



Australian Government

Overview

This submission is providing comments on the proposed [Carbon Credits \(Carbon Farming Initiative\) Bill 2011](#).

Contact Details

Name of Organisation:

Greening Australia

Scheme design principles

Key Points

- Greening Australia strongly supports the government's initiative to introduce the Carbon Farming Initiative (CFI) and broadly supports the carbon abatement scheme outlined in the Act.
- Greening Australia would like to see the implementation of CFI fast-tracked.
- Carbon biosequestration under the CFI offers significant opportunities for biodiversity improvements and multiple environmental service benefits, and mechanisms should be implemented to encourage these multiple benefits.
- The CFI is a modest and voluntary start to addressing Australia's emissions challenge; a price on carbon with mandatory reductions is still required.

Greening Australia considers economic efficiency to be an important design principle in any program. It considers a price on carbon, such as an emissions trading scheme or a carbon tax, as a form of financial incentive, would present the most efficient mechanism for reducing Australia's carbon emissions. An emissions trading scheme is Greening Australia's preference for a long term program.

In the absence of a broad based market instrument, Greening Australia considers a voluntary carbon market useful as a transitional mechanism in the early development of efficient means of removing carbon from the atmosphere. As such CFI represents "low hanging fruit" and a no regrets option for direct action. Reference Garnaut Review <http://www.garnautreview.org.au/chp22.htm> Chapter 22.3

However, comprehensive consideration should be given to integration into a future national or international broad based market framework.

Scheme coverage

Addressing **First objective Clause 3(2)** of the Carbon Farming Initiative Bill 2011 - *to help Australia meet its international obligations, under the United Nations Convention on Climate Change and the Kyoto Protocol, to reduce its emissions of greenhouse gases.*

- It is important to distinguish between those components of the scheme that are available to meet our current international obligations and those that are not. If we are not careful low cost alternatives that don't satisfy our international obligations may swamp those compliant elements making the international compliance task more difficult.

Addressing **Second objective Clause 3(3)** of the Carbon Farming Initiative Bill 2011 - *to create incentives for people to undertake land sector abatement projects. The ability to generate saleable carbon credits provides an investment incentive, thereby helping to channel carbon finance into land sector abatement.*

- Greening Australia considers it is important that the scheme allows crediting of some land sector abatement that falls outside those currently recognized as being relevant to Australia's emissions reduction targets. Australia's decision not to adopt those elements of the Kyoto Treaty relating to land use management represents a gaping hole in the incentive structure. The agricultural, pastoral and land use management area is a very large proportion of both Australia's emissions and abatement opportunities.

Addressing **Third objective Clause 3(4)** of the Carbon Farming Initiative Bill 2011 - *to achieve carbon abatement in a manner that a) is consistent with the protection of Australia's natural environment and b) improves resilience to the impacts of climate change. This recognises the important contribution that this scheme can make towards environmental objectives such as improving water quality, reducing salinity and erosion, protecting and promoting biodiversity, regenerating landscapes and improving the productivity of agricultural soils.*

- Greening Australia considers it important that due consideration be given to the value of biodiverse carbon sinks and the spatial prioritization of sinks in a manner that can restore ecological function and connectivity in highly fragmented landscapes. The effects of habitat loss through land clearing and the isolation of habitat fragments is well documented, and carbon abatement plantings have an unprecedented potential to defragment Australia's over-cleared landscapes, providing multiple benefits in alignment with the protection of Australia's natural environment. Uniformity and fast growth are not imperatives for carbon sinks, and there are no ecologically sound reasons why mono-cultures of non-native species are needed for carbon abatement programs. Carbon sinks need to be long-lived, low risk, self-replacing and resilient. Native plantings provide such low risk opportunities based on sound research. The carbon secured in permanent biodiverse native forests can withstand the inevitable droughts, fires and floods that periodically affect all regions of Australia.

Avoided deforestation

Greening Australia recommends that natural regrowth be covered under 'avoided deforestation'. Where a legal right to clear regrowth exists (e.g. large areas of NSW and QLD), there is substantial risk of further carbon losses from landholders exercising this right. If this right is extinguished under a legally binding carbon covenant or contract, this would be a real and permanent gain in sequestered carbon.

However, avoided deforestation is an area where we must tread carefully. All States and Territories have legislated controls, which effectively prevent or limit broad scale conversion of forests to other land uses for biodiversity and environmental reasons. Where a right to clear forest under these statutes is forgone, e.g. because there is a residual quota of clearing allowed, it would fail the additionality principle and/or be subject to leakage because remaining clearing quotas will be filled anyway.

An argument may be made by some that avoided deforestation, in the form of ceasing short rotation logging in native forests, will result in substantial reduction of greenhouse gases. This is at best contentious and needs to be understood at the bioregional level as the outcomes are likely to be highly variable depending on forest type, forest management regime and the extent to which the forest products represent a carbon sink.

Other greenhouse gases

Reduced emissions from landfill is seen as an important component for inclusion in the scheme. We support the Waste Management Association of Australia WA's submission in respect of landfill emissions reductions.

Greening Australia agrees that the six greenhouse forcing gases identified in the NGER Act should be included. It may be beneficial to make this clear in commentary documents as otherwise people may think it applies only to CO₂ but not for example to NO₂.

Greening Australia is cautious in including a reduction in "burning of stubble/crop residue" as an abatement activity in its own right. We view stubble retention as a 'means to an end', the 'end' being gains in persistent fractions of soil carbon. It is our understanding that the science that demonstrates long-term soil carbon gains from stubble retention is equivocal depending on soil characteristics and farming systems. However, we acknowledge that there may be real, but modest, direct gains from not burning stubbles due to reduced emissions of nitrous oxides and methane.

Regional Communities, Water and Biodiversity

Greening Australia is highly supportive of the Australian Government rapidly re-introducing a voluntary carbon abatement scheme that covers both Kyoto and non Kyoto compliant activities. Greening Australia sees carbon biosequestration activities as an unprecedented opportunity for the urban economies of Australia and overseas to invest \$Billions in rural communities and the landscapes that support them. Appendix 1 provides a copy of a scientifically peer reviewed book chapter outlining this potential authored by Greening Australia's Chief Scientist Dr David Freudenberger.

Many aspect of the CFI have the potential to have unintended **negative** consequences. These could include:

- Carbon dense plantings on native grasslands or other native communities of conservation significance;
- Conversion of native vegetation, of conservation or environmental significance, to biochar;
- Disruption of prevailing water budgets by carbon farming; and
- Adoption of new fire regimes for the purpose of minimizing greenhouse impacts to the detriment of native species and or communities. Some species/communities require absence of fire or long intervals without fire. Others may require or are adapted to frequent firing.

Most of these activities, in different circumstances, different parts of the landscape and with slightly modified prescriptions can be either **neutral or beneficial** to biodiversity conservation. For example:

- Carbon dense plantings can buffer and reconnect biodiversity in isolated remnants;
- Conversion of crop waste or forest harvest waste, and subsequent use as a soil conditioner, may improve the survival and growth of restoration plantings;
- Establishment of carbon farming plantings can restore "natural" water catchments, reduce water tables in areas prone to salinity, prevent erosion, reduce excess nutrient/pollutant inputs from agriculture, agro-forestry or industrial sources into water ways and can moderate temperature extremes in waterways to the benefit of biodiversity.

It is essential that the CFI has safeguards to prevent the potential adverse impacts of carbon farming on biodiversity. As these matters are regulated at the State, regional and local level government levels as well as under the *EPBC Act* it is appropriate that the CFI require all relevant approvals. Greening Australia supports the proposed section 25(4)(i) and 'regulatory approval' definition from the draft legislation.

It is also important that this requirement does not become a source of interminable delay in achieving project approval. It is suggested that the process be designed so that there is parallel processing and approvals can be granted subject to final regulatory approvals being provided to the CFI registry. Support and assistance to the extent possible from the CFI administrator to obtain the required regulatory approvals would also assist.

The relevance of regional NRM plans to CFI approvals is highly variable across the country. NRM plans will often have relevant information and even prescriptions to inform CFI planning. In many instances the regional NRM plans are given effect through other local, regional and State regulatory requirements. It is recommended that the CFI program make consideration of regional NRM plans advisory as opposed to mandatory.

The issue of prime agricultural land and the potential for carbon farming initiatives to impact on its availability is a local and State planning issue. It is not considered appropriate to use the CFI as a vehicle to address this issue.

Otherwise a review is strongly supported and the 2014 timeframe appropriate.

Greening Australia has developed a *Greenhouse Friendly* accredited voluntary carbon sequestration product (www.breatheeasy.com.au/html) as a mechanism to enable household and small businesses to offset their carbon emissions and restore biodiverse habitat in large scale landscape linkages. We ensure that our carbon sequestration plantings provide many positive outcomes by adhering to rigorous internal standards (Appendix 2). These are based on comprehensive and participatory planning at regional,

landscape and patch scales and use a diversity of regionally native species matched to local environmental conditions.

Implementing such rigorous plantings can be more expensive than the establishment of monocultures but they a lower risk proposition due to their proven resilience (e.g. recovery from fire). However, at this early stage of market development, incentives are required to encourage multiple environmental outcomes from abatement activities. Incentives should include:

- Co-investment by Australian Governments, administered by NRM Organisations and environmental NGOs, to enhance diversity of carbon plantings on-farm.
- Applied R&D aimed to reduce the cost and improve the native biodiversity of carbon abatement activities on-farm.
- Direct Australian Government investment in 'land brokering' activities.

Recommendations

- **Integration with existing environmental policies and state level standards of environmental and biodiversity protection**
- **Ongoing support to local, regional and state government levels for regulatory approval processes**
- **Advisory integration with existing natural resource management plans**
- **Development of incentives for projects that produce multi-benefit environmental outcomes**

Sale of units

Greening Australia supports the proposals to link to international registers exposing the CFI credits to a larger market.

All markets have brokers between buyers and sellers. These brokers are self-funded in mature markets. However external (e.g. Government) support is initially (e.g. 5 yr) needed to support brokering services in such a novel and highly dispersed market for carbon abatements. Brokering costs include liaising with numerous landholders in a landscape to negotiate an integrated portfolio of land suitable for activities such as carbon plantings that will deliver net environmental benefits. Brokering also includes the transaction costs of securing permanency (e.g. carbon covenants), contracts with abatement buyers, reporting, and auditing. Australian Governments and NRM organisations can have a pivotal role in guiding and leveraging positive social, environmental and economic outcomes by supporting “brokering services” during the early development of this novel market.

Recommendations

- Early-term government support for developing markets
- Early-term provision and support of brokering services

Integrity standards

Greening Australia strongly supports the two principles contained in the paper relating to ensuring environmental integrity and ensuring broad participation. A caveat on this support is that in some instances measures to broaden participation could come at the expense of maintaining environmental integrity. Greening Australia considers that maintaining environmental integrity is essential.

There is clearly a risk that a voluntary scheme such as the CFI could easily become overly bureaucratic in its desire to build and maintain the integrity of the CFI. However, ‘red tape’ is a well known disincentive to investment, particularly to the development of innovative and novel markets.

Maintaining high standards of environmental integrity is absolutely essential if the scheme is to achieve its objectives. Greening Australia strongly supports the application of the NCOS integrity standards to this scheme and notes that these are consistent with internationally recognized standards.

In Greening Australia’s own experience as an abatement provider, our large corporate investors require far more documentation, third party scrutiny, and reporting than likely required under the CFI. Up to a point, the carbon abatement market will be self-regulating given the large capital up-front investment required by projects like carbon forestry. The Australian Government has a broad role in providing a legal and regulatory framework for carbon abatement just as it does for all other markets in a modern economy. It must strike a balance between excessive regulation, and the resultant inefficiencies it would cause, and providing a credible scheme with the capacity to ensure protection of legitimate operators and the integrity of the product.

Methodology approval

The proposed process for approving methodologies for calculating abatement claims appears to be a reasonable starting point, but should be reviewed on a regular basis and modified as required.

The Australian Government, as a priority, should increase R&D in methodologies to quantify carbon sequestered in relatively complex environmental plantings using locally native tree and shrub species. The capacity of the NCAS to accurately predict carbon yields in naturally heterogeneous environmental plantings is poor based on Greening Australia’s measurement of carbon yields in 410 sites located in all State and Territories except NT. Environmental plantings provide a wide range of public benefits, hence should be a priority for Australian Government supported R&D. The current level of support to CSIRO for this research on modeling carbon yields in environmental plantings is too limited over too short a time frame. The cumulative research on yield in environmental plantings pales in comparison to the many decades of government and private R&D on a few species used in monoculture timber plantations.

It should also be noted that the NCAS was never conceived or designed as a tool to model carbon abatement of individual projects at relatively small scales (hundreds of hectares). NCAS is a leading edge system for modeling continental scale levels of carbon pools. We therefore welcome a transparent procedure to approve alternative systems for quantifying abatements from individual projects.

Greening Australia has had its measurement protocols and resultant data on carbon accumulation verified by CSIRO. This work reveals that biodiverse vegetation yields can be as high as 50-200% of NCAT. It will therefore be important that “actual” measurements are allowed under the CFI scheme. Greening Australia submits that consideration be given to adopting a CFI NCAT equivalent, adjusted to reflect greater depth of evidence on actual sequestration rates. This is important because modeling actual estimates (from tree inventory measurements) versus NCAT produces a widely different price value per ha of sequestered CO₂, and could have significant and unnecessarily adverse implications on the uptake of biodiverse carbon.

Recommendations

- Regular review and modification of methodology approval
- An increase in Australian Government supported research and development into carbon sequestration science, particularly in biodiverse plantings and improvement of small-scale estimation tools and mechanisms, including modeling systems
- Development of an improved modeling system incorporating more ‘hard evidence’ in the form of field-based tree inventory measurement derived estimates

Additionality

Greening Australia notes that, as an Annex 1 country, Australia is not eligible for CERs from REDD projects. It is presumed therefore that “not for harvest” forest carbon sinks would be eligible for Voluntary Carbon Units (VCUs) under the CFI scheme. These still need to satisfy the additionality test. Greening Australia would like to understand how this test is proposed to apply where a jurisdiction has legislation or policy which places a limit on conversion of native forest to other land use.

The exclusion of projects part-funded by government under the additionality test is not considered appropriate. In circumstances where the project clearly contemplated the future eligibility of carbon credits the application of the test in this manner punishes early movers who developed business models based on the anticipated carbon price. It is noted that the section on crediting provides a measure of backdating.

The test should be whether or not the project would have been undertaken had there been an understanding that carbon credits would not accrue. Government funding *per se* should not be the basis on which a project is considered ineligible.

It also precludes the option of Government’s purchasing carbon offsets for their own emissions even if they invest in projects that deliver multiple benefits (carbon offsets, biodiversity conservation and other environmental improvements).

Consider a project that results in X MTs of carbon sequestration at \$Y, but is only viable if it receives \$ 0.5Y in the form of government funding and the balance from carbon credits. If in the process government is purchasing other environmental goods, it can receive those benefits at half price and still sequester X metric tons of carbon. This project clearly satisfies the additionality test as it would not proceed if it was not eligible for carbon credits.

Similarly landowners who undertake remedial environmental works, which have the potential to sequester carbon, should not be excluded from attaining carbon credits because these works are seen as a normal part of land management. The reality is that most landowners have tightly constrained budgets for such works and the availability of carbon credits makes it possible to implement much larger projects.

Again carbon credits may not be the only incentive to undertake the works, but they can be a powerful incentive to undertake more extensive works sequestering considerably more carbon and achieving other environmental outcomes. Without availability of carbon credits, a significant proportion of the works would not be able to proceed.

Given the need to interpret the additionality test in a manner that is appropriate to carbon farming activities Greening Australia proposes that, in the interest of removing doubt and streamlining the process, an initial positive list be included as a schedule to the Bill. This list would include no regrets measures including Biodiverse revegetation (on land cleared prior to 1990), regeneration of native vegetation where a statutory right to clear remains, and persistent soil storage from activities including application of biochar.

Recommendations

- **Additionality should include those projects partially funded by Government; provision of funding from Australian Government should not be the basis of ineligibility for Additionality**
- **Remedial environmental work should not be excluded from attaining carbon credits**
- **The Additionality test of the Carbon Credits (Carbon Farming Initiative) Bill 2011 should be supplemented by a document including a comprehensive list, with the aim of facilitating better understanding and interpretation of the regulations**

Permanence

Permanence is an essential element required to demonstrate additionality. Committing to permanence is of itself a demonstration that the project is above and beyond 'business as usual'. It is also essential for ensuring the integrity of the scheme.

If 'Permanence' has already been committed to, for example a conservation covenant has previously been placed on title or a management agreement is already in place in exchange for a payment to protect the native vegetation, then such a pre-existing covenant is one of the few cases that might be ineligible under the CFI. However if covenants have been applied by the land owner without reward for the expressed purpose of protecting the native vegetation or carbon store then those land owners should not be penalized as early movers.

For on-farm activities such as improvement in soil carbon, the 'additionality test' is the test of permanence. Farmers routinely improve soil carbon by practices such as including a pasture rotation in their cropping systems. However, the carbon sequestered during the pasture phase is often rapidly lost due to cultivation required by traditional tillage practices. If the farmer can demonstrate that their cropping-pasture system (e.g. no-tillage) results in permanent improvements in soil carbon, then said farming practice is over and above business as usual. Again, it is immaterial whether gains in sequestered carbon provide monetary benefits over and above the value of the carbon.

It is essential that there should be no prohibition on biodiverse plantings having access to both carbon credits and biodiversity credits.

Permanence obligations

Greening Australia is generally supportive of the proposed permanence obligations including the concept of a 5% buffer. However, the level of this risk buffer should be reviewed on a regular basis (e.g. every 3 years). We recommend that the Australia Government urgently invests in risk assessment research to quantify the true (real) risks of the abatement activities covered under the Scheme. This 5% level is not based on hard evidence.

Avoided deforestation – a stream of credits over a fixed period of time is a sensible arrangement that reduces the risk of forest loss following a one-off credit payment. A 20 year time period is consistent with long term commercial investment cycles, such as raising capital through loan mechanisms.

Recommendations

- More flexible eligibility criteria to consider pre-existing conservation covenant agreements
- There should be absolutely no prohibition on access to carbon credits and biodiversity credits for biodiverse plantings
- Regular review of risk buffer value, and updating as empirical evidence becomes apparent

Leakage

Greening Australia agrees that leakage outside a project boundary is problematic, but it is likely to be a very low risk during the early years of the Scheme. Therefore, only emissions generated by the project itself, within clear and simple project boundaries, should be included in the Scheme during the first five years. The Australian Government should invest in research on the risk of leakage beyond project boundaries.

“All direct and indirect emissions sources and sinks within the project proponent’s control would form the project boundary”. This definition of a project boundary is far too broad. Does Greening Australia have to account for the electricity it uses in its national office 3000 km away from an abatement project site? How would we allocate, *pro rata*, that proportion of electricity consumption in our national office used to plan (desk-top) a particular abatement project? We argue the boundary of a project should be the emissions from physically implementing the project on-site. A CPRS type system is required to cover whole of economy emissions. A CPRS would cover the ‘overhead’ emissions from activities like project planning, marketing, financial accounting, etc.

The exception relates to circumstances where leakage beyond the project are known and certain. A clear example is where credits are sought for forgoing a right to clear in a jurisdiction, where there is a remaining quota within a statutory limit to clearing and conversion of forest.

There should be an emissions threshold below which leakage can be safely ignored during the first five years of CFI. For example, the risk of leakage from removing 1000 head of sheep from a carbon planting project is minimal in the context of the 120 million sheep in Australia. Furthermore, proving that removing 1000 sheep won’t be offset by increased stocking elsewhere is not practical.

The methods paper defines leakage as: “An unanticipated increase in greenhouse gas emissions as a result of an abatement project that occurs outside the project boundary”. Project proponents should not be responsible for modeling or monitoring “unanticipated” leakage. Modeling and monitoring such uncertain risk should be the responsibility of governments. Project proponents should only be responsible for calculating known (likely) risks of leakage.

Recommendations

- The Australian Government should invest in research and development to more clearly understand the risk of leakage beyond project boundaries
- Project boundary definitions should be more clear and specific, incorporating the emissions from physically implementing the project on-site
- An emissions threshold should be defined and included, particularly in the first few years of a CFI Scheme.
- The Australian Government should be considered responsible for modeling and monitoring leakage parameters beyond the known or likely risks of leakage

Becoming a recognised entity

The requirement for a recognized offset entity, and eligibility criteria, is supported. The scheme should allow for people and organisations other than farmers and landowners to become recognised entities. Holders of rights to carbon on particular lands, either secured by contract or covenant on a title, should be eligible to become a recognised entity provided they can demonstrate the security of the asset is in their legal control. This will allow integration of small projects across a number of landholdings to achieve economies of scale and bring appropriate expertise to bear. Greening Australia agrees with the design of Part 4 of the draft legislation.

Recognised project proponents should be any 'fit and proper' person, including organisations formed under existing corporation Acts and regulations. Project proponents should be the legal entities that receive credits and carry the obligation of permanence. Project proponents may or may not own the land on which the carbon is sequestered. If the project proponents do not own the land, it is their responsibility to make their own legally binding arrangements for land access (e.g. carbon right or lease).

Indigenous and Crown Lands

The proposal to legislate in favour of allowing native title holders to benefit from and manage land for carbon storage is supported.

There needs to be clarification of carbon rights on various categories of 'crown' land. State, Territory and Australian Government entities should be free to negotiate land access arrangements with project proponents seeking to sequester carbon on crown lands.

Project approval

Public consultation vs. confidentiality

The proposed arrangements provide a reasonable balance between public scrutiny and protection of commercial confidentiality. It should be noted that confidential information is routinely scrutinized by specialist experts (e.g. researchers) protected by confidentiality agreements.

Standardised baselines

We are particularly supportive of this concept, particularly for activities such as low intensity grazing where the emissions from each individual livestock unit is relatively low and constant and the overall emissions per hectare are also low.

Register of offset projects

The concept of requiring a note on title advising of approved applications for carbon credits is supported. The linkage to a database containing details of biodiversity and other environmental co-benefits is strongly supported, though it is important that such claims be credible and backed by some form of third party accreditation, for example such as would be required to enable the sale of a separate biodiversity offset credit.

Greening Australia recommends that project proponents should be able to choose a pre-existing (voluntary) accrediting scheme for monitoring and reporting of co-benefits generated by CFI approved projects. For example, an international consortium of environmental NGO and research institutions have developed and maintain the CCB StandardsTM (<http://www.climate-standards.org/standards/scorecard.html>). The CFI co-benefits section of the database should only list those project proponents who have gained accreditation from a short-list of quality co-benefit accreditation schemes. Australian Governments may wish to develop their own co-benefit accreditation schemes and be added to a 'short-list' of recognised accreditors. In the meantime, quality co-benefit accreditation can continue to be implemented in Australia using well recognised international schemes and their standards.

Crediting periods

We agree that “Crediting periods would be specified in the CFI regulations and may vary for different activities”. We particularly agree that crediting periods should vary and generally be five years unless there is a strong case for a shorter standard crediting period or if proponents themselves select a shorter period. Generally, it should be up to the project proponent to make a commercial decision as to whether they want to enter into a shorter crediting period than five years.

Reporting

Annual reporting should clearly be different to abatement claim reporting. ‘Annual reports’ should simply demonstrate that the project proponent remains a fit and proper (viable) entity and provide a simple statement, subject to random audits, that there has (or has not) been any major losses of carbon. The project proponent should determine the frequency of abatement claims (annual to once every 5 years). Abatement reports should be fully audited by independent third parties.

Crediting

Previously approved projects under the Australian Government Greenhouse Friendly Program should be efficiently ‘rolled-in’ into the CFI. Current Greenhouse Friendly projects should be able to make a CFI abatement claim beginning in the 2010/11 year. These previously approved projects (*Greenhouse Friendly*) should not have to re-apply for project approval, rather just abatement claim approval.

Greening Australia submits that the operative date should be the relevant date for recognition of projects under the CPRS, July 2008, except where projects received any other credit during the July 2008 – June 2011 period (for example under *Greenhouse Friendly* prior to July 2010).

Transfer or termination of projects

The provisions relating to “crediting” and “termination of projects” are generally supported. Greening Australia however notes that Section 25 limits application of the scheme to carbon sequestered on or after 1 July 2010. This has the effect of punishing early movers who commenced projects in anticipation of the CPRS coming to fruition or in accordance with the former Greenhouse Friendly Initiative.

Recommendations

- There should be more flexibility in determining 'Recognised project proponents'
- Carbon rights for Crown land should be more clearly outlined
- Accreditation by an appropriate third party should be required for any claims of environmental co-benefits (e.g. biodiversity credits)
 - Project proponents should be able to choose a pre-existing (voluntary) accrediting scheme for monitoring and reporting of co-benefits generated by CFI approved projects
 - Annual reporting should be categorized as clearly different to abatement claim reporting
 - Previously approved projects under the Australian Government Greenhouse Friendly Program should be able to make a CFI abatement claim in the first year of the CFI Scheme, and should only have to make an application for abatement claim approval rather than project approval
 - The operative date for abatement claim should be July 2008, with the exception of projects that received any other credit (e.g. Greenhouse Friendly) during the July 2008-June 2011 period

Any additional comments

Background to Greening Australia:

Greening Australia is Australia's largest environmental NGO with offices in all states and territories and many rural and regional locations around Australia. We have been in existence for 28 years and have a staff of 300 and a turnover of \$40M per annum.

Our work is the large scale transformation of degraded landscapes. This is achieved through the restoration, expansion and establishment of biodiverse native forests, woodlands and other vegetation systems.

Greening Australia has worked in the voluntary carbon offset market for the last 3.5 years through our Breathe Easy program, which was developed in collaboration with Alcoa Australia. We were an accredited carbon abatement provider under the Government's former *Greenhouse Friendly Initiative*.

Greening Australia is well prepared to work in the compliance market when Australia adopts a CPRS or similar scheme. Greening Australia's interest in the carbon market is with respect to income generation from biosequestration that can provide investment capital to 'turbo-charge' our landscape transformation work.

Greening Australia's carbon offsets are generated from carbon sequestered from diverse native forest that brings, in addition to sequestered carbon, a range of environmental services: biodiverse habitat restoration, improved water quality and enhanced soil health. Greening Australia's carbon sinks deliver both carbon emissions mitigation and climate change adaptation. In respect of delivering adaptation, Greening Australia's carbon sinks:

- regenerate after fire or other disturbance (research data *in press*);
- adapt to changing climate conditions by having a range of species in the planting mix that are variously adapted to different conditions

Appendix 1.

A carbon vision for the restoration of eucalypt woodlands

David Freudenberger

In *Temperate Woodland Conservation and Management*, edited by David Lindenmayer, Andrew Bennett and Richard Hobbs, CSIRO Publishing. October 2010

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1. Woodland restoration is possible.
 2. The past scale of restoration is inadequate.
 3. Commercial-scale investment in natural infrastructure is needed.
 4. The emerging carbon market could be a major investor in woodland restoration.
 5. Poorly planned and executed investments in carbon biosequestration are a risk.
 6. Design and implementation standards are needed for biosequestration.
 7. Applied research is needed to reduce constraints to commercial investment and on-ground restoration.
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Introduction

For the past 28 years, Greening Australia has been involved in woodland restoration throughout its distribution in Australia. For example in 2007, Greening Australia direct seeded nearly 4000 km of locally native trees and shrubs and erected over 1000 km of fencing to assist in the conservation of over 100 000 ha of remnant vegetation. We have collectively learned some positive, as well as some sobering lessons from these efforts in partnership with landholders, government agencies, commercial organisations and thousands of volunteers.

Lessons

1. Woodland restoration is possible

Greening Australia's restoration works have involved the planting of a modest diversity of local trees and shrubs into long-cleared land dominated by a ground layer of exotic grasses and legumes. We now know how to successfully restore a large diversity of native plants, including ground cover (Gibson-Roy 2007). We know that if we plant it, most plants will survive and some wildlife will come (Taws 2007). These plantings are providing ecosystem services at the patch scale, including habitat for native birds (Barrett *et al.* 2008; Lindenmayer *et al.* 2010; Munro *et al.* 2007) and native fungi (Barrett *et al.* 2009). The scale of these plantings, however, is unlikely to reverse ongoing declines in native biodiversity in agricultural landscapes.

2. The past scale of restoration is inadequate

To date, plantings have been generally small (a few hectares), narrow (less than 50 m) and a small proportion of the landscape (<5%) (Freudenberger and Harvey 2004). These plantings have been established for a wide variety of reasons including livestock and crop windbreaks, dryland salinity reduction, aesthetics, and the provision of wildlife habitat. To date, this scale of plantings is far from restoring native vegetation cover to a threshold of at least 30% hypothesised to be needed to reverse declining trends in biodiversity (Radford and Bennett 2007).

The fundamental challenge is to scale up ten-fold. The task is to move from narrow strips and little patch plantings covering less than 2% of a farm, to whole paddocks covering at least 20% of all farms suffering from a 150 year history of over clearing, erosion, salinity, tree dieback and the loss of the dawn chorus of woodland birds. The task is to restore larger and less costly areas of revegetation.

3. Commercial-scale investment in natural infrastructure is needed

Landscape scale restoration of woodlands requires billions of dollars over the next two decades. Yet, investment in the environment has suffered from too many decades of volunteerism. To date, a \$10 000 restoration project is considered significant, whereas a truly significant project requires at least \$10 million. Caring for Our Country (Australian Government 2009a), the primary program for the Australian Government's investment in the environment (including marine) reaches nowhere near the level of investment required. This five-year, \$2 billion program, equates to just \$0.52/ha per year if equally invested in every hectare of the Australian continent (768.2 M ha). This program is

0.13% of the 2008–09 Australian Government budget (\$299 billion, Australian Government 2009b). In contrast, the 2009–10 Australian Government Budget has committed to a \$22 billion investment in built infrastructure (e.g. roads) (Australian Government 2009c). The scale of private investment in built infrastructure dwarfs government investment. The limited Government investment in Caring for Our Country equates to just 800 new houses at an average individual cost of \$0.5 M (on average 350 new houses are started each day in Australia; HIA 2009).

But all built infrastructure is dependent on robust and resilient natural infrastructure. Low cost, high quality and reliable water supplies are only delivered by catchments well covered by diverse native vegetation – a key form of natural infrastructure. The risk of infrastructure failure of roads, bridges and buildings increases with the catchment-scale loss of native vegetation that often results in increased flood severity, rising saline water tables, rising sea level and acid sulfate soil collapse in low-lying regions. There is a pressing need to garner investment in natural infrastructure, particularly native vegetation, on the same scale that Australia routinely invests in built infrastructure.

4. The emerging carbon market could be a major investor in woodland restoration

The emerging carbon market for biosequestration has the potential to restore at least the tree elements of woodlands at the required scale. For instance, if Australia offsets just 10% of its annual carbon emissions (approx. 600 M t CO_{2e}) through carbon sinks based on native woodlands and forests, this level of investment would generate \$1.5 billion per year assuming at a price of \$25/t CO_{2e}. At a generous planting cost of \$6000/ha (including land access), this \$1.5 billion in carbon biosequestration could revegetate 250 000 ha annually. At this rate of establishment, 5 million ha of restored woodlands and forests could be established over the next 20 years. Such a restoration rate would be greater than that for the timber plantation industry which aims to have 3 million ha established by 2020 (Thompson 2008). Five million hectares may seem like a lot, but it pales against the 50 million hectares of land across the Australian continent that has already been cleared for agricultural purposes. We can have our carbon restoration and still produce a surplus of food and fibre.

Even if just 1% of Australia's emissions were offset through diverse native vegetation sinks, this could result in 25 000 ha of restoration per year. Over 20 years, such a rate could result in 500 000 ha of restored woodland and forest. Even at this low rate, the emerging carbon market could be a significant investor in restoration at a scale well beyond decades of Australian Government programs such as One Billion Trees, Landcare, the Natural Heritage Trust, and Caring for Country.

The opportunity to 'turbo-charge' woodland restoration through the carbon market is not fanciful (Bekessy and Wintle 2008). The international carbon market was estimated to be worth US\$64 billion in 2008 (Capoor and Ambrosi 2008). To date, this rapidly growing market has invested mostly in low carbon energy generation (e.g. solar), energy reduction strategies and technologies (e.g. energy use efficiency), but investment in carbon biosequestration is increasing. In Australia, the commercial business, CO₂ Australia, has one of the largest pools of woodland sinks. They have over 12 500 ha in south-eastern and Western Australia planted with a small number of mallee (eucalypt) species (CO₂ Australia 2009). To date, Greening Australia has established 380 ha of carbon sinks with over 50 locally native species of trees and shrubs. These sinks for voluntary emissions offsets are likely to expand rapidly under the mandatory reductions required under the Australian Government's proposed Carbon Pollution Reduction Scheme.

5. Poorly planned and executed investments in carbon biosequestration are a risk

Markets tend to develop low-cost solutions to maximise short-term profits. The carbon market could support yet another monoculture of fast-growing tree crops poorly integrated with other land uses and values. The carbon market, including biofuels, could result in the next wave of woody weeds adding yet another threat to native biodiversity and ecosystem function. Markets, however, quickly differentiate products across a spectrum of price and quality. There is a need to create incentives, including tax benefits and regulation, to encourage the development of 'premium' quality carbon offsets based on the restoration of a diversity of native vegetation rather than monocultures of exotic tree crops.

6. Design and implementation standards are needed for biosequestration

In view of the risks and opportunities of the emerging carbon market, Greening Australia is developing a national business to offer large corporate emitters the opportunity to reduce a modest proportion of their greenhouse gas emissions through biosequestration plantings (Greening Australia 2009). Our product, *GA Biodiverse Carbon*, consists of sequestration plantings that restore a self-replacing diversity of regionally native vegetation on land cleared prior to 1990. Our carbon plantings are:

- at least 100 ha in size and more than 100 m wide
- actively managed for at least 100 years and are not harvested
- sourced from seed native to the bioregion in which they are planted
- suited to local (site by site) soil, slope and climatic conditions

- rich in diverse plantings, including a range of species from all layers of the plant community – from large trees to groundcover
- well-connected habitats for many species of native wildlife
- designed to cope with climate change including hotter temperatures, lower and more variable rainfall, and more frequent fires
- accredited by the Australian Government through a program existing at the time of planting, e.g. the *Greenhouse Friendly Program* managed by the Australian Government (2009d)
- planned to provide net environmental benefits at the landscape (sub-catchment) scale including reduction in the risk of salinity and improvement in water quality.

7. Applied research is needed to reduce constraints to commercial investment and on-ground restoration

Targeted research has a critical role in realising a vision of native trees, shrubs and grasses being restored across the vast rolling hills and plains of southern Australia. Research is urgently needed to accurately predict the likely carbon yield, resilience and persistence (longevity) of restored native vegetation. There is an equally urgent need to reduce the cost of large-scale revegetation and improve its quality (e.g. compositional, structural and functional diversity). Restoration research has a key role in facilitating investments in large scale restoration of temperate woodlands.

Conclusions

We are now close to an unprecedented opportunity to restore Australia's iconic woodlands. Greening Australia has developed direct seeding technology and incentive packages that are proving highly attractive to commercial farmers to re-integrate native trees, shrubs and grasses into their production systems that provide essential food and fibre to the Australian economy. The potential commercial carbon market for biosequestration can help finance this model for restoration at a scale far greater than public investment through government natural resource management programs.

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Bio

David Freudenberger is Greening Australia's Director of Science and Major Projects. He has 25 years of ecological research experience, the most recent 15 years with CSIRO. David is an author of over 130 research publications including 51 papers in peer-reviewed scientific publications. He has had research leadership roles in CSIRO and is a graduate of the Australian Rural Leadership Program. David Freudenberger's role in Greening Australia is to foster transformative landscape scale initiatives to conserve biodiversity, improve water quality in our rivers, contribute to sustainable agriculture and enhance community wellbeing.

References

- Australian Government (2009a). 'Caring for Our Country Business Plan 2008–2013'. <http://www.nrm.gov.au/publications/books/caring-outcomes.html>
- Australian Government (2009b). 'Final Budget Outcome 2008–09'. <http://www.budget.gov.au/2008-09/content/fbo/html/index.htm>
- Australian Government (2009c). 'Budget at a Glance 2009–2010'. http://www.budget.gov.au/2009-10/content/at_a_glance/html/index.htm.
- Australian Government (2009d). 'Greenhouse Friendly'. <http://www.climatechange.gov.au/greenhousefriendly/>
- Barrett, G.W., Freudenberger, D., Drew, A., Stol, J., Nichols, A.O. and Cawsey, E. M. (2008). Colonisation of native tree and shrub plantings by woodland birds in an agricultural landscape. *Wildlife Research* **35**, 19–32.

- Barrett, G., Trappe, J.M., Drew, A., Stol, J. and Freudenberger, D. (2009). Fungus diversity in revegetated paddocks compared with remnant woodland in a south-eastern Australia agricultural landscape. *Ecological Management and Restoration* **10**, 200–209.
- Bekessy, S.A. and Wintle, B.A. (2008). Using carbon investment to grow the biodiversity bank. *Conservation Biology* **22**, 510–513.
- Capoor, K. and Ambrosi, P. (2008). ‘State and trends of the carbon market 2008’. World Bank, Washington D.C. <http://siteresources.worldbank.org/NEWS/Resources/State&Trendsformatted06May10pm.pdf>
- CO₂ Australia (2010). ‘Planting trees’. <http://www.co2australia.com.au/?sectionID=6695&pageID=6696>
- Freudenberger, D. and Harvey, J. (2004). Predicting biodiversity benefits of the Saltshaker Project, Boorowa, NSW. *Ecological Management and Restoration* **5**, 5–14.
- Gibson-Roy, P. (2007). Restoring Western (Basalt) Plains grassland. 2. Field emergence, establishment and recruitment following direct seeding. *Ecological Management and Restoration*. **8**, 123–132.
- Greening Australia (2009). ‘Combating climate change’. <http://www.greeningaustralia.org.au/our-solutions/climate-change>.
- HIA (2009). ‘Painful end to 2008 for housing starts’. economics.hia.com.au/.../abs%20dwelling%20commencements%20Dec%20qtr%2008.pdf
- Lindenmayer, D.B., Knight, E.J., Crane, M.J., Montague-Drake, R., Michael, D.R. and MacGregor, C.I. (2010). What makes an effective restoration planting for woodland birds? *Biological Conservation* **143**, 289–301.
- Munro, N.T., Lindenmayer, D. and Fischer, J. (2007). A faunal response to revegetation in agricultural areas of Australia: a review. *Ecological Management and Restoration* **8**, 199–207.
- Radford, J.Q. and Bennett, A.F. (2007). The relative importance of landscape properties for woodland birds in agricultural environments. *Journal of Applied Ecology* **44**, 737–747.
- Taws, N. (2007). ‘Bringing Birds Back: A Glovebox Guide to Bird Identification and Habitat Restoration’. Greening Australia Capital Region: Canberra.
- Thompson, D. (2008). ‘Plantations for Australia: The 2020 vision progress report. Plantations 2020’. <http://www.plantations2020.com.au/assets/acrobat/2020%20Vision%20Progress%20Summary%20Report%202008.pdf>.

Greening Australia's Biodiverse Carbon: An Operational Definition

Dr David Freudenberger, Greening Australia
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Introduction

Greening Australia's carbon sequestration service (*Breathe Easy*) is based on 'biodiverse plantings'. However, there is no simple, unambiguous and effective standard or definition for the term 'biodiverse plantings'. After extensive consultations the following definition has been developed. This definition has been crafted to be reasonably auditable, that is, an external vegetation specialist could assess the degree to which any carbon planting meets Greening Australia's definition. Whilst it is not intended that this definition be used by other organisations, it could represent a useful starting point for discussion.

Definition

Greening Australia's 'Biodiverse Carbon' is carbon sequestered by diverse native forest and is characterized by the following:

Plantings that restore a self-replacing diversity of regionally native vegetation on land cleared prior to 1990.

Greening Australia's Biodiverse Carbon plantings are:

- At least 10 ha in size and more than 100 m wide;
- Actively managed for at least 100 years;
- Sourced from seed native to the Bioregion in which they are planted;
- Suited to local soil, slope and climatic conditions;
- A range of species from all layers of the plant community – from large trees to groundcover;
- Habitat for many species of native wildlife;
- Designed to cope with climate change including hotter temperatures, lower and more variable rainfall, and more frequent fires;
- Accredited by the Australian Government through a program existing at the time of planting.

Rationale

This operational definition of Greening Australia's *Biodiverse Carbon* is based on the following ecological concepts and principles:

Carbon sequestration plantings. Greening Australia offers large corporations, small businesses and individual households the opportunity to off-set their CO₂ emissions by the re-establishment of native vegetation. Through the proven process of photosynthesis, atmospheric CO₂ is captured and stored in long-lived native woodland and forest systems.

Restoration. First and foremost Greening Australia's carbon sequestration plantings are a tool to assist in the restoration of Australian native vegetation. Greening Australia adopts the definition of restoration provided by The Society for Ecological Restoration:

“... the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed. It is an intentional activity that initiates or accelerates landscape recovery with respect to its health (functional processes), integrity (species composition and community structure) and

sustainability (resistance to disturbance and resilience).”

(http://www.ser.org/content/ecological_restoration_primer.asp#3)

Self-replacing. Greening Australia aims to restore healthy (functional) native vegetation so that trees, shrubs and grasses replace themselves when they die of old age, or are damaged by fire. Plantations of exotic trees generally do not readily replace themselves when harvested or burned.

10 ha and 100 m wide. There is scientific evidence that patches of native vegetation less than this size and width have significantly less biodiversity (variety of life) than patches greater than these two thresholds.

Regionally native. Greening Australia sources seed found within the Bioregion in which they are planted. Greening Australia ensures that the seeds are genetically diverse so native vegetation has a better chance of adapting to rapid climate change.

Habitat. Greening Australia’s plantings aim to create homes for many different species of wildlife. To do so, plantings are large, wide and aim to reconnect isolated patches of existing vegetation. Plantings aim to restore appropriate layers of vegetation including trees, shrubs and where ever possible native grasses and herbs. Weeds are controlled as part of our commitment to manage our carbon plantings for 100 years.

Cleared land. Greening Australia does not clear land to plant carbon sequestration woodlands and forests. This is consistent with the current Kyoto Protocol that stipulates that carbon sequestration plantings should be on land cleared prior to 1990.
