FACILITATING CARBON OFFSETS FROM NATIVE FORESTS

An Executive Summary of Working Paper 17-01

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SUMMARY HAIKU

Natives get rewards
Can we make it easier?
Birds and climate win.

INTRODUCTION

New Zealand is the first, and still the only, country to include forestry land owners as mandatory participants in its Emissions Trading Scheme (ETS). As forests grow, they are eligible to earn NZUs for the carbon they sequester. Forestry also faces liabilities under the ETS for reductions in carbon stocks on forestry land, either from harvesting or deforestation.[1] The Afforestation Grant Scheme (AGS) and the Permanent Forest Sink Initiative (PFSI) are two other closely related policies that landowners can use to obtain finance and NZUs for afforestation efforts.

Motu has produced this report to help firms looking to offset their Greenhouse Gas (GHG) emissions with native forestry. Native forestry has a wide range of associated environmental, cultural, social and economic co-benefits. The ETS offers a mechanism to expand our native forests.

CONTEXT

Government has introduced policies to make it possible to earn a financial return for the provision of some of these benefits. An obvious example of this is the ETS; however, payments for other environmental co-benefits are also available. For example, the Erosion Control Funding Programme (ECFP) pays landowners in the Gisborne district up to $1,500/Ha for establishing forest on erosion prone land. In 2013, the government introduced a tax break for planting riparian margins on farmland. Funds have also been made available by the Ministry for the Environment (MfE) and Fonterra for planting to improve water quality. These rewards, along with other payments from regional councils and trusts, help make establishing native forests more financially viable.

300,000 Ha of forest land is registered in the ETS. Of this, 25,000 Ha is native (8%). Since 2008, however, only 500 Ha of native forest has been afforested. 10,000 Ha of post-1989 native forest land would sequester 65,000 tonnes of CO2-e annually on average over 50 years, and would be eligible to earn 65,000 NZUs per year under the ETS.

1 Harvesting is distinct from deforestation, in that deforestation is a conversion of forested land to another land use, whilst harvesting is the "removal of biomass from a site followed by reforestation (replanting or natural regeneration)" (Ministry for the Environment 2015)

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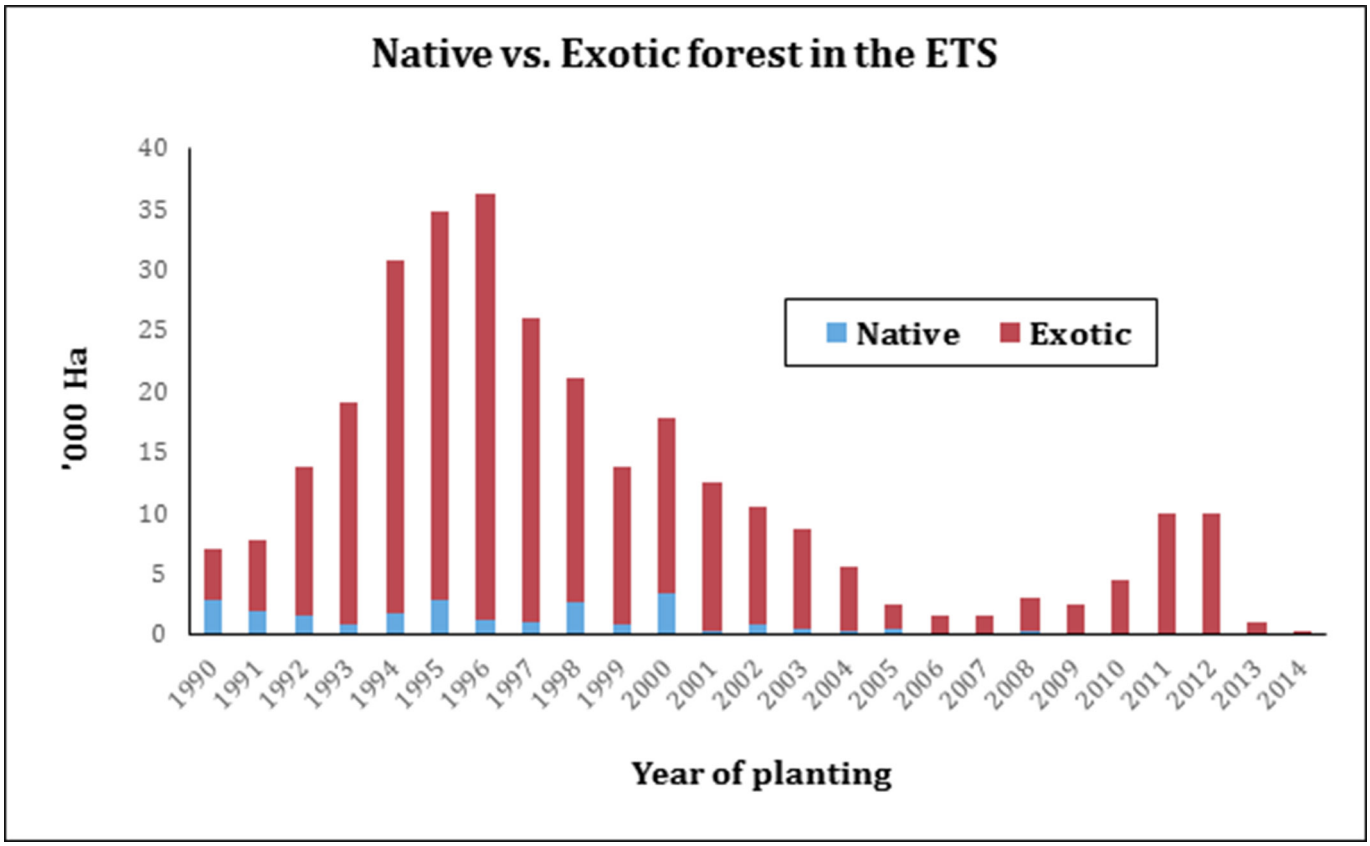
Figure 1: Native vs. exotic forest land in the ETS (by the year it originated).



Source: (Ministry for Primary Industries 2016b)

REGENERATION

Regeneration of native forest is the process by which land reverts either naturally, or with human assistance, back to native forest. Regeneration requires a nearby seed source, and typically involves exclusion of livestock and animal pests (e.g., fencing), and possibly control of competing vegetation like pasture and gorse.

It is hard to provide a definitive cost for native regeneration. In some areas around the country it is happening with no human assistance on unutilised land and thus effectively free. In other areas where extensive pest control is needed, there are no seed sources nearby and there is competition from other land uses it may cost a lot more. One study put the cost of native regeneration at just over $4,000/Ha. This figure does not include the value of the land.

We estimate the net present value (NPV) of the first 50 years of carbon credits (with emissions prices at current levels) at ~$2,500. Even at the low current emission prices, the money from the carbon credits could be enough on low value land where regeneration is inexpensive – especially when combined with payments for other environmental services (e.g., erosion control) – or where other non-economic benefits are realised. It's also possible that landowners might be able to earn a revenue stream from the recreation/leisure benefits or by-products. However, even these profitable options may face barriers when carbon credit income arrives slowly and due to the complexity of the ETS.

Offset option	**Native regeneration**: Fencing off land near a native seed source and allowing it to revert to native forest.
Key issues	1. Proving eligibility - it can be difficult to prove regenerating native forest land is post-1989 (and therefore eligible to earn credits in the ETS). No definitive classification exists of land that is pre-1990 / post-1989. 2. Carbon measurement: • It can be hard to cover the costs from the Field Measurement Approach (FMA) which affects nearly 90% of all native forest land registered in the ETS. • There are some concerns about the accuracy of the look up tables for forest land less than 100 Ha and not subject to the FMA.
Actions for the private sector	1. Provide expertise and up-front finance for landowners in return for ETS credits. 2. Work with researchers and other stakeholders to compile a shortlist of suitable land for credits from regeneration efforts. 3. Pursue partnerships with other stakeholders and options that might deliver other revenue streams (e.g., honey, government incentives) from the same forests.
Science	Strong
Option likelihood	Current
Regulatory acceptability	In ETS

PLANTATION NATIVE FORESTRY

When referring to 'plantation' native forestry, we mean tree species that are planted with the aim of harvesting their timber. This can resemble exotic plantation forestry, where a single species is planted at regular intervals and is harvested at one time. In other cases, the forest may be planted and managed as a multi-species, multi-aged forest using continuous cover forestry principles. There has been limited research into establishing the 'optimal' rotation length for different native forest species.

Like regeneration, plantation native forestry is already eligible to earn credits in the ETS. Even when it does not resemble a 'natural' forest, it can still sequester significant levels of carbon and provide important social, cultural and environmental co-benefits. Moreover, the harvested timber is likely to be highly valued.

It is incredibly difficult to assess the profitability of a stand of native trees that may be chopped down 60-100 years in the future. Depending on the stocking rate, costs could range from $5,000-$66,000/Ha. The stocking rate has the largest impact on establishment costs; however, lower stocking rates carry increased risk of seedling failure due to weed invasion and competition from existing vegetation. There is some scope to reduce these costs, including increasing the overall scale of planting, buying in bulk, nurse crops, and various planting strategies.

Offset option	**Planting native trees**: Plantation or restoration
Key issues	1. Carbon measurement: • Discrepancies exist between growth rates of native plantation tree species and those found in the native lookup table. • For those seeking to establish multi-species, continuous cover native forestry, compliance with the Field Measurement Approach (FMA) may prove difficult. 2. High cost, investment uncertainty, and capital constraints
Actions for the private sector	1. Provide expertise and finance for up-front planting costs in return for ETS credits. 2. Engage with experts to facilitate research into cheaper planting options. Encourage these groups to achieve consensus on key issues. 3. Utilise other incentives where possible.
Science	Strong
Option likelihood	Current or very close
Regulatory acceptability	In ETS

RIPARIAN PLANTING

Riparian zones are strips of land bordering rivers, streams, lakes and wetlands and this section covers native forestry that regenerates or is planted in these zones. Riparian vegetation stores carbon and can have biodiversity, cultural and other environmental co-benefits. However, there are doubts over the purported magnitude of environmental co-benefits from planting in riparian margins, and some trade-offs exist. Most of the water-quality benefits may come from excluding stock from waterways via fencing.

Much of this riparian planting will not be eligible to earn carbon credits as it won't be over 30 metres wide, which is the minimum width required to meet the definition for a forest under the ETS. Changing this could create more problems than benefits.

A key difference to regeneration and plantation native forest is that the cost of riparian planting may be significantly lower. Many of these margins are being fenced (as a result of rules or voluntary actions) to exclude stock. This means that the opportunity cost of this land is essentially zero as it has no productive value, and there is no additional fencing cost.

There are also financial incentives available to those planting in riparian buffer zones.

Offset option	**Riparian planting**: Planting native trees along the banks of rivers when they are fenced. The aim is often to improve water quality.
Key issues	1. The definition of forest in the ETS excludes most riparian boundaries. 2. The water quality benefits from fencing alone, relative to riparian vegetation are not clear.
Actions for the private sector	1. Identify farmers willing to retire riparian areas wider than 30 metres. Provide expertise and finance for up-front planting costs. As this land is already being retired and fenced, it may prove a cost-effective option for native afforestation (although unlikely on high-productivity land). 2. Encourage research on the value of making credits available for narrower riparian planting.
Science	Strong on carbon; water quality less clear
Option likelihood	Promising option that is currently limited
Regulatory acceptability	Only in ETS if wider than 30 metres

OTHER NATIVE FORESTRY OPTIONS FOR THE PRIVATE SECTOR

Other techniques to establish native forestry do exist. With the exception of planting natives for restoration, these options are generally less common and not as well understood. They include:

- Planting natives with the aim of establishing them permanently
- Manuka/Kanuka honey forestry
- Exotic forestry as a 'nursery' for native regeneration
- Increasing carbon stock in pre-1990 forestry land

POLICY ACTIONS

In addition to the actions mentioned above, that are entirely in the control of private actors, several policy actions could facilitate native forest regeneration. Private sector firms could encourage government to consider these.

POLICY CHANGES TO FACILITATE NATIVE FOREST OFFSETS	Impact
Policy stability: 1. Encourage the government to clearly articulate its policy intentions for meeting NZ's Paris commitments. 2. Push for a multi-party consensus on as many of these intentions as possible.	High
Eligibility of land for ETS credits: Definitive 'line in the sand' ruling on what land is pre-1990 and what land is post-1989.	Medium-high
Transparency: Ask the government to make more ETS forestry data available.	Medium-high
Field Measurement Approach (FMA) threshold: Lift the threshold for using the FMA to 500 Ha for native forestry land to reduce the cost and reporting burden.	Medium
Clarify policy intentions for agricultural greenhouse gas emissions and Regional Council decisions around freshwater reform: This will help avoid perverse incentives to intensify or sustain livestock on land that would otherwise be attractive for native regeneration.	Low
Right to clear newly created native forest: 1. Investment certainty: Remove remaining policy uncertainty surrounding landowner rights to harvest, mill, and export planted native forest land. 2. Land option value: Consider a rule to give landowners the right to clear/log newly regenerated native forestry (e.g., post 2016).	Medium
Allow mitigation beyond NZ's international commitments: Allow NZUs to be 'cancelled', allowing participants to push NZ's mitigation efforts deeper and use these credits in voluntary markets. This would require an explicit commitment from government to take credits off the national emissions budget for our international commitments in order to prevent any double counting.	Medium
Address the focus on pine: Ensure that afforestation incentives are flexible enough to reward native forestry (e.g., Afforestation Grant Scheme).	Low
Native forestry certification for NZUs: NZUs earnt by native forestry to be 'tagged' with a native forestry certification. This will allow purchasers to verify the environmental co-benefits of a NZU.	Low
Riparian forest definition: Ask to explore the possibility of amending the ETS forest definition to allow stands of forestry less than 30 metres wide to enter the ETS.	Unclear

There is strong interest among a variety of stakeholders, including community groups and iwi, to plant more native trees for biodiversity, plantation forestry diversity, cultural and aesthetic reasons, and for erosion control. Establishing new stands of native forestry has the potential to help NZ firms meet their ETS commitments. The carbon price has rebounded recently; there is more certainty around New Zealand's global commitments with the Paris Agreement; and there are other payments for native forestry available.

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