OTHER	Predator bird control	Excluded	Other pest species have a much greater impact on PW than predatory birds
BOXTHORN	Boxthorn control: Spray	Included	
	Boxthorn control: pulling	Included	
	Boxthorn control: pushing	Included	
	Boxthorn control: contractor	Included	
	Galvanised Burr control	Excluded	In different soil type
	Boree regrowth control	Excluded	More processes in place to clear native vegetation
	EDUCATION/ SOFTWARE PACKAGES		
	AgriWebb	Included	
	Lifetime ewe management course	Included	
	RCS Grazing for profit	Included	
	Holistic Grazing Management	Excluded	Too expensive.
	Field days/ night: Focused on PW and involving spotlighting.	Included	Will not be part of incentive package but will be run by LLS
	Field days: Plains-wanderer habitat management field days	Included	Will not be part of incentive package but will be run by LLS
	Field days: Focused on showcasing management interventions	Included	Will not be part of incentive package but will be run by LLS
	Other grazing management information to landholders	Included	Will not be part of incentive package but will be run by LLS
	Highlight other native species that will benefit from the project	Included	Will not be part of incentive package but will be run by LLS
	Training of LLS staff in the use of PW habitat mapping	Included	Will not be part of incentive package but will be run by LLS
	LANDHOLDER ACKNOWLEDGEMENT		
	Signs	Included	Will not be part of incentive package but will be run by LLS
	Awards	Included	Will not be part of incentive package but will be run by LLS
	Media/ Stories/ Newsletter	Included	Will not be part of incentive package but will be run by LLS
	OTHER IDEAS		
	Start breeding program at Altina		
	More PW monitoring such as the large scale one off monitoring		
	Improve habitat mapping by undertaking ground		

	truthing of the mapping		
	Completely re-do the habitat mapping		
	Habitat mapping using photo points as a reference		
	Use of cameras to see if birds are around		

Table L2 Incentive Options Summary and Standards

Change name of project on front of contract (IRIS)	
Contract created and saved in files	
2. Initial Staff Review	
Verify proof of ownership on Valnet	
Evidence of association between landholder and company (if applicable)	
Complete ABN search	
Complete COI form	
AHIMS search done	
Due diligence Field Assessment Form completed	
Contract correct: project description, landholder details, Lots/DPs, milestones, financials	
Map attached: A4 map, correct logos, activity details, labels, Lot/DPs in insert	
Cover Letters completed and saved	
Habitat guide attachment	
Completed Initial staff review and scanned/saved	
All files uploaded to CM9	
3. Next steps	
Send to Shanna Rogers/Allie Hendy to undertake Project Managers Review on CM9	
Email to landholder (include Cover letter, contract, supplier rego form, OEH LAMP agreement, habitat guide attachment)	
Landholder to complete and sign agreement, supplier rego form and tax invoice and return	
Ensure ABN on contract and tax invoice match	
Upload signed contract, Supplier rego form and tax invoice in CM9	
Send to Leigh/Mark to undertake Team Leaders Managers review	
Team Leaders to send to Business Team to get GM signatures	
Project Officers to send final cover letter and signed contract to landholder	

16.4 Incentive Options Summary

OPTION	ELIGIBILITY	RATE	MECHANISM	CAP	STANDARDS	NOTES
CHANGE IN MANAGEMENT PRACTICES						
New Fencing	In paddock with PW primary habitat but not to be erected through PW habitat	$6.20/m (hingejoint) $4.80/m (plain wire)	Money provided to landholder upfront		• Fencing must be stock proof • Fencing must meet Australian Standards • Minimum of 6 lines of high	

Fencing Repair	In paddock with PW primary habitat but not to be erected through PW habitat	$3.10/m (hingejoint) $2.40/m (plain wire)	Money provided to landholder upfront		tensile wire OR a combination of plain wire and hinged joint • Maximum post spacing of 7 metres apart • One galvanised gate per site or per kilometre	
Non-permanent Electric Fence	In paddock with PW primary habitat but not to be erected through PW habitat	$2.50/m	Money provided to landholder upfront		• Fencing must be stock proof • Fencing must meet Australian Standards • Fencing must be non-permanent	
Movement of watering points	In paddock with PW primary habitat (watering point moved out of habitat area)	• Polypipe (40mm) = $1.80/m • Polypipe (50mm) = $2.50/m • Trough (4.9m) = $850 • Tank (22,700L) = $2700	Money provided to landholder upfront	$10,000 per watering point per paddock.	• All watering points installed outside of Plains-wanderer habitat area • All products must meet Australian standards • Poly piping to be installed at a minimum depth of 300mm beneath the soil surface	Exclusions: dam, water licences, bores, pumps, windmills, solar pumps
Installation of new watering points	In paddock with PW primary habitat (installed away from habitat area) or in another paddock when combined with saltbush planting OR if a new permanent fencing project means that there is no access to water OR a SMA project		Money provided to landholder upfront			
Planting of saltbush	Not to be planted in paddock with PW primary habitat	$1.72/m for direct seeding	Money provided to landholder upfront			

Stock management area	Not to be set up in paddock with PW primary habitat	• Plain wire fence = $4.80/m • Hingejoint fence = $6.20/m • Polypipe (40mm) = $1.80/m • Polypipe (50mm) = $2.50/m • Trough (4.9m) = $850 • Tank (22,700L) = $2700 • Feeders = $1000/tonne	Money provided to landholder upfront	Cap of $6 x 1dse x amount of hectares in paddock signed up, to a maximum of $10,000	• Must be a permanent facility • Must not be used as a commercial feedlot • Landholder must complete a one day stock plan course or similar • SMA must comply with appropriate best practice documents	Does not include payment for feed
Feeding infrastructure (i.e. feed trailers, lick feeders etc.)	Not to be set up in paddock with PW habitat present	$1000/tonne	Money provided to landholder upfront	$5,000		Does not include payment for feed
PEST AND WEED CONTROL						
Fox baiting	Can be used across entire property	To be determined	Free baits provided to landholder		Landholders carrying out baiting must have current pesticides use training accreditation	
Secondary Control Mechanism	Can be used across entire property	$1,000	Money provided to landholder upfront	$1,000 per year		
Rabbit Control	Warrens directly within or within a 2km buffer from PW primary habitat	Site assessment by biosecurity staff to determine level of infestation, amount of bait required and estimate number of hours required for ripping	Landholder provided with free baits; money provided to landholder upfront for ripping		• Landholders carrying out baiting must have current pesticides use training accreditation • Landholders are responsible for gaining relevant permits and approval for ripping	

Boxthorn Control	In paddock with PW habitat and a including a 2km buffer around primary habitat. Spraying and pushing can be undertaken within the habitat area. Pushing can only be used within the buffer area, and strictly not in the habitat area.	$150/ hr	Money provided to landholder upfront		Chemicals must be used in accordance with the manufacturer's instructions and current legislation	

Appendix M

Connected Corridors Project 16/17 – Landholder Applicant Guidelines and Site Assessment & Application Form

Connected Corridors Project

The project provided revegetation and infrastructure services and support to landholders to actively manage native vegetation on their properties. Activities will focus on improving native vegetation connectivity by increasing the size of remnant native vegetation and establishing vegetated corridors that span remnant native vegetation.

The anticipated long-term outcomes of the project include increased abundance and distribution of iconic native plant and animal species

Project Assessment criteria:

Sites that meet the minimum eligibility criteria will be assessed according to the following:

Patch Connectivity – Large patches of remnant vegetation are likely to support viable populations of wildlife compared to smaller patches of remnant vegetation. Projects which have multiple connections to large patches of native vegetation will score higher than projects which only have a single connection to smaller patches of native vegetation.

Habitat/Condition Value – The composition and condition of vegetation influences the diversity of wildlife that can use the site. Project sites in better condition and with more types of wildlife habitat will score higher than project sites in poorer condition.

Site Size/New Extent – Projects which increase the area of native vegetation through revegetation or regeneration to create new wildlife habitat is important within this highly cleared landscape. Larger projects which establish more native vegetation will score higher than smaller projects.

Edge Effect – Minimising edges and maximising core areas of vegetation increases habitat for wildlife. Projects with wider corridors or block plantings will have a larger core area for wildlife habitat and will score higher than projects with narrower corridor plantings.

Cost Effectiveness – Sites that are more cost effective will score higher than sites that are less cost effective.

Eligibility Assessment

Question	Answer (N/A, Yes, No)
Part of the project site is located within 1km of the BMP Repair priority area?	□ Yes □ No
The project will incorporate or connect to a remnant (i.e. Regional Veg Mapping) or >2ha previously revegetated site (native species with tree and shrub mix)? *Note: If project connects to remnant not mapped by veg layer, discuss with Project officer to determine eligibility.*	□ Yes □ No
The project is a minimum size of 5ha (incl. remnant and greenfield area)?	□ Yes □ No
If establishing a non-public roadside corridor, is the corridor at least 30m wide?	□ N/A □ Yes □ No
If a public roadside, is the corridor either at least 30m wide on one side of the road, or at least 15m corridors on both sides of the road. *Note: corridor must be area able to be vegetated (i.e. corridor area does not include table drains, fire breaks, clear zones for over-head or underground infrastructure)*	□ N/A □ Yes □ No
If fencing along a waterway, wetland or drainage line, is the fencing at least 20m out from the top of the bank (or high water mark for wetlands)?	□ N/A □ Yes □ No
If fencing along a waterway, will the waterway be fenced both sides (to enable grazing control)	□ N/A □ Yes □ No
Are project activities subject to a current funding agreement? Details of agreement:	□ Yes □ No
Has the applicant satisfactorily completed all obligations associated with any pre-existing LLS/MIL contracts?	□ N/A □ Yes □ No
Is the applicant willing to enter into a 10 year PVP contract registered on title?	□ Yes □ No

Site Assessment

Patch Connectivity Value		
High	**At least one tick**	**Score**
Connects (within 100m) to a remnant patch >40ha and the connection/patch is on average at least 30m wide.		High = 25
Other?		
Medium		
Connects (within 100m) to a remnant patch <40ha and/or the connection/patch is on average < 30m wide (i.e. Most Roadside remnants)		Med = 15
Other?		
Low		
Connects (within 100m) to a previously revegetated area >2ha (native species with a mix of trees and shrubs)		Low = 5
Other?		

HABITAT / CONDITION of SITE			
Habitat Value (highlight the relevant score for each habitat value)			
Native Plant Species Richness	<6 sp. = 0	7 – 15 sp. = 1	>16 sp. = 2
Intact Over storey	Absent = 0		Present = 2
Mid-storey/shrubs	Absent = 0	Sparse = 1	Common = 2

Native Groundcover	Absent = 0	Sparse = 1	Common = 2
Natural regeneration (trees & shrubs)	Absent = 0	Sparse = 1	Common = 2
Exotic Weeds	Common (>66%) = 0	Sparse (11-65%) = 1	Absent (<10%) = 2
Rabbits/Hares	Common = 0	Sparse = 1	Absent = 2
Other pests (Noisy Miners, foxes, cats, etc.)	Common = 0	Sparse = 1	Absent = 2
Fallen Timber	Absent = 0	Sparse = 1	Common = 2
Trees with Hollows	Absent = 0		Present = 2
Rocky Outcrops or substrate	Absent = 0		Present = 2
Creek/drainage line	Absent = 0		Present = 2
Wetland	Absent = 0		Present = 2
Veg Classes within site	One = 0	Two = 1	Three plus = 2
ECC/ Threatened Species	Absent = 0		Present = 2
		Total Score	

HABITAT / CONDITION of PATCH ITS CONNECTS TO			
Habitat Value (highlight the relevant score for each habitat value)			
Native Plant Species Richness	<6 sp. = 0	7 – 15 sp. = 1	>16 sp. = 2
Intact Over storey	Absent = 0		Present = 2
Mid-storey/shrubs	Absent = 0	Sparse = 1	Common = 2
Native Groundcover	Absent = 0	Sparse = 1	Common = 2
Natural regeneration (trees & shrubs)	Absent = 0	Sparse = 1	Common = 2
Exotic Weeds	Common (>66%) = 0	Sparse (11-65%) = 1	Absent (<10%) = 2
Rabbits/Hares	Common = 0	Sparse = 1	Absent = 2
Other pests (Noisy Miners, foxes, cats, etc.)	Common = 0	Sparse = 1	Absent = 2
Fallen Timber	Absent = 0	Sparse = 1	Common = 2
Trees with Hollows	Absent = 0		Present = 2
Rocky Outcrops or substrate	Absent = 0		Present = 2
Creek/drainage line	Absent = 0		Present = 2
Wetland	Absent = 0		Present = 2

Veg Classes within site	One = 0	Two = 1	Three plus = 2
ECC/ Threatened Species	Absent = 0		Present = 2
		Total Score	

EDGE EFFECT (Area to Perimeter Ration) VALUE	
Scaled 1-10, Most Expensive - cheapest	
EDGE EFFECT SCORE:	

NEW EXTENT SCORE	
New veg extent created (excluding remnant within site) Scaled 1-10, Most Expensive - cheapest	
NEW EXTENT SCORE:	

VALUE FOR MONEY	
$/ha Scaled 1-10, Most Expensive - cheapest	
VALUE FOR $ SCORE:	

SITE ASSESSMENT SCORE	
Patch Connectivity Score:	
Habitat/Condition Value of Site Score:	
Habitat/Condition Value of Connecting Patch Score:	
Edge Effect Score:	
New Extent Score:	
Value for Money Score:	
TOTAL PROJECT SCORE:	

Threats/Impacts to Site:

Note any specific impacts of erosion, weeds, grazing, veg clearing, other;

Revegetation

Estimated total revegetation area (ha)			
Activity	Area (ha)	Funding or landholder In-kind	Notes:
□ Direct Seeding			
□ Tubestock			
□ Site preparation: weed and pest control			
□ Ripping			
□ Planting of tubestock			
□ Follow-up post planting			
□ Other			

Infrastructure

Estimated total revegetation area (ha)			
Activity	Length (m) or No.	Funding or landholder In-kind	Notes:

□ New Fence			
□ Fence to be repaired / modified			
□ Fence to be maintained			
□ Gates			
□ Alternate watering point			
□ Other			
Fence Type Details (i.e. 7 line ringlock with plain top & bottom, star posts 6m apart, etc.):			

Other

Estimated total revegetation area (ha)			
Activity	Area (ha) or No.	Funding or landholder In-kind	Notes:
□ Pest Animal Control			
□ Weed Control			
□ Fence to be maintained			
□ Signage			
□ Paddock Resting			
□ Monitoring			

Management Actions: Refer to Murray LLS, 2016. Connected Corridors Project 16/17, Site Assessment & Application Form

TSR Habitat Conservation Rating 2000 and Comparison Against Nowland's 1997 Ranking Definitions (Reference: Webster R, 2000)

As part of the assessment process each travelling stock route (TSR) was given a conservation rating: high, medium or low. These ratings were based on the habitat value and structural diversity of each TSR and did not take into account the presence of high conservation value flora or fauna species or the grazing value of each TSR. A definition of each rating is given below (Nowland's 1997 ranking definitions are supplied for comparison).

High:

The area largely consists of native flora species with very few introduced species and has a diverse structure (i.e. an intact overstorey, an intact shrubby understorey and an intact native ground flora).

Nowland (1997): **Near natural remnant vegetation**: a diversity of indigenous species and a negligible number of introduced species, indigenous species regenerating and minimal disturbance over last 5 years.

Medium:

The area has a mixture of native and introduced flora species but is predominantly native. The overstorey is intact, the understorey is missing and the ground floor consists of patches of both native and introduced species.

Nowland (1997): **Modified remnant vegetation**: a mixture of indigenous and introduced species, or indigenous vegetation that has been altered through processes such as heavy grazing, selected timber harvesting or removal of understorey.

Low:
These reserves have been largely cleared of native vegetation. The overstorey consists of scattered trees or small remnants, there is no shrub layer and the ground flora is predominantly introduced species although there may be small patches of native ground flora.

Nowland (1997: **Invaded remnant vegetation**: the vegetation present is predominantly introduced and few, if any, indigenous species remain.

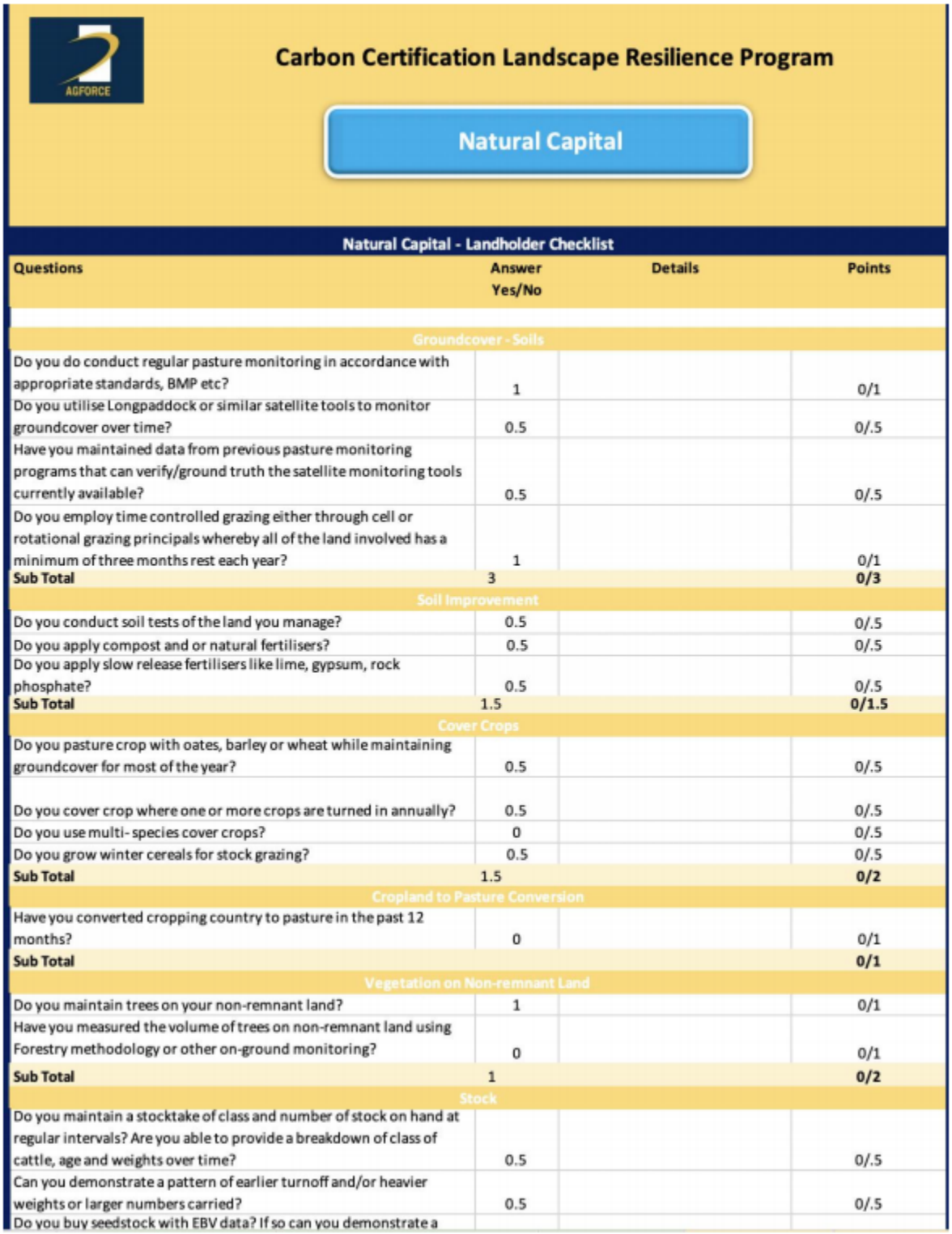
Some TSR's did not fit into any rating category and therefore have been classified high/medium or medium/low. The reason that some reserves are given a combined rating value is that they included portions of habitat which fitted into different rating categories (i.e. had intact portions and degraded portions of habitat).

As part of each assessment, the dominant vegetation community or communities were identified. In addition, reserves containing potential habitat for threatened fauna were also noted.

As part of the assessment process, the following issues were also commented upon: weed control, the effect of grazing on regeneration of trees, shrubs, ground flora and weeds, identification of any other management issues which had the potential to improve or degrade the conservation value of the reserve. Following each assessment a list of recommendations to aid in habitat / biodiversity management for each TSR were suggested. These recommendations were then discussed at a meeting with Greening Australia staff, Riverina RLPB rangers and the consultant.

Appendix N

AgForce AgCarE Assessment - AgCarE Natural Capital Base Assessment Module



Carbon Certification Landscape Resilience Program

Natural Capital

Natural Capital - Landholder Checklist

Questions	Answer Yes/No	Details	Points
Groundcover - Soils			
Do you do conduct regular pasture monitoring in accordance with appropriate standards, BMP etc?	1		0/1
Do you utilise Longpaddock or similar satellite tools to monitor groundcover over time?	0.5		0/.5
Have you maintained data from previous pasture monitoring programs that can verify/ground truth the satellite monitoring tools currently available?	0.5		0/.5
Do you employ time controlled grazing either through cell or rotational grazing principals whereby all of the land involved has a minimum of three months rest each year?	1		0/1
Sub Total	3		**0/3**
Soil Improvement			
Do you conduct soil tests of the land you manage?	0.5		0/.5
Do you apply compost and or natural fertilisers?	0.5		0/.5
Do you apply slow release fertilisers like lime, gypsum, rock phosphate?	0.5		0/.5
Sub Total	1.5		**0/1.5**
Cover Crops			
Do you pasture crop with oates, barley or wheat while maintaining groundcover for most of the year?	0.5		0/.5
Do you cover crop where one or more crops are turned in annually?	0.5		0/.5
Do you use multi-species cover crops?	0		0/.5
Do you grow winter cereals for stock grazing?	0.5		0/.5
Sub Total	1.5		**0/2**
Cropland to Pasture Conversion			
Have you converted cropping country to pasture in the past 12 months?	0		0/1
Sub Total			**0/1**
Vegetation on Non-remnant Land			
Do you maintain trees on your non-remnant land?	1		0/1
Have you measured the volume of trees on non-remnant land using Forestry methodology or other on-ground monitoring?	0		0/1
Sub Total	1		**0/2**
Stock			
Do you maintain a stocktake of class and number of stock on hand at regular intervals? Are you able to provide a breakdown of class of cattle, age and weights over time?	0.5		0/.5
Can you demonstrate a pattern of earlier turnoff and/or heavier weights or larger numbers carried?	0.5		0/.5
Do you buy seedstock with EBV data? If so can you demonstrate a			

Do you offer farm stay or similar agri-tourism?	0		0/.5
Sub Total	1		**0/1.5**
Sustainable Natural Capital Property Plan			
Do you have a dedicated Natural Capital Property Plan which outlines the pathway to improved Natural Capital outcomes over a 15 year period?	0		0/2
Sub Total	0		**0/2**
Energy Savings			
Have you implemented energy saving processes that reduce your use of fuel and/or electricity? The use of solar, wind, ethanol etc?	0		0/.5
Can you demonstrate a reduction over time in your use of electricity or fuel?	0		0/.5
Sub Total	0		**0/1**
Biodiversity			
Have you implemented programs that actively increase the biodiversity of the land you manage?	0.5		0/.5
Do you have and maintain wildlife corridors, essential habitat, koala habitat, protected plants etc on farm?	0.5		0/.5
Do you have an E-Cond score?	0		0/3
Established a Nature Refuge?	0.5		0/.5
Are you certified organic?	0		0/.5
Do have any nationally threatened species that you are actively protecting on farm ?	1		0/1
Do you any have any RAMSAR or locally important wetlands that you are actively managing on farms?	0		0/1
Do you actively control feral animals on property?	0.5		0/.5
Have you or your staff completed any accredited biodiversity training ?	0.5		0/.5
Sub Total	3.5		**0/8**
Total:			

Total Points: 0/30

Rating: Gold (18 points)

Rating System	
Platinum	26+/30
Gold	18 - 25/30
Silver	10 - 17/30
Bronze	1 - 9/30

It would be expected that the data provided could, over time, contribute to enhancing the questions and scoring system. There is also an opportunity to introduce a Peer-to-Peer verification system.

Carbon Module.

Carbon Certification Landscape Resilience Program

Results

Property Name:	**Gyranda**	**Climate:**	**Sub-tropical**
Soils:	**Dermosols**	**Total Area (ha)**	**9141.2**

Components	All GHG in tCO2eq Positive = emitting/ negative = sink	Results Per Year	Balance
Trees (Vegetation)			
Eucalyptus Woodland	-17,805	-17,805	-17,805
Eucalyptus Open Woodland	-4,070	-4,070	-4,070
Grassland (Vegetation)			
Sub-tropical Improved pasture	-7,047	-7,047	-7,047
Sub-tropical grasslands	-8	-8	-8
Livestock			
Beef Cattle	3225	3225	3225
Fertilisers & Pesticides			
	0	0	0
Cropping			
Beans/Pulses	-207	-207	-207
Leucaena	-502	-502	-502
Energy Usage			
Electricity	169	169	169
Diesel	42	42	42
Petrol	6	6	6
Total			**-26,197**
Total Per Hectare			**-2.8**

Rating: CN+

Appendix O

Regen Ag Mutual Certificate of Registration with ASIC

Farmers Mutual

Attachment 3 - Certificate of Registration

Certificate of Registration of a Company

ASIC
Australian Securities & Investments Commission

This is to certify that

REGEN FARMERS MUTUAL LIMITED

Australian Company Number 651 686 654

is a registered company under the Corporations Act 2001 and is taken to be registered in New South Wales.

The company is **limited by guarantee.**

The company is a **public** company.

The day of commencement of registration is **the fifth day of July 2021.**

CERTIFICATE

Issued by the
Australian Securities and Investments Commission
on this fifth day of July, 2021

Joseph Longo
Chair

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