Department of
Primary Industries and
Regional Development

GOVERNMENT OF
WESTERN AUSTRALIA

Protect
Grow
Innovate

Co-benefits Standard

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1. Overview of the Co-benefits Standard

Purpose

This document has been prepared by the Department of Primary Industries and Regional Development (DPIRD) to assist in the identification and monitoring of co-benefits in a Western Australian and agricultural context.

The Australian ACCU Scheme supports farmers adopt better land management practices that can increase the amount of carbon stored in vegetation and soil, which helps to boost farm productivity.

1.1 What are co-benefits?

Co-benefits are the additional, positive outcomes of carbon farming project activities. These add value to the carbon sequestered by vegetation and soil projects and offer other benefits to the landowner and the land.

The Australian ACCU Scheme explicitly recognises that carbon farming projects can deliver environmental, social, cultural, and economic co-benefits.

1. Improved Soil Health

- Increased organic matter boosts microbial activity and nutrient cycling
- Enhanced soil structure improves aeration and root penetration
- Greater water retention reduces drought stress and irrigation needs

2. Better Water Quality and Hydrology

- Reduced runoff and erosion lead to cleaner waterways
- Improved infiltration helps recharge groundwater and maintain stream flows
- Reduced dryland salinity

3. Enhanced Biodiversity

- Diverse plantings and reduced chemical use support pollinators, birds, and beneficial insects
- Restored habitats (e.g., riparian zones, native vegetation) increase species richness
- Soil biodiversity improves with reduced tillage and greater organic inputs
- Create wildlife corridors and landscape-scale conservation and enhance ecological networks

4. Land Restoration and Erosion Control

- Practices like cover cropping and rotational grazing stabilise soils
- Rehabilitating degraded land enhances ecosystem services and productivity
- Vegetation buffers protect against wind and water erosion

5. Climate Resilience

- Healthier soils and diversified ecosystems are more resilient to extreme weather

1.2 Using DPIRD's Co-benefit Standard

DPIRD identifies 5 priority environmental, economic, and social co-benefits:

Biodiversity and conservation	Agricultural productivity	Soil health	Salinity mitigation	Aboriginal economic and cultural opportunities

This Co-benefits Standard guides the development of project proposals and offers a strong evidence base for the delivery of co-benefits. It details:

- Evidence, data and information sources
- Approaches to monitoring and reporting

The standard can be used in conjunction with DPIRD's Co-benefits Portal.

Co-benefits Portal

The Co-benefits Portal is an online mapping tool that uses GIS mapping and publicly available data to demonstrate the potential for co-benefit delivery.

- Identifies co-benefits that may apply to an area or project
- Can be used to create a site map to show where the project activities are undertaken (Appendix B – Site map examples)

1.3 Monitoring and reporting on co-benefits

Verified co-benefits can add value to the carbon credits, as the market recognises these when investing in credits from a project.

There may be opportunities to design an environmental planting project that meets the requirements of the Australian ACCU Scheme and the Nature Repair Market scheme. If there is interest in participating in both, it is important to understand the eligibility requirements of both, and plan accordingly.

The approach to monitoring and reporting should be considered at the planning stage of a project. Advice should be obtained to develop appropriate monitoring and reporting methods that reflect the project's complexity.

Things to consider:

1.	**What** specific factors will demonstrate improvement?
2.	**How** will the factor/s be measured? What method or equipment is required? **How** will the data or information be shared?
3.	**When** does it need to be measured to best demonstrate change? How frequently? Which season?
4.	**Who** will do the monitoring?

When developing a carbon farming project, consideration of how the project can align with emerging natural capital frameworks and stewardship programs may mean that project data can be used in the future. Some examples include:

- Nature Repair Market - the Australian Government is developing a range of market mechanisms to enable farmers to be rewarded for their biodiversity land care and conservation outcomes. These will enable landowners to receive private finance to protect and restore nature on their land. This includes biodiversity certificates regulated by the Clean Energy Regulator (CER) and traded in a way that is similar to Australian Carbon Credit Units (ACCUs)
- Natural Capital – Farming enterprises are underpinned by 'natural capital' which helps to generate ecosystem services for food production. The land management practices of farmers are directly associated with the inherent value and productive capacity (natural capital) of farmland
- Accounting for Nature has developed methods with detailed measurement and reporting requirements for specific environmental assets

Service Provider Directory

DPIRD's Service Provider Directory lists independent advisors who can assist with various stages of a carbon farming project from planning to implementation.

These advisors offer a range of expertise, from carbon project development, soil technicians, and environmental consultants.

2. Priority co-benefits

2.1 Biodiversity and conservation co-benefits

Guiding principles

To maximise the environmental outcomes of carbon farming projects, a person developing a project can be guided by the following principles:

- Maintain or improve the biodiversity value
- Revegetate areas with the greatest conservation outcomes

There are three categories:

1) Biodiversity value of revegetation

The project area includes:

- Complex vegetation structure and composition (multi-species)
- Rare or otherwise significant species or threatened species

2) Proximity to high biodiversity area or assets

The project area adjoins, contains, or is within one or more of the following:

- Existing conservation areas[1]
- Threatened and priority flora or fauna species, and/or threatened ecological communities[2]
- Conservation covenants

3) Landscape connectivity

The project implements:

- Landscape corridors – builds linkages by connecting remnant vegetation, including the planting of local vegetation corridors of appropriate width, structure, and composition, the buffering of remnant vegetation, and creating new 'block' plantings; and/or
- Riparian corridors – improves the condition of vegetation along watercourses (e.g., riparian areas, lakes, swamps, wetlands)

[1] Co-benefits Portal: '*DBCA legislated lands and waters*', '*Natural diversity recovery catchments (existing)*', '*Natural diversity recovery catchments (potential)*', '*Water resource recovery catchments*' and the '*Ramsar sites*' layers.

[2] Co-benefits Portal: '*Threatened and priority flora*', '*Threatened and priority flora*', '*Threatened ecological communities*' layers

Examples of monitoring and reporting biodiversity and conservation co-benefits

- List of plant species and planting/seeding design (e.g., species mapped to soil unit, orders with nurseries and seed suppliers) demonstrating provenance and/or species diversity
- Results from independent assessment of revegetation value
- Documentation (e.g., independent ecological assessment and/or surveys, government agency reports or tools) that confirm rare and/or threatened flora or fauna species have increased in density, diversity, or occurrence
- Photographic evidence and/or satellite imagery of vegetation growth
- Photographic evidence of fauna presence
- Documentation of fauna surveys (species type and abundance) at consistent location and time of year

Resources for biodiversity and conservation co-benefits

These resources can be used to develop a measurement and monitoring plan. Local land care and Natural Resource Management groups (NRM) can also assist.

- Dandjoo - WA's whole-of-state biodiversity data platform - data sourced from government, industry, and research providers
- Florabase is a database of Western Australian flora with scientific information including descriptions, maps, images, and conservation status
- Native Vegetation Handbook Series are handbooks based on local government areas that identify environmental values such as landscape, soil, and vegetation units/systems. Documents locally occurring plant species by vegetation unit
- River Restoration manual is a series of guidelines on the nature, rehabilitation and long-term management of WA waterways
- A Guide to Preparing Revegetation Plans for Clearing Permits

2.2 Agricultural productivity co-benefits

Guiding principles

Carbon farming projects can support agricultural productivity outcomes, guided by the following principles:

- Build resilience and enable adaptability to changing climate pressures across the agricultural landscape
- Preserve high-value agricultural land

There are two categories:

1) Resilience of agricultural practices

The project demonstrates one or more of the following:

- Increases resilience[3] of agricultural practices directly, or through microclimate influence, by increasing:
  - Biomass yield as plant growth (tonnes/ha crop/pasture/tree yield/cover crops)
  - Profit as input costs/yield ratio (livestock, fibre, crop)
- Provides annual and/or perennial fodder, minimises feed gaps, and/or shelter options on high-risk agricultural land[4]

2) Agricultural productivity

The project improves low productivity or high-risk agricultural land.

Examples of monitoring and reporting agricultural productivity co-benefits

- Satellite and/or photographic imagery demonstrating growth of pasture and foraging shrub options
- List of species composition of project (e.g., contracts with seed suppliers, nurseries), demonstrating use of species targeted to remediate areas of low production
- Stubble retention measurements
- Economic data or results from an independent assessment that demonstrate agricultural practices have improved
- Production and yield data as used for annual farm business review

[3] For the purposes of this document, 'resilience' is defined as 'the ability of agricultural/farm systems to recover from shocks and stresses caused by changing climate pressures and adapt in order to continue and grow'.

[4] Co-benefits Portal: '*Land capability*' layers

Resources for agricultural productivity co-benefits

These resources can be used to develop a measurement and monitoring plan for the selected co-benefit categories:

- Shelter belt impact on productivity or Tree Windbreaks for the Wheatbelt
- Timing of nitrogen application (video)
- Nitrogen and biomass (video)

2.3 Soil health co-benefits

Guiding principles

Carbon farming projects can contribute to improved soil quality, guided by the following principles:

- Preserve topsoil and prevent further degradation
- Increase the amount of soil organic carbon sequestered in soils
- Reduce the risk of wind and water erosion

There are two categories:

1) Soil health

The project demonstrates one or more improvements in:

- Nutrient use efficiency
- Input use efficiency
- Soil microbiome health and/or activity, such as soil phosphorus bioavailability, soil oxygen levels, fungal to bacterial ratios, respiration
- Plant available water and rainfall use efficiency
- Soil parameters such as pH, CEC, soil strength, aggregation, compaction

2) Soil erosion response

The project is in proximity to an erosion risk area and reduces soil erosion risk by increasing the surface area of groundcover and ensuring it remains above the baseline.

Examples of monitoring and reporting for soil health co-benefits

- Results from independent assessment (e.g., indicating improvement in soil health beyond the baseline, reduction in soil erosion risk)
- Documentation demonstrating a whole farm nutrient mapping process has been implemented
- Documentation demonstrating input use efficiency improvement (e.g., reduced fertiliser and use of phosphates)
- Photographic evidence and annual land use journal monitoring
- Satellite imagery demonstrating increase in groundcover has occurred
- Laboratory results demonstrating presence and abundance of soil biota

Resources for soil health co-benefits

These resources can be used to develop a measurement and monitoring plan for the selected co-benefit categories:

- Tools and systems for assessing soil health
- Managing soil organic matter: a practical guide
- How microbes can, and cannot, be used to assess soil health
- Soil quality factsheets
- Western Australian Soil Health Strategy 2021-2031
- Cooperative Research Centre (CRC) for High Performance Soils
- Strategic windbreaks for erosion control (Lake Bryde case study).

2.4 Salinity mitigation co-benefits

Guiding principles

Carbon farming projects can support salinity mitigation outcomes, guided by the following principles:

- Prevent further degradation of salt-affected land
- Improve the productivity of salt-affected land

There is one salinity mitigation co-benefit category, as outlined below.

Salinity response

The project must be in proximity to priority landscapes, priority flora or fauna, and/or threatened ecological communities at risk from salinity[5] and:

- Prevent the further degradation of land currently affected by salinity
- Reduce the likelihood of priority landscapes from becoming affected by salinity
- Improve the productivity of land by reducing salinity impacts

Examples of monitoring and reporting for salinity mitigation co-benefits

- Estimates or measurement of the location, extent, and severity of salinity:
  - mapping the location, extent, and severity of salinity
  - mapping the apparent electrical conductivity of soil using an electromagnetic induction (EM) device
  - biomass (normalised difference vegetation index) maps using satellite imagery
- Evidence of actions taken to protect the land (e.g., fencing of fodder bush to enable stock management)
- Piezometer readings, if installed

Resources for salinity mitigation co-benefits

These resources can be used to develop a measurement and monitoring plan for the selected co-benefit categories:

- Measuring soil salinity
- Assessing saline areas in Western Australia
- Saltbush plus understory pastures for managing dryland salinity in WA.

[5] Co-benefits Portal: '*Priority landscapes at risk from salinity*', '*Threatened and priority fauna at risk from salinity*', and '*Threatened ecological communities at risk from salinity*' data layers

2.5 Aboriginal economic and cultural co-benefits

Guiding principles

Carbon farming projects can provide co-benefits for Aboriginal economic and cultural opportunities, guided by the following principles:

- Encourage proponents to engage with Aboriginal people on the project – through potential partnerships and joint business models
- Acknowledge and promote the connection of Aboriginal people to Country
- Free, prior, and informed consent for land-based projects
- Promote recognition of Aboriginal cultural values
- Respect intellectual property rights.

There are four co-benefit categories:

1) **Aboriginal project ownership**

   The project involves Aboriginal leadership or participation, through project ownership or partnership models.

2) **Aboriginal land tenure**

   The project presents an opportunity to involve tenure owned, leased, or managed by an Aboriginal organisation. There is also potential for land acquisition or transfer of ownership to an Aboriginal organisation as part of the project outcomes.

3) **Aboriginal economic opportunities**

   The project provides economic opportunities to Aboriginal people such as:

   - Contributing to the development and capacity building of Aboriginal businesses and organisations, including ranger programs
   - Providing Aboriginal employment opportunities
   - Providing recognised training opportunities for Aboriginal people
   - Collaborating with/provide broader opportunities for Aboriginal community

4) **Alignment to Aboriginal cultural values**

   The project achieves one or more of the following:

   - Aligns with and promotes Aboriginal cultural values (e.g., restoration of land, reconnection to land, handing down of traditional knowledge, protection of sites of significance, or other Aboriginal cultural values)
   - Contributes to the identification, protection, or restoration of Aboriginal heritage sites
   - Contributes to local or regional cultural mapping

Examples of monitoring and reporting for Aboriginal economic and cultural co-benefits

- contracts and other agreements with Aboriginal owned and run businesses
- partnering arrangements and Memorandums of Understanding with Aboriginal landholders
- reports detailing employment and/or training opportunities

Resources for Aboriginal economic and cultural co-benefits

Connecting with the local Aboriginal groups and Elders will give the most detailed and authentic benefits to the land and the people.

- DPIRD's Setting up for Success Guides
- Indigenous Carbon Industry Network – Mapping Opportunities Submission
- Indigenous Carbon Industry Network – Indigenous Carbon Projects Guide
- Indigenous Carbon Industry Network – Seeking Free, Prior and Informed Consent
- Office of the Registrar of Indigenous Corporations (ORIC webpage)

For further guidance, contact DPIRD's Aboriginal Economic Development team: AED aed@dpird.wa.gov.au

Appendix A - Datasets

Datasets available through the Co-benefits Information Portal include:

Biodiversity and conservation:

- threatened and priority fauna
- threatened and priority flora
- water – hydrography
- Ramsar sites
- natural diversity recovery catchments (existing and potential)
- water resource recovery catchments
- native vegetation extent
- DBCA lands of interest
- DBCA legislated lands and waters.

Agricultural productivity:

- waterlogging risk
- water repellence risk
- land capability
  - Annual horticulture
  - Dryland cropping
  - Grazing
  - Perennial horticulture
  - Vineyards.

Salinity mitigation:

- threatened ecological communities, priority flora and fauna at risk from salinity
- natural diversity recovery catchments (existing and potential)
- priority landscapes at risk from salinity
- salinity risk
- Land Monitor Salinity (2018)
- dryland salinity.

Soil health:

- water erosion risk
- wind erosion risk.

Aboriginal economic and cultural opportunities:

- Aboriginal heritage places
- Aboriginal Lands Trust Estate.

Appendix B - Site map examples

Site maps can be created with the Co-benefits Portal.

There is also a “How to

See Appendix A for available datasets.

Figure 1. Co-benefits Portal example showing threatened and priority flora and fauna and native vegetation extent.

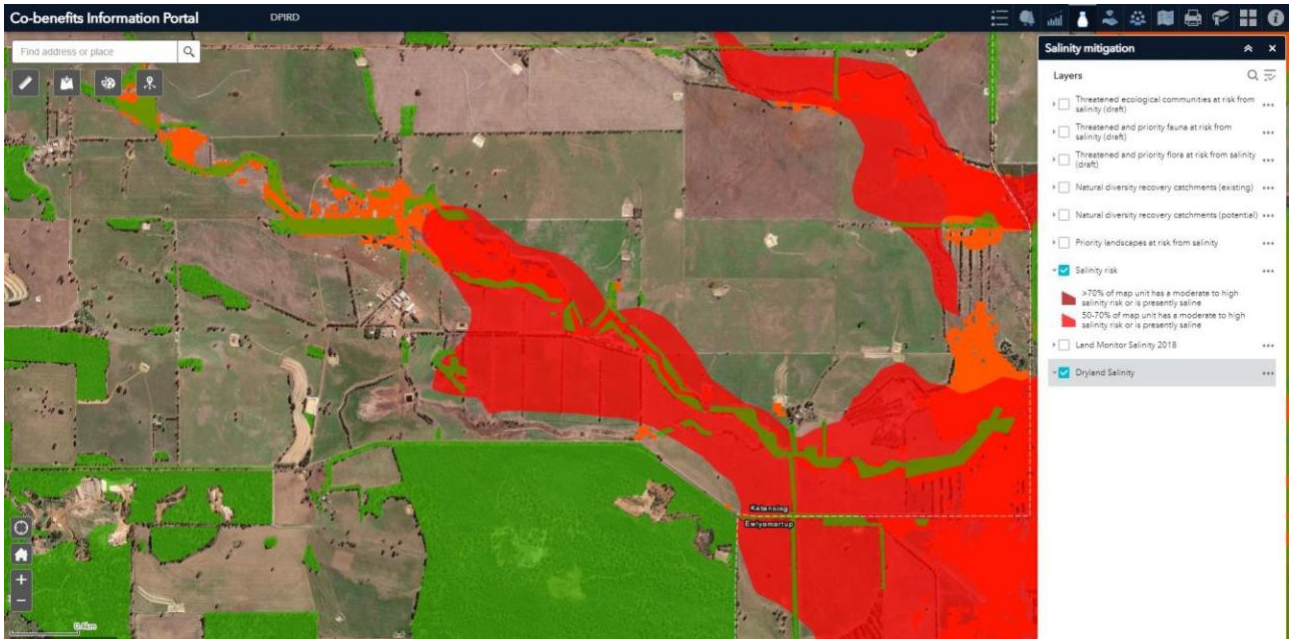

Figure 2. Co-benefits Portal example showing salinity risk, dryland salinity and native vegetation extent.

Appendix C - Glossary

Biodiversity	The variability among living organisms and the ecosystems of which those organisms are a part and includes diversity within native species and between native species, diversity of ecosystems, and diversity of other biodiversity components.
Biodiversity component	Native species, habitats, ecological communities, genes, ecosystems, and ecological processes.
Carbon farming	Land management activities that sequester (store) carbon.
Conservation	Preservation and protection of biodiversity and biodiversity components, including maintenance and restoration.
Corridors	Areas of vegetation that allow animals to travel from one patch of native vegetation to another. Corridors are generally considered to be linear strips of remnant vegetation or revegetation which directly connect patches of native vegetation to one another and may exist at farm scale, regional scale, or catchment scale.
Native vegetation	Plants endemic to Western Australia, including trees, shrubs, herbs, and grasses. Native vegetation provides habitat for plants and animals and delivers a range of ecosystem services.
Natural Resource Management groups	Natural Resource Management (NRM) groups are community based associations that work with stakeholders including farmers, communities, land carers and non-government organisations to deliver outcomes for the natural environment, sustainable agriculture and indigenous land management.
Productivity	The quantity of output produced with a given quantity of inputs. Improving productivity on farms allows farmers to produce more output (e.g., crops) using fewer inputs (e.g., fertiliser), contributing to business profitability.
Resilience	The ability of natural systems to absorb and recover from shocks and stresses and continue to grow despite them.
Reforestation	The re-establishment of endemic native vegetation e.g., forming corridors between important ecosystems, or re-establishing vegetation in cleared areas.