

Submission to
Climate Change Response
(Emissions Trading Scheme)
Amendment Bill
and
Climate Change
(Forestry Sector)
Regulations 2008

Submitted by
Banks Peninsula Native Forest/Climate Change group

Comprised of representatives from
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Environment Canterbury
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Preface

The Banks Peninsula Native Forest/Climate Change group is an informal inter-agency alliance seeking to improve opportunities for biodiversity through native forest restoration on Banks Peninsula.

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The submission has been reviewed and is supported by New Zealand Native Forest Restoration Trust and incorporates their comments.

We wish to make an oral submission in support of our written submission.

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Terminology

We have used the abbreviations in our submission:

C sequestration	Carbon sequestration
FMA	Field Measurement Approach for measuring stock change
LULUCF	Land Use, Land-Use Change and Forestry

Executive Summary

The Banks Peninsula Native Forest/Climate Change group is a collaboration of organisations and agencies with knowledge of, an interest in and/or responsibility for the protection and enhancement of native biodiversity and landscapes on Banks Peninsula.

The group seeks to optimise the Climate Change Response (Emissions Trading Scheme) Amendment Bill and associated Regulations to support and incentivise land use change and management decisions enhancing the outcomes for biodiversity and sequestering carbon on a significant landscape scale. We see this being achieved primarily and most effectively through natural regeneration leading to indigenous forest in perpetuity (in some cases with supporting planting). We therefore seek amendments that:

- add an afforestation activity for Perpetual Indigenous Forest to cater for regenerating native forest with successional indigenous vegetation legally protected in perpetuity (i.e. truly permanent);
- recognise natural regeneration as the optimal pathway toward establishing this type of forest requiring its own set of rules founded on good science;
- remove the barriers and smooth the path toward registration for natural regeneration and indigenous forest areas through:
 - enacting the new flexibility offered by the Paris agreement and enabling pre-1990 sequestering forest to register;
 - introducing, as the default measure, a simple conservative long-term averaging method suitable for perpetual indigenous forest that does not necessitate forest age calculations;
 - facilitating further improvements by way of regulation as the science advances including more sophisticated long term averaging and an improved stock change measurement system for those opting for more accurate measurement.

We see the benefits accruing to New Zealand from taking this approach as:

- rapid and large-scale carbon sequestration at minimal cost;
- significant environmental and ecological co-benefits consistent/complimentary with New Zealand's obligations toward protecting and enhancing indigenous biodiversity under the NZ Biodiversity Strategy and Convention on Biological Diversity (1992 Rio accord);
- alignment of the government's afforestation policy with the Predator Free/Pest Free 2050 policy that is rapidly emerging at district, regional, and national levels;
- sequestration and sustainable climate mitigation and adaptation for the long haul; and,
- carbon sequestered in native forests included in the national register.

We are concerned that unless the proposed legislation is amended to support perpetual indigenous forest through natural regeneration existing perverse outcomes will continue. These include clearance of regenerating areas and wholesale planting of marginal farm land in exotic rotational forest with subsequent environmental consequences, and the lack of additive long term sequestration after the first rotation. We are also concerned that including forests that are protected in perpetuity into the same "permanent" category as those that are not will make it harder for credits from legally protected forests to obtain the higher premiums they currently attract.

We present a set of proposed changes to the Amendment Bill and the Regulations to implement this new Perpetual Indigenous Forest activity, built upon the new concepts of standard and permanent forestry activities and average accounting already drafted in the Bill.

We suggest that Banks Peninsula presents an ideal test bed for gathering data and developing new methodologies to support these changes and offer our services to work with MPI to develop them.

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1 Introduction

The Banks Peninsula Native Forest Climate Change collaborative group brings together experts from government agencies, covenanting organisations, consultancies and charitable trusts actively involved with biodiversity and afforestation on Banks Peninsula.

This submission to the Climate Change Response (Emissions Trading Scheme) Amendment Bill and Climate Change (Forestry Sector) Regulations 2008 seeks amendments that facilitate land use change to Perpetual Indigenous Forests. We see this as a critical part of New Zealand's climate mitigation program, and something that, if properly supported by the Bill, will facilitate sequestration on a large landscape scale at relatively low cost.

The submission opens with an explanation of why indigenous forest in perpetuity is important for Aotearoa and how natural regeneration is the optimal pathway toward achieving it on a landscape scale.

We suggest that the current ETS has met with little success in encouraging indigenous afforestation through regeneration as a land-use, not because of a lack of interest by landowners or the scale of the potential offset, but because it based on for an exotic harvested plantation model without the ability to adequately address the different behaviour of natural indigenous afforestation. We are concerned that the changes currently proposed to the Emissions Trading Scheme in the Amendment Bill do not address this underlying problem.

Our collective view is that a new afforestation activity for Perpetual Indigenous Forest should be introduced to support the natural establishment processes and that appropriate measurement systems be developed.

We suggest that to qualify for the new activity, the underlying land must be legally protected in perpetuity with a covenant and management plan aimed at growing the forest into a mature steady state containing the typical or expected indigenous biodiversity appropriate for the locality. We therefore propose a new forest land definition free from the current age based criteria as this is a principal barrier to registration of regenerating areas. The covenant and management plan instead underpin the additionality and permanence tests of a change from business-as-usual land use for forest offsetting.

We appreciate that this is a new challenge for MPI and the government, something with as yet no clear directive to develop, and it is inherently more complex than assessing mono-crop planted forests. However, the Paris agreement provides the flexibility to enact this, and we stress that it is urgent to resolve this situation because of the perverse effects being experienced with the current system, resulting in exclusion and/or loss of naturally regenerating forests. This seems set to continue, or potentially worsen, if this challenge is not met.

We therefore propose a staged methodology for implementation.

The first stage is to implement a new Perpetual Indigenous Forest Sink land definition and the Perpetual Indigenous Forest Activity into the Amendment Bill along with a blunt but conservative instrument long term averaging methodology to account for the sequestration in indigenous forest. This would be the default mechanism. It would be simple to apply and could be implemented immediately using a long-term nationwide average.

The next stage would be to refine the long term averaging with more sophisticated regional bio-climatic tables for different common forest types and introduce these by way of Regulation once further research has developed them.

We also suggest that the current FMA system needs to be overhauled and an improved stock change methodology that does not require destructive sampling developed. This too would be implemented by way of Regulations as it developed, and Perpetual Indigenous Forest participants could opt-in to stock change measurement should they so wish.

We anticipate that credits from the Perpetual Indigenous Forest afforestation activity will achieve a higher price on the market if they are clearly distinguishable from the new Permanent Forest activity and that this will incentivise more landowners with naturally regenerating marginal land to change land use from marginal grazing to active management for growing native forest, and to legally protect that forest in

perpetuity. This will bring long term benefits to New Zealand for its Climate Change Response in the form of carbon sequestration, indigenous biodiversity protection and enhancement, and accounting to the UNFCCC.

We submit that this concept meets the Paris Agreement requirement for countries to *“account for their nationally determined contributions. In accounting for anthropogenic emissions and removals corresponding to their nationally determined contributions, Parties shall promote environmental integrity, transparency, accuracy, completeness, comparability and consistency, and ensure the avoidance of double counting”*¹,

Banks Peninsula is well suited to provide a test bed for gathering data about regeneration, and our collaborative group offers to assist and support MPI to pull together data appropriate for the refining the long-term averaging methodology, and to develop an improved non-destructive stock change methodology.

We suggest specific wording additions and changes to the Amendment Bill and the Regulations to enact the provisions of our submission and to provide for the ongoing improvements to be introduced through future Regulations in Appendices A and B.

2 Indigenous Forest in Perpetuity - opportunity for New Zealand

Indigenous forest in perpetuity brings multiple benefits for carbon sequestration because of its biodiversity gains, lack of harvest-related issues including associated emissions, and the ease with which it can be achieved on a landscape scale and at relatively minimal cost.

Having more land as Perpetual Indigenous Forest is the best long term solution for New Zealand as the environmental and carbon sequestration benefits will act as a balance to rotational plantation and exotic forestry. We acknowledge that indigenous forest growth is slower than exotic rotational plantations, but within 35 years an indigenous forest would exceed the sequestration achieved by pine cropping.

A Perpetual Indigenous Forest is expected to take centuries to reach a steady state. It will provide net carbon sequestration for all of this time and as it grows will provide habitat for native species and improve the overall state of New Zealand’s indigenous biodiversity and natural landscapes.

2.1 Environmental benefits

New Zealand has international obligations to protect and enhance indigenous biodiversity, and to take action to mitigate against human induced climate change. Compared to monoculture rotational forest, the diversity of species in an indigenous forest provides

- greater climate resilience;
- essential habitat for New Zealand’s indigenous fauna;
- fire resistance once forest is established;
- improved biosecurity as there is not monoculture vulnerability;
- reduced weed threat, and,
- local heritage and identity preserved.

Indigenous forest in perpetuity is more environmentally beneficial than rotational and exotic forest because it

- belongs and fits landscape characteristics;
- provides permanent soil stability; and,
- improves water quality.

¹ CCR (ETS) Amendment Act, Schedule 2A, Article 13, Clause 13. Paris Agreement

2.2 Sequestration benefits

The benefits of carbon sequestration in Perpetual Indigenous Forest are summarised in an article on the Pure Advantage site as:

“Fast-growing trees such as pines or eucalypts in harvested plantations reach their maximum carbon storage capacity in about 20 years. Landowners then lose most of those carbon stocks when the forest is harvested; NZ loses most of the embedded carbon when logs are exported; furthermore, the globe loses most of those stocks back into the atmosphere as the products decay, as well as through associated emissions from forest management, transport and processing. Thus to store more carbon actually requires another forest to be planted on new land that is not already forested, while also continuing to replant and maintain the previous area in forest to recover the lost carbon stocks. That is, plantation areas will need to be doubled in size with every crop.”²

Protection in perpetuity resolves this issue by precluding clearance in the future (which is counter-productive to the national carbon sequestration objective) and provides ongoing sequestration for centuries on the same land area.

2.3 Supporting the Optimal pathway – Natural Regeneration

Planting native forest is expensive, because the seedlings are more expensive to produce (even more so when eco-sourced), and more susceptible to animal browse, grass and weed competition and drought than pines or eucalypts. While planting native forest is appropriate in some cases, the optimal pathway toward naturally biodiverse native forest at large scales is through facilitating natural regeneration.

Harnessing the power of nature, natural regeneration is so cost effective that it provides New Zealand the opportunity to convert swathes of barely productive marginal land from methane emitting low-income grazing into carbon sequestering perpetual indigenous forests.

In many places marginal grassland is already reverting, or has reverted, to woody scrub, but this is unlikely to develop into fully diverse native forest unless there is an active change of management to facilitate it. The changes in management include control of grazing and feral stock, fencing to prevent stock re-incursion, and appropriate ongoing pest and weed control.

The ability to earn carbon credits from such land provides the incentive for farmers to change the land use from farming stock to native forest in an economically viable way. Furthermore, the pest control that improves the quality of natural regeneration both directly (e.g. ungulate and possum removal) and indirectly (e.g. rat and stoat removal) happens to be the same pest control that is already emerging because of the country's new commitment to Predator Free and Pest Free 2050. Therefore by incentivising landowners to regenerate indigenous forests for carbon credits, the government would be helping to meet its climate change obligations while also creating a financial incentive to further support Predator/Pest Free policy.

Our group would like to see the ETS and grant schemes such as 1 Billion Trees provide appropriate incentives to encourage this land use and associated management change on a landscape scale. In turn, this would bring large areas of marginal land into the ETS to assist New Zealand in meeting its international climate commitments while financially supporting landowners and rural communities to enhance New Zealand's biodiversity.

We recognise that indigenous forest sequestration through natural regeneration stores less carbon over the short term than planting rotational exotics, but consider that this is more than compensated for by the environmental benefits, continued long term sequestration, and low establishment costs.

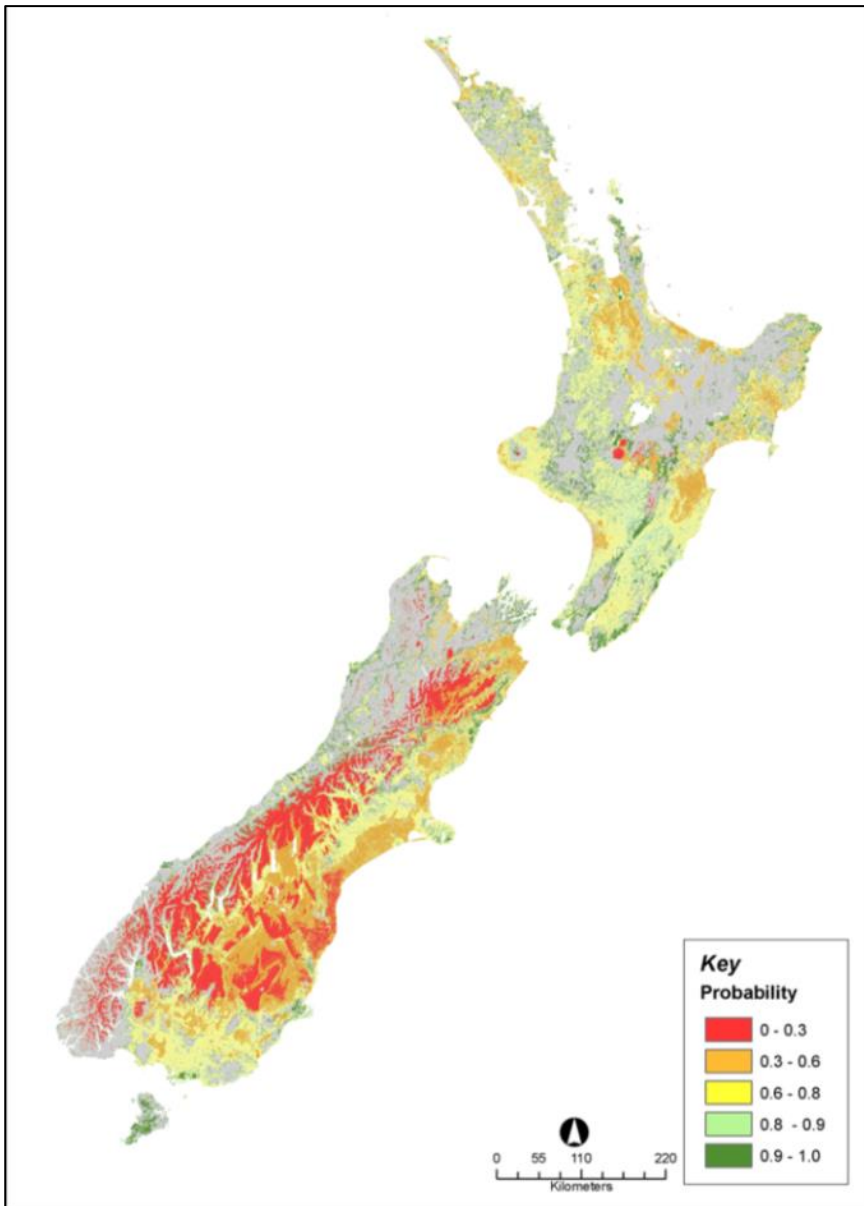
Large parts of the country with steep, marginal erosion prone land are much more suited to native forest in perpetuity than rotational forestry.

² Lucas,D. and Burrows,L, *Pure Advantage*, September 11 2019 'Radiata pine plantations a band aid to nowhere'

The extent of shrublands (exotic or native) and grasslands with the potential to naturally succeed to indigenous forest has been estimated at over 1.55m hectares³ nationally, giving a conservative C sequestration potential of 3 to 4 million tonnes per annum. This indicates the scale of the potential gain to New Zealand from encouraging natural regeneration into perpetual indigenous forests.

As shown in the map below, Banks Peninsula is one of the optimal areas with potential to regenerate.

Figure 1 Suitability of land for native regeneration ⁴



3 Current ETS is failing indigenous forest – an opportunity missed

We are advised by MPI that currently there are only 30,000ha of regenerating forest registered in the ETS and that the Hinewai Reserve on Banks Peninsula makes up 10% of the land in the current PFSI. We consider that the low level of registration of native forests indicates that the current system is failing landowners and New Zealand.

³ Shepherd JD, Sutherland MA, Payton I, Zhang W, Power W 2008. Nature and scale of eligible post-1989 non-planted forests. Landcare Research Contract Report LC0809/033 for the Ministry of Agriculture and Forestry.

⁴ ⁴ "Opportunities for carbon forestry with naturally regenerating indigenous forests", Manaaki Whenua/Landcare Research, March 2019. Reproduced from Mason et al. (2013doi: 10.1371/journal.pone.0075219.g003

3.1 Opportunity for marginal land

Steep marginal country, such as the majority of Banks Peninsula, provides an ideal location to regenerate native forest with dispersed remnants providing available seed sources. Left to nature the land steadily regenerates into native forest, meaning any land that is not actively sprayed, cleared or hard grazed is already in a regenerating state, gradually spreading outward from damper gullies.

Facilitation of natural regeneration by management action where carbon sequestration is well underway, is of interest to many landowners who would like to register their regenerating areas into the ETS to gain a carbon income. This income could then be used to incentivise and facilitate more active management (e.g. ceasing grazing and introducing pest control) to improve biodiversity. Such management also aligns with the aspirations of the Pest Free Banks Peninsula 2050 initiative, which virtually guarantees additional co-benefits (e.g. social, technical, and financial support).

Covenanting agencies, QEII National Trust and the locally based Banks Peninsula Conservation Trust would like carbon income to provide assistance to land owners who retire land from grazing (a further potential climate change benefit) and to act as an incentive to protect further areas for afforestation and biodiversity.

“The Banks Peninsula Conservation Trust works with landowners to protect and enhance indigenous biodiversity. Over the last year the Trust has received a large number of requests from private landowners on Banks Peninsula that are seeking information on how they could transition from a traditional farming model to natural regeneration of indigenous forest that would provide an income through the ETS, while enhancing the biodiversity values on their properties.” (pers. comm. Maree Burnett, General Manager, Banks Peninsula Conservation Trust)

3.2 Barriers to registering natural regeneration

To date, naturally regenerating indigenous forest has been largely impeded from ETS registration because the legislation (and its interpretation) is plantation-oriented. Naturally regenerating indigenous vegetation behaves differently from plantation forest being highly variable in space, species, succession stage and time.

A naturally regenerating forest will have a wide and diverse mix of species, with stems of different ages, and irregular boundaries. Sites vary and colonisation of new areas over time is not evenly distributed over each hectare within any site boundary. Unlike a planted plantation it is not possible, and not necessary, to assess every hectare if land management is included in the eligibility decision.

3.3 1990 baseline barriers

The requirement to determine whether a forest is pre-1990 or post-1989 requires its age to be assessed and this is particularly problematic for landowners and MPI. The determination of whether land is considered to be forest or potential forest (or not) at 1990 places too high a burden of proof on applicants, and the assumptions made by MPI about potential forest being likely on 1990 photographs are resulting in applications being increasingly declined.

3.3.1 Determining forest age

The biggest issue that the 1990 cut-off creates is the need to age a naturally regenerating forest in advance of an ETS application.

It is easy to identify when a plantation forest was established, and relatively easy to measure the carbon stock sequestered in a monoculture with a known number of stems per hectare. Natural regeneration is a gradual process and establishing the date at which a native forest developing through natural regeneration would have reached the definition of “Forest Land” (i.e., contains tree species that will likely achieve 30% canopy cover) is immensely time consuming (and therefore costly), subjective, and at times meaningless and impossible under the current approach. It requires destructive sampling of the oldest trees present to determine their age, and can involve crawling through hostile environments such as many hectares of gorse infestations. The problem is compounded by the requirement to assess the age of tree species in every ha applied for, which is impractical to conduct and unnecessary. It is hard to decide what to destructively

sample when there is a range of species involved and this system can still only produce an approximation on every hectare. It is a disincentive to landowners protecting their forest to be required to engage in destructive sampling.

There is also a dire shortage of consultants able to do the work and it can be prohibitively expensive, particularly for smaller areas.

3.3.2 Assumption that woody scrub in 1990 contains potential forest

A further barrier experienced by landowners is that, even after undertaking expensive preliminary field assessment by a consultant, applicants must then convince MPI that no forest was present in 1990. A key barrier to registration is the assumption made by MPI that shaded areas on aerial photography from around 1990 are woody vegetation *likely* to contain potential forest regardless of the farm management regime that was in place at the time.

We question this assumption given that:

- Normal farming practice is to clear scrub from time to time to reclaim pasture;
- This is a long term pattern driven by large-scale economic conditions and available subsidies;
- Spraying of woody weeds, particularly gorse, was required by regional councils until block infestation became an acceptable practice. The spraying precluded forest from developing naturally;
- Previous MPI guidance from 2010 made it clear that it was the management practice in place in 1990 that should largely determine whether areas of woody scrub contained potential forest, and that if the land management was for farming then it was assumed to not grow to forest;
- This is supported by the recent MFE report *“New Zealand’s Greenhouse Gas Inventory 1990–2017.”* P15/16 of that report cites with respect to the LULUCF, *“a review that showed some areas of shrub cover were not becoming a forest and are more accurately classified as Grassland with woody biomass in the inventory.”*

The assumption that shaded areas on aerial photography circa 1990 were likely to contain potential forest, and the resulting unreasonable burden of proof is well known and deterring landowners on Banks Peninsula and around the country from making applications to the ETS.

3.3.3 Precluding registration of pre-1990 forest

No forest that was established pre-1990 can be registered under the current ETS, and this barrier remains in the Amendment Bill.

This preclusion disbars all native forest areas from registration, even if in 1990 they were only at the infant stages (with insignificant C stocks) of their centuries-long ongoing sequestration life.

The legislation provides no ability for the post 1990 carbon sequestered into the forest to be included in the ETS and earn credits or to be accounted for on the national register.

This has the unfortunate effect of precluding the registration of most areas protected by conservation covenants, as these typically protect areas of old growth remnant thereby denying landowners who are protecting sequestering forests from earning from this activity.

There is no recognition that the old growth may have consisted of only a few ancient stems (a tiny proportion of the number of stems that would have been present before clearance) dotted about on land that was still grazed in 1990 and that the area in which they stand had only just begun its journey toward a steady state.

3.4 Issues with FMA for naturally regenerating areas

We are also concerned that even for those who have managed to register, the inaccuracies in the current Field Management Assessment (FMA) methodology used to measure the stock change on properties of

over 100ha can lead to severe liabilities for participating landowners, and this is a disincentive for others to register.

The current FMA measurement system provides inconsistent and unexplained results for several landowners we have spoken with. Our position is that the whole FMA approach needs to be reviewed independently. The problems we identify are:

- Even with the detailed guides there can be inconsistencies in the application of the methods for each assessment, and there is a lack of feedback from MPI to explain results.
- Different contractors appear to apply the FMA differently. The lack of feedback by MPI on FMA outputs to help explain unexpected results has been disappointing for landowners who are left with potentially significant financial liabilities. This creates a disincentive to others from participating.
- The 5 yearly carbon tables for 2013 - 2018 were approximately 50% lower than those issued for 2008 – 2013 which left landowners in the position of having been overpaid and having to pay credits back.

NZ Native Forest Restoration Trust comment that: *“We would like to see more consistency and transparency with participants being notified of any changes to the FMA as they happen. In our experience, small changes to the FMA have the potential to significantly impact sequestration estimates. This can contribute to sizeable surrender obligations which only come to light at the time of re-measurement. In our opinion, the complexity, lack of transparency and costs associated with the FMA make it a barrier to attracting new permanent forestry participants into the ETS. With the current uncertainty around each mandatory return period it makes it very difficult for an organisation like us to form relationships around carbon.”* (pers. comm., Sandy Crichton, Manager NZNFRT)

4 Perverse outcomes current and continuing

The inability to register in the ETS means that landowners seek other land uses at the expense of regenerating biodiversity.

The perverse consequences we are observing from the blockage of the natural regeneration pathway and preclusion of pre-1990 forest are:

- Removal of existing biomass such as woody scrub, gorse containing potential forest, or young native forest and replacement with pasture because this remains more financially viable for marginal land. The result is the removal of carbon sequestering vegetation and replacement with more methane emissions. (see examples in Appendix C)
- Landowner encouragement of hugely damaging pest species like feral goats and deer that act to suppress succession towards native forests
- Exotic rotational forestry planted on marginal areas better suited to permanent native forest,
 - potentially creating erosion and wilding issues, and
 - a “wall of wood” effect in 30 years’ time when these forests are felled (or less than 20 years under averaging), with no further additional carbon sequestration.
- No incentive for landowners to opt for perpetual native forest as a land use and to cover the costs of establishing such a venture.
- Failure of New Zealand to maximise the opportunity for sequestration in tandem with international biodiversity obligations.
- Actual carbon being sequestered is not being captured on the national register, and development of an easy-win carbon sink is being dis-incentivised.

4.1 Concern with the Amendment Bill provisions

We are concerned that if passed in its current state the Amendment Bill will continue to act as a barrier to natural regeneration projects and continue these perverse outcomes because:

- offset systems will continue to be based on harvested plantation forestry and fit no better with natural regeneration and perpetual afforestation; and,
- the problematic requirement to age regenerating stands and the blanket ruling out of pre-1990 forest areas will remain.

4.2 No distinction for covenant protected forest

We are also concerned that under the Amendment Bill incentives to put land into perpetual indigenous forest may diminish.

The Minister of Forestry states in the introduction to Forestry Regulations consultation document, that *“Past sales of the NZUs from indigenous forests indicate buyers are likely to pay a premium for carbon stored by these forests.”*⁵

Such premiums – for native-forest based PFSI properties that exhibit strong conservation and dedicated biodiversity management goals – have been recognised by Manaaki Whenua-Landcare Research, Enviromark, and other commercial buyers for a number of years.

We submit that these premiums were achieved by organisations like Hinewai Reserve where native forest is protected in perpetuity by covenant, and that the new proposed “Permanent post-1989 forests” category does not provide the same level of native forest differentiation and security. Forests in the proposed class may be clear-felled after 50 years, and selective harvesting may be taking place. This does not guarantee a path for the full restoration of biodiversity, nor its retention in perpetuity.

This distinction represents a very different commitment for the purchaser of offset credits.

5 Solution - add a Perpetual Indigenous Forest Activity

Our proposed solution is to add a new Perpetual Native Forest Afforestation Activity to the Amendment Bill and supporting Regulations.

The purpose of this Perpetual Indigenous Forest Activity would be to:

- offer a new non-age related forest land definition to remove a major barrier to registration and provide a mechanism for post 1990 additive carbon to be counted regardless of the forest age;
- incentivise native forest in perpetuity and associated indigenous biodiversity through making it a financially viable land use, particularly for marginal land; and,
- facilitate it with appropriate processes for natural regeneration projects to register and earn offset C units for carbon sequestered from the time of registration onwards.

5.1 Perpetual Indigenous Forest Sink land definition

The new Perpetual Native Forest Activity would only apply to land that is protected in perpetuity through a covenant on the title with a body approved by the Minister of Conservation under the Reserves Act or Queen Elizabeth the Second National Trust Act 1977 and with a management plan aimed at achieving the typical/expected range of native biodiversity appropriate for that site.

We suggest that a new Forest Land definition of Perpetual Indigenous Forest Sink land is introduced to the Amendment Bill and sits alongside the existing pre-1990 and post-1989 Forest Land definitions.

The Paris Agreement⁶, included as Section 2A of the Climate Change Response (Emissions Trading Scheme) Amendment Bill gives countries flexibility to account for their emissions as they choose provided the process retains integrity. It is silent on the matter of pre-1990/post-1989 dichotomy.

⁵ “A Better Emissions Trading Scheme for Forestry” Te Uru Rākau Discussion Paper No:2019/01

⁶ The Paris Agreement, Schedule 2A to the (CCR ETS Amendment Act, Article 4, Clause 13

We therefore propose that the new land definition is not restricted to post-1989. This negates the need to assess forest age or determine its biomass far back in time and removes the need for the subjective determination on whether an area was likely to contain potential forest. The forest could be of an indeterminate age when it was registered. The criteria would be that it is still sequestering carbon and has not yet reached steady state. In New Zealand this also implies that it will be post-colonial secondary forest occurring because of some form of human intervention (i.e., active management).

The additionality and permanence tests of a change from business-as-usual land use to forest offsetting are underpinned by the covenant and management plan.

5.2 Differences from Permanent Forest activity

Perpetual Indigenous Forest is a different concept from the new Permanent Forest activity introduced in the current Amendment Bill.

The Permanent Forestry category is only available for post-1989 Forest Land and is still principally aimed at plantation forestry. It seems intended to provide for longer term plantation forestry (redwood, Douglas fir) or suited to growing plantations of native trees for timber extraction, and hence shares more in common with standard short term rotational forestry. The assumption seems to be that species such as Totara will be planted and eventually harvested potentially using selective logging rather than clear felling. Biodiversity may develop in such a forest, or it may not – that will depend on how densely the forest is planted, how it is managed and where it is located.

The Permanent Forest category will allow for selective harvesting provided a 30% canopy cover is maintained, and conversion to standard forestry or clear felling after 50 years. Thereafter commitment periods are for 25 years. It does not require a covenant on the title, and without this it may prove difficult to track in the future how the forest has been managed.

A perpetual indigenous forest protected in perpetuity is a very different type of forestry system and a very different commitment by the landowner. The forest future is secured in perpetuity with a conservation covenant on the title, no native biodiversity can be removed – only weeds – and the forest is managed for the sake of biodiversity and permanent carbon sequestration rather than harvesting.

Most critically the Permanent Forest activity **does not** provide any better mechanisms for natural regeneration as a pathway – it does not deal with its multiplicity of species (average tree species per plot in the LUCAS dataset is 10 – Holdaway et al. 2017) and ages and irregular establishment patterns, nor does it deal with the 1990 eligibility and land use issue as it is based on the post-1989 Forest Land definition.

5.3 Meeting international commitments

The reason for creating the Permanent Forests activity is stated in the 2018 forestry consultation document as: *“Meeting our long term international climate change commitments will require New Zealand to increase the amount of permanent forest planted and maintained in perpetuity as a means of sequestering carbon”*⁷.

We submit that this intent is not really met by the Permanent Post-1989 Forestry activity, because there is no security that the forest will be *maintained in perpetuity*. It will meet the same limitations as a carbon sink as for all harvested systems of unaccounted associated emissions that will reduce the size of the potential offset and be unsustainable in the long term.

We submit that in contrast, New Zealand’s long term commitments would be more fully met by the addition of a new Perpetual Indigenous Forest activity as proposed because:

- to qualify that forest would have to be protected in perpetuity with a covenant on the land title and have a management plan supporting natural return of native biodiversity;
- land in the activity would aim to achieve native forest with the full range of species appropriate for its location and eventual attainment of a mature steady state;

⁷ “A Better ETS for Forestry. Propose amendments to the Climate Change Response Act 2002”, Te Uru Rākau Discussion Paper No: 2018/02

- with the age barrier removed, much more indigenous forest in various stages of growth will qualify for registration adding to the national account;
- double counting is avoided because credits can only be claimed for additive carbon sequestered from the time of registration onwards; and,
- the covenanting organisation would provide independent monitoring of biodiversity compliance with the management plan.

5.4 Role for covenants and covenanting authorities

We seek recognition for a landowner who is prepared to own land with indigenous forest protected in perpetuity, and commits to true permanence and additionality, but we do not seek a return to the PFSI where special purpose carbon covenants were required on the title.

Instead we suggest that covenants registered with the QEII National Trust, DOC protected private covenants and other covenants registered under the Reserves Act (such as with the Banks Peninsula Conservation Trust and future such organisations) will provide the assurance of in perpetuity protection. We see a key role for these organisations in supporting both MPI and landowners.

Our reasoning is that these organisations already ensure that covenanted forests are actively managed for biodiversity, and provide a service monitoring their growth and adherence to covenant conditions. They are a natural fit to provide the security that unit purchasers and the government need to maintain integrity and credibility.

We suggest that the role for covenanting organisations is to:

- verify to MPI for each property registering under the Perpetual Indigenous Forest activity that the land is protected by a covenant on the title in perpetuity;
- verify that the registered area has an appropriate Management Plan that
 - fosters achieving full biodiversity through indigenous forest meeting the definition of Forest Land;
 - permits collection of the data needed to measure sequestration;
 - precludes direct harvesting of indigenous timber or products that will affect biomass stocks or negatively impact indigenous biodiversity;
- support covenanting landowners to participate in the ETS Perpetual Indigenous category; and,
- inform MPI if compliance with ETS registration has lapsed.

We also see the opportunity for the covenanting organisations to provide a service to their members by carrying out initial assessments, preparing applications and monitoring and measuring progress. We feel there would be enough overlap with the work already involved in preparing and monitoring covenants and management plans for this to be highly cost effective. The organisations may wish to charge their members a fee for these services given that it unlocks a revenue stream.

We would also like the government to consider how joint applications, or the aggregation of several covenants, could be made.

5.5 Smoothing the path for natural regeneration

The new activity will recognise and facilitate natural regeneration as the optimal pathway toward growing fully diverse indigenous forest to maturity, particularly on large areas of marginal land.

It will provide for appropriate regulation to encourage and enable registration. This will include:

- removal of the age barriers as already described, negating the complex requirement to age naturally regenerating areas and enabling pre-1990 forest into the scheme;

- immediate implementation of a simple averaging method to assign credits, with more sophisticated improvements in the long term, and,
- development of improved sequestration assessment based on the stock change.

We now described these proposed assessment methods in more detail.

6 Assessing sequestration in Perpetual Indigenous Forests

The current method for measuring forest growth and therefore carbon sequestration uses lookup tables for small blocks and FMA for larger blocks.

The lookup tables are based on age, but as already discussed, determining the age of a naturally regenerating forest is difficult and can be inaccurate.

What we propose instead are two methods for Perpetual Indigenous Forest that do not rely on stand age. These are:

- A. A long-term averaging method based on a straight line accrual over the sequestering life of the forest
 - as the default method
 - to be **implemented immediately** in the Bill on the basis of known native tree and forest growth rates at a nationwide rate
 - with the provision for amended regulations to introduce regional variation tables at a later stage
- B. An improved stock change method based on changes observed between two measurement points:
 - as an option for those expecting a higher return from more detailed measurement;
 - to implement improvements through regulations as and when research to support and develop these is completed.

For both methods, credits will only accrue from the point of registration. This provides the baseline year for the collection of offset units by the participant and therefore credits will only be earned on the land after the amended Act comes into effect at the earliest. There is no double-counting of pre-1990 sequestration.

6.1 Long term averaging method for immediate implementation

The national LUCAS dataset gives the average biomass of all native forest as 860 tonnes of CO₂e equivalent per ha. It is ca. 1200 or more tonnes in more fertile places and lower elevations. The time it takes for a native forest to grow to maturity (steady state or C sequestration equilibrium) following a significant natural disturbance such as a landslide or windthrow is known in some cases (e.g. Holdaway et al. 2017⁸, Harcombe et al. 1997⁹, Carswell et al. 2012¹⁰). Typical growth rates, tree ages and sizes have been measured for many large native tree species. Depending on forest types (e.g. beech forest, mixed broadleaved hardwood forest, podocarp forest) it is possible to indicate a typical age-to-maturity value as a basis for indicating a straight-line average sequestration rate. New research work will be needed to refine specifics, but if it takes about 300 years to achieve a steady state, then at 860 tonnes this works out at 3 units per ha per year.

⁸ Holdaway RJ, Easdale TA, Carswell FE, Richardson SJ, Peltzer DA, Mason NW, Brandon AM, Coomes DA 2017. Nationally representative plot network reveals contrasting drivers of net biomass change in secondary and old-growth forests. *Ecosystems* 20: 944–59.

⁹ Harcombe PA, Allen RB, Wardle JA, Platt KH 1998. Spatial and temporal patterns in stand structure, biomass, growth and mortality in a monospecific *Nothofagus solandri* var *cliffortioides* (Hook. F.) Poole forest in New Zealand. *Journal of Sustainable Forestry* 6:313–345.

¹⁰ Carswell FE, Burrows LE, Hall GMJ, Mason NWH, Allen RB 2012. Carbon and plant diversity gain during 200 years of woody succession in lowland New Zealand. *New Zealand Journal of Ecology* (2012) 36(2): 191–202.

Such an averaging system could be refined and developed for key forest types and national bioclimatic zones or elevation classes and provide a simple solution to questions about native forest C sequestration.

The participant would be paid out at a small but constant number of credits every year until the forest had reached steady state. There is no need to age the forest at the start of the registration, as the credits are not backdated and paid at a constant rate. Allocation of credits will cease once the forest has reached steady state. There will be a need to work out when a forest has reached steady state, but this can be a piece of future research.

As precise region-specific data is not readily available at present, we recommend the Act implement a fixed figure now and provide for regional tables to be introduced later by way of regulation. We suggest that the fixed figure be the conservative average value of 3 units per ha per annum as the default to initiate the new activity, based on the national average of 860 tonnes of CO₂e equivalent per ha achieved over 300 years.

6.2 Stock Change methodology

Participants who felt their forest was growing faster than the long-term average, or who had very large forests, could use the stock change methodology to assess their sequestration instead. In this way the added cost of measurement would only be incurred by forest owners who would expect to benefit from the extra effort.

This would involve an assessment of the biomass at the time of registration to establish a baseline, and then a re-assessment at the end of each period. Credits would then be paid out at the end of each reporting period based on the growth measured through the physical on-site survey.

The existing FMA system could continue, but as described earlier, there are concerns about the accuracy of the current system and the problems with aging stands so it needs review. It would also need some adaptation to be fit for this new purpose.

6.3 Future improvements to be added by way of Regulation

Therefore we propose the Bill provides for the following to be developed by MPI and implemented by way of Regulations in the future.

- Refining the long-term averaging system with tables for common native forest types and national bioclimatic zones or elevation classes to provide a simple but more sophisticated solution for indigenous forest C sequestration than the initial nationwide average.
- A robust guide on methodology and reporting transparency to ensure that different FMA stock change surveys are conducted in a consistent manner.
- A programme of extensive data collection so that a predictive model can be developed, enabling biomass to be estimated in a manner that reflects the different ways that naturally regenerating native forest establishment occurs without need for destructive sampling.

7 Banks Peninsula as a development test bed

The Native Forest Climate Change group submits that Banks Peninsula could provide a test bed to gather data and develop the new methodology and a predictive model.

Strengths of Banks Peninsula are:

- The speed of forest regeneration on the Peninsula
- The diverse terrain, altitudes and habitats
- The existing base of data provided from its many existing covenants and protected areas that are already being monitored, measured and recorded

- The willingness and enthusiasm of landowners and the Native Forest Climate Change group to support this
- The close relationship with Manaaki Whenua-Landcare Research.

7.1 Base of data

Existing data includes:

- A systematic Protected Natural Area survey of the whole of the Peninsula carried out by Hugh Wilson in the 1980s.
- Quantitative forest measurements on Hinewai Reserve since 1987
- Measurements in covenants by QEII
- Measurements in covenants by BPCT
- Quantitative plot data held by DOC and CCC about their reserves
- ECAN data
- Plot data in the National Vegetation Survey (NVS) databank
- Existing FMA data

The problem at present is that these data sources are limited and are not held or arranged in a common format. It will take time, effort and good steering to bring them together into a single format and to augment them with additional data.

Once that has been achieved, then efforts can turn to deriving a predictive model from the data that can be used to determine a reasonably accurate estimate of biomass, without destructive sampling, when provided with appropriate data from a new site for Banks Peninsula. This can then be extended to the entire country.

7.2 Banks Peninsula Native Forest Climate Change group to help

The Banks Peninsula Native Forest Climate Group members offer to assist MPI to achieve this in the following ways:

Table 2 Assistance offered

Organisation	Data or skills organisation can provide
Banks Peninsula Conservation Trust	An understanding of the conservation covenanting process, ecological advice, photopoint data of naturally regenerating forest in covenants.
Christchurch City Council	Ecological advice, survey and monitoring expertise. Co-funding for protection of ecologically significant sites. Data regarding vegetation in Council reserves, and management history for those reserves.
Department of Conservation	Information on reserves Encouraging and supporting landowners to change marginal land use to active regeneration and facilitating the removal of key pest species (e.g. ungulates and possums)
Environment Canterbury	Ecological advice,. Funds for protection
Lucas Associates	Landscape planning. Spatial planning re forest extent, typology, edge, fire resilience and management.
Manaaki Whenua / Landcare Research	NVS data records

	Ecological research on vegetation communities, successions, biomass change, modelling. Reports and publications
Maurice White Native Forest Trust	Detailed meteorological records for the past 30 years on the Hinewai Reserve on the SE side of Banks Peninsula and more recent data from the Purple Peak Curry Reserve which is NW facing. Photographic records of the native forest natural regeneration on the Hinewai Reserve for the past 32 years. Vegetation recovery records for the past 32 years on Hinewai Reserve Quinquennial FMA data for the past 15 years Data from the Banks Peninsula Botanical Survey.
QEII National Trust	An understanding of the conservation covenanting process. Subject to landowner permission: photopoint data of naturally regenerating forest in covenants.
Rod Donald Banks Peninsula Trust	Group co-ordination Drafting reports Potentially some seed funding

8 Summary

This submission has proposed the addition of a Perpetual Indigenous Forest Sink land definition and a Perpetual Indigenous Forest Activity to the Climate Change Response (Emissions Trading Scheme) Amendment Bill and the Climate Change (Forestry Sector) Regulations.

To qualify as a Perpetual Indigenous Forest Sink the land would need to be legally protected in perpetuity with a covenant on the title in favour of an approved covenanting organisation. The covenant would need to facilitate the establishment of a biodiverse steady state perpetual indigenous forest and provide a management plan aimed at achieving this.

This meets the criteria for valid offsets of permanence and additionality, without constraining the forest to a particular age, removing the major barrier for naturally regenerating areas or forests deemed pre-1990 from participation.

The Perpetual Indigenous Forest Activity would only be available Perpetual Indigenous Forest Sink land. The activity would provide and develop methods to earn credits for removals through:

- a highly conservative long-term averaging methodology applied nationwide initially, with provision for a more sophisticated methodology based on bio-climatic regional tables to be introduced through regulations as the science develops, and
- development of an improved FMA stock change measurement system (also to be implemented through regulations as the science develops) to make it more consistent and reliable for participants opting to use it instead of the conservative long-term averaging methodology.

We submit the implementation of the Perpetual Indigenous Forest activity along the lines we have described will bring the following benefits:

- capitalise on the opportunities for afforestation and sequestration in New Zealand using biodiverse indigenous forest estimated at over 1.55 million hectares
- provide New Zealand with an additive source of carbon for many hundreds of years without having to use more land;
- include this carbon sink on its national register;
- align New Zealand's afforestation aspirations with its Predator/Pest Free 2050 policy;

- create resilience and bring associated ecological and environmental benefits as more areas become fully biodiverse;
- provide an alternative to exotic rotational forestry on land that has soil stability or water quality issues;
- support natural regeneration as the optimal pathway to biodiverse indigenous forest and considerable C sequestration that is currently overlooked by the existing system;
- remove the current age barriers as permitted by the Paris agreement;
- improve the consistency of FMA stock change measurement for indigenous forest; and,
- provide purchasers of credits with the assurance that Perpetual Indigenous Forest credits stem from a native forest legally protected in perpetuity, managed for the purpose of enhancing biodiversity and overseen by an independent reputable organisation.

It makes sense for New Zealand to:

- transform existing grassland with woody biomass, woody shrubland and native regeneration into long haul indigenous forest on many areas of marginal farmland;
- reduce the emissions from these land areas (through the removal of grazing stock);
- align aspirations for afforestation and predator/pest removal
- offset more of its emissions, contributing to reduction targets;
- enhance resilience to fire, drought and storms – all of which are set to increase with climate change; and,
- meet our long term commitments to anthropogenic emissions and removals in a way that promotes *“environmental integrity, transparency, accuracy, completeness, comparability and consistency, and ensure the avoidance of double counting”*, as specified in the Paris agreement.

Appendices A and B provide our suggested wording change to Climate Change Response (Emissions Trading Scheme) Amendment Bill and the associated Regulations respectively.

These wording changes do not remove existing changes proposed in the Amendment Bill, but build upon the concepts they introduce.

Appendix B also provides our response to the Consultation Questions listed in A Better Emissions Trading Scheme for Forestry, Te Uru Rākau Discussion Paper No: 2019/01.

Appendix C provides imagery and supporting information about Banks Peninsula.

We wish to make an oral submission in support of this written submission

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Appendix A Proposed changes to the Climate Change Response (Emissions Trading Scheme) Amendment Bill

We set out suggested re-wording for the Climate Change Response (Emissions Trading Scheme) Amendment Bill to introduce the Perpetual Indigenous Forest Sink land definition and Perpetual Indigenous Forest Activity and establish a framework for developing measurement methodologies to support it.

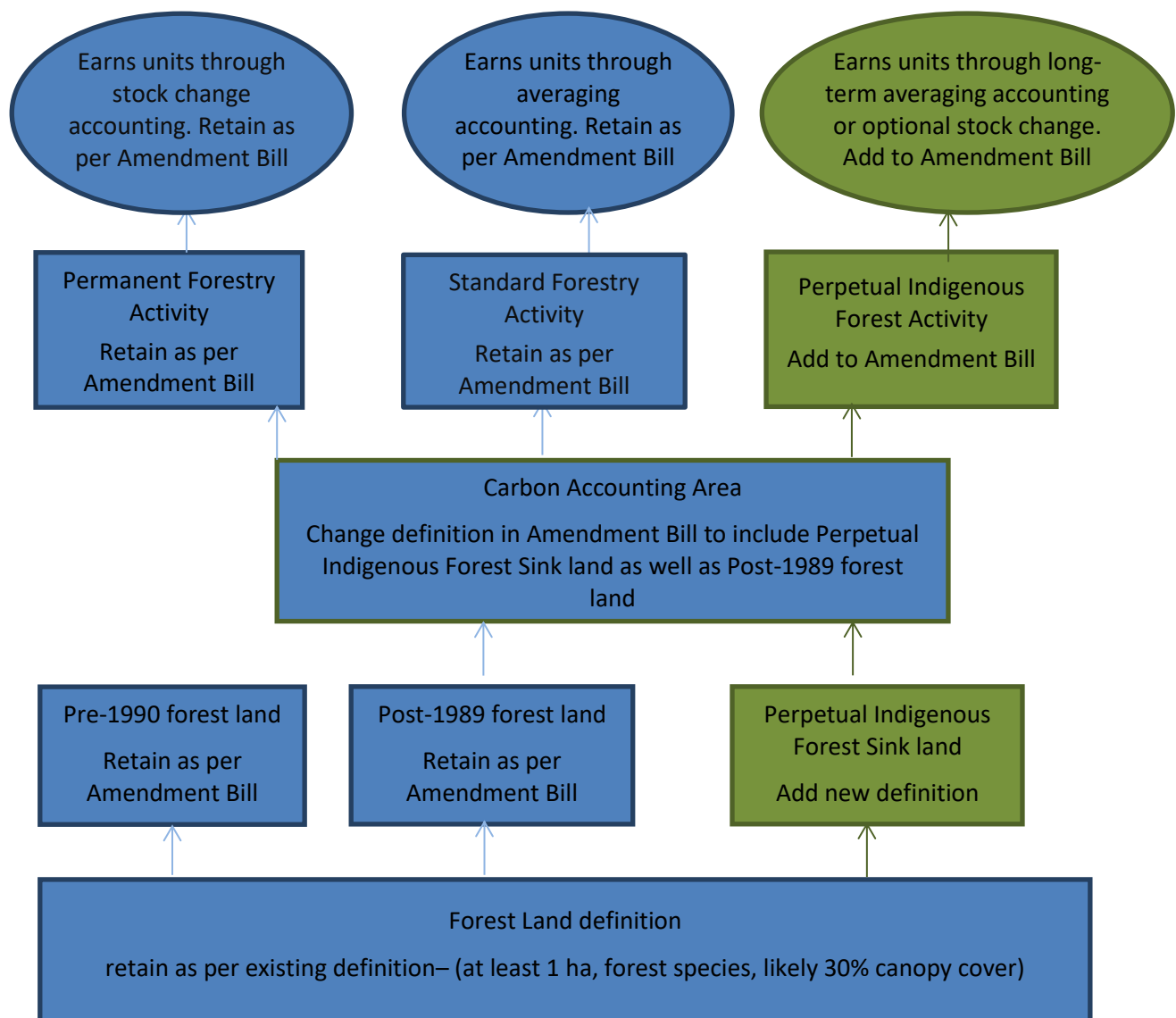
We set out only the main clauses that we believe need adjusting to introduce these concepts to the Act. We have not attempted to set out all the consequential amendments, nor the intricacies around such matters as temporary adverse events, land swaps and reconfiguring areas – some of which are likely not to apply to the new land definition.

We acknowledge and welcome input from the Select Committee, MPI and other submitters or groups in suggesting improved wording that would more effectively implement the matters sought in our submission.

A.1 Structure of changes proposed

The diagram below shows our understanding of the underlying structure of the Climate Change Response (Emissions Trading Scheme) Bill with the existing concepts in blue. The concepts added from this submission - the proposed Perpetual Indigenous Forest sink definition and activity – are in green alongside.

Figure 2 Structure of changes proposed to Amendment Bill



The definition of “Forest Land” setting out the underlying qualification and underpinning the Act remains unchanged. The land must be at least 1ha and contain forest species with a canopy cover or potential canopy cover over 30%. (Forest species are those that grow to at least 5m).

Built upon this are the two existing categories of Pre-1990 Forest land and Post-1989 Forest land. Currently only Post-1989 Forest land can underpin the Carbon Accounting Areas from which units are earned for removal (sequestration) of carbon.

Our proposals add a new forest land definition of “Perpetual Indigenous Forest Sink Land” to sit alongside the Pre-1990 and Post-1989 definitions. The new definition does not require a forest age to be established, but the land must be protected in perpetuity with a covenant on the title and must not be a steady-state forest at the time of registration. This means it will not apply to fully mature steady-state old-growth forest, but will apply to all post-colonial deforested areas that are re-growing as they will not yet have reached steady state.

The definition of Carbon Accounting Areas is then enlarged to include Perpetual Indigenous Forest Sink Land as well as the existing Post-1989 Forest Land.

The Amendment Bill has introduced two new forestry activities. These are Standard Forestry (which applies to harvested rotational forests) and the Permanent Forestry (which applies to both exotic and indigenous forests that may or may not be harvested). Our proposals add a third forestry activity of “Perpetual Indigenous Forest” that sits alongside these and is only applicable to Perpetual Indigenous Forest Sink Land.

Under the Amendment Bill Permanent Forestry has retained the existing FMA stock change approach for sequestration assessment and assignment of units. Standard Forestry has a new averaging accounting method developed.

Our proposal for the new Perpetual Indigenous Forest activity is that a simple new Long Term Averaging accounting method is applied as the default, with the option for participants to choose an FMA stock change approach. Both the Long Term Averaging and FMA stock change are to be further developed through scientific research and provision made for improvements to be introduced by way of Regulation based on the research findings.

The new Perpetual Indigenous Forest activity is therefore introduced without removing or changing any of the existing methods proposed for Standard or Permanent Forestry but sits alongside and uses common methods to the maximum extent possible.

Please note that the wording amendments suggested to introduce this below are:

- a best efforts basis but have not been drafted by professional legislators;
- indicate where existing sections or clauses are to be amended by using the numbering in the Amendment Bill; and.
- where new sections or clauses are required, indicate this with the use of XXX in the numbering.

A.2 Add Perpetual Indigenous Forest Sink land definition

Add the new definition into the amended Section 4 (Interpretation) along with the other revised and new terms listed in (2) and to the definition of Carbon Account Areas.

8.1.1 ADD to Clause 9 (2) Section 4 amended (Interpretation)

Perpetual Indigenous Forest Sink Land means forest land

- (a) *that is legally protected by way of covenant on the title in favour of a body approved by the Minister for Conservation under Section 77 of the Reserves Act 1977 or the Queen Elizabeth the Second National Trust Act 1977*
- (b) *consists predominantly of indigenous forest species meeting the definition of **forest land***
- (c) *or that is in transition from non-forest land to indigenous **forest land** under a land management plan encouraging natural successional indigenous vegetation*

(d) *has not yet reached steady state*

(Note that this definition is not constrained to pre 1990 or post 1989)

8.1.2 AMEND Clause 9 Section 4 amended (Interpretation) - definition of carbon accounting area
carbon accounting area means an area of post-1989 forest land *or perpetual indigenous forest sink land*

(a) that—

(i) is defined by a person who is registered, or has applied to register, as a participant under section 57 in relation to an activity of standard forestry or permanent forestry *or perpetual indigenous forestry*; and

8.1.3 REWORD 181 Section 195 amended (Notification of status of forest land)

(1A) (a) Add a new status of land

(iv) *perpetual indigenous forest sink land*

(1A) (b) Reword to – the following types of post-1989 forest land and *perpetual indigenous forest sink land*:

(iv) *land for which a person is registered as a participant in perpetual indigenous forestry*

A.3 Add Perpetual Indigenous Forest Activity

The following wording is suggested to introduce the rules for Perpetual Indigenous Forest activity alongside the other two new activities of standard and permanent forestry.

8.1.4 Reword Clause 171 New Section 186K inserted (Standard and permanent forestry on post-1989 forest land) amended to include perpetual indigenous forestry as follows:

Reword the title of 186K

186K Standard and permanent forestry on post-1989 forest land *and perpetual indigenous forestry on perpetual indigenous forest sink land*

Add to 186K (1) as follows:

***Perpetual indigenous forestry* means an activity listed in **Part 1AA** of Schedule 4**

8.1.5 REWORD Clause 173 Section 188 amended (regarding registration as a participant)

(1) In the heading to section 188, replace “in respect of post-1989 forest land” with “in standard, permanent or *perpetual indigenous forestry*”

8.1.6 ADD to Clause 205 Schedule 4 amended (to add Part 1AA Perpetual Indigenous forestry removal activities)

Part 1AA

Perpetual Indigenous forestry removal activities

(applies on and after the day after Royal assent for Climate Change Response (Emissions Trading Reform) Amendment Act 2019)

Any of the activities specified in Part 1 in respect of Perpetual Indigenous Forest Sink land, having chosen this Part (instead of Part 1A) to apply to the land.

8.1.7 RETITLE CLAUSE 188AA Removing registration as participant in standard or permanent forestry – add words or *perpetual indigenous forestry*

8.1.8 REWORD CLAUSE 188AA (4) A person who is a participant in standard forestry or permanent forestry or *perpetual indigenous forestry* -

**8.1.9 ADD to CLAUSE 188AA
(4) (a) add new section:**

(iii) a participant in perpetual indigenous forestry may remove land from any carbon account area of which the person is recorded as a participant

Note make consequential amendments to the “or” and “and” between subclauses.

8.1.10 ADD to CLAUSE 189AA (1) This section applies to a person who is a participant in an activity of standard forestry, permanent forestry or *perpetual indigenous forestry*

8.1.11 ADD to CLAUSE 189AB (1) This section applies to a person who is a participant in an activity of standard forestry, permanent forestry or *perpetual indigenous forestry*

**8.1.12 REWORD CLAUSES 191AA (1), 191BA to add perpetual indigenous forestry as follows:
*Restrictions for Perpetual Indigenous Forestry land***

with new clauses as appropriate to set up the activity such as (but not limited to):

8.1.13 NEW CLAUSE 19XAA Legal protection in perpetuity

(1) If a person becomes registered as a participant carrying out perpetual indigenous forestry in respect of any land, the land must be legally protected by way of covenant on the title in favour of a body approved by the Minister for Conservation under Section 77 of the Reserves Act 1977 or the Queen Elizabeth National Trust Act 1977 stating –

(a) the covenant is in perpetuity

(b) *the purpose of the covenant is to protect the indigenous flora*

(c) *the indigenous flora cannot be removed*

(d) *a management plan for the covenant area has been agreed between the covenanting body and the owner.*

8.1.14 NEW CLAUSE 19XAB Restriction on ceasing to be registered for perpetual indigenous forestry

(1) *The only ways in which a person may cease to be registered as a participant carrying out perpetual indigenous forestry in respect of any land are as follows:*

(a) *the person is exempted from this section by an Order in Council under section 60A:*

(b) *a person ceases to be a participant because of—*

(i) section 188AB (for a natural event that permanently prevents re-establishing a forest or land cleared for best practice forest management); or

(ii) section 194QC(2)(e) (for temporary adverse event land that becomes permanently affected land):

(d) *the registration is removed in accordance with section 19XAC (an exception requiring the Minister’s approval):*

8.1.15 **NEW CLAUSE 19XAC Minister may approve removal of land from perpetual indigenous forestry**

- (1) This section sets out an exception by which a person can cease to be registered as a participant carrying out permanent forestry *or perpetual indigenous forestry* in respect of any land (the removal of land), whether all or part of a carbon accounting area....

Note – this is not necessarily a complete list and consequential amendments are likely to be required.

A.4 **Provide Long Term Averaging accounting methodology**

The following wording is suggested to introduce the new Long Term Average for Perpetual Indigenous Forest activity

8.1.16 **RETITLE Clause 194FB Averaging accounting methodology for standard forestry**

8.1.17 **ADD NEW Clause 194FBX Long Term averaging accounting methodology for perpetual indigenous forestry**

- (1) *The object of long term averaging accounting methodology is to account for emissions and removals from an activity of perpetual indigenous forestry—*
- (a) by reference to the expected long-term average level of carbon stock of the land until steady-state forest is reached, rather than by reference to short term changes in the actual carbon stock of the land (as required by sections 63 and 64); and*
 - (b) in a way that achieves approximately the same result in the long term as would have been achieved using carbon stock change accounting but without the repeated measuring.*
- (2) *The number of units that a participant for a carbon accounting area (averaging) is entitled to receive, or is liable to surrender, is determined by reference to the expected long-term average carbon stock of the land over its life as a perpetual indigenous forest from the year of registration in the ETS until it reaches a steady-state.*
- (a) the methodology to determine what constitutes a steady-state for any particular forest is to be established by way of regulation once it has been determined.*

In general terms, the participant—

- (a) is entitled to receive New Zealand units for removals at a rate of 3 units per hectare per year (based on the national average) until such time as—*
 - i. a set of regional carbon tables for common forest types have been introduced by way of Regulation*
 - ii. if a participant has received excess units once the appropriate table for their region and forest type has been developed then apply the approach outlined by other sections in the Act (such as temporary adverse events) to catch up or pay out to make up the balance.*

A.5 **Powers devolved to Regulations**

8.1.18 **REWORD 194LA Regulations for averaging**

- (1)(a)(i) add the words how emissions and removals from an activity of standard forestry ***or perpetual indigenous forestry*** on a carbon accounting area (averaging *or long term averaging*) must be calculated and reported

A.6 **Enable PFSI activity to change to either permanent or perpetual indigenous forestry**

8.1.19 **REWORD New Schedule 1AA Clause 21 All PFSI activity is changed to permanent forestry or perpetual indigenous forestry in 2022**

Add 21 (2) (a)

- (a) *Any participant with forest land meeting the criteria of Perpetual Indigenous Forest land may apply to be in the Perpetual Indigenous Forestry activity category and if so the EPA must apply sections 194FBX*
- (b) The EPA must apply sections 194DA to 194DC as if the person had that day submitted an application in accordance with section 194DA to become a participant in a final activity of permanent forestry on the PFSI land;...

Appendix B Proposed changes to the Climate Change [Forestry Sector] Regulations 2008

This appendix contains our response to the Consultation Questions listed in A Better Emissions Trading Scheme for Forestry, Te Uru Rākau Discussion Paper No: 2019/01, and our suggested amendments to the current regulations to implement the Perpetual Indigenous Forest Activity and enable the path for regenerating native forest to register.

Again, we acknowledge that this is presented on a best efforts basis and welcome input from the Select Committee, MPI and other submitters or interest groups in suggesting improved wording that would more effectively implement the matters sought in our submission.

B.1 Responses to consultation questions

Our responses are based on the assumption that amendments or some form of the amendments we have suggested for the bill in Appendix A above have been included in the Climate Change Response (Emissions Trading Scheme) Amendment Bill.

Where we have not listed a question, then we have no comment to make.

Question #	Question Answer
19	<p><i>Are there any specific issues we should consider when applying existing Regulations to permanent post-1989 forests?</i></p> <p>The existing Climate Change [Forestry Sector] Regulations 2008 need to be altered to apply to the new activity of Perpetual Indigenous Forest. Please see section B.2 below for the list of changes</p>
28	<p><i>Determining the 100 hectare threshold for FMA. Which option do you prefer and why?</i></p> <p>Participants in the Perpetual Native Forest activity should be able to choose Perpetual Forest Long Term Averaging or FMA regardless of the size of their forest size. It should be their choice to pay for FMA measurement if they want to.</p> <p>The FMA sampling methods should be reviewed independently to improve consistency between measurements, reductions in errors and improved comparability among plots.</p>
29	<p><i>Would your choice of options change if the frequency of FMA information collection could be reduced for older forests – e.g., if collection were reduced to 10-year intervals for exotic forests over 15 years, or for indigenous forest over 25 years?</i></p> <p>No change should be made until the FMA has been reviewed and improved to remove its shortcomings.</p>
34	<p><i>Are there other options for application of the FMA that you think could be readily accessed by all FMA participants in the near future and should be considered?</i></p> <p>We need improved indigenous lookup tables that are applicable to different regions and common indigenous forest types described by Wiser et al. 2011. MPI should be grant funding test plots to develop these.</p>
35	<p><i>Which option for calculating NZU entitlement for a grant funded forest do you prefer? Why?</i></p> <p>We support that Perpetual Indigenous Forest activity should be able to receive grant funding and register in the ETS to incentivise this type of forest.</p>
41	<p><i>Exemption for adverse events -Do you support our preferred option (the exhaustive list)? Why or why not?</i></p>

	We support option 2 as climate change itself may bring about unforeseen events and this provides flexibility
63	<p><i>Do you support us updating the FMA Standard and FMA Information Standard to reflect changes in the Regulations, or to make the suggested minor and technical changes? Why or why not?</i></p> <p>We suggest the FMA needs to be overhauled to make it more workable, reasonable and consistent for naturally regenerating native forest</p>

B.2 Requested changes to the existing Climate Change (Forestry Sector) Regulations 2008

8.1.20 Add a new category for Perpetual Indigenous Forestry Participants

Perpetual Indigenous Forestry Participants

XXA Mapping information for perpetual indigenous forestry participants

As per Post-1989 forest land participants, the second column of Schedule 5 should apply.

XXB Collection of information by perpetual indigenous forestry participants

(1) *A perpetual indigenous forestry participant must collect and supply the following information in relation to each carbon accounting area*

(a) *Evidence of a covenant on the title in favour of a body approved by the Minister for Conservation under Section 77 of the Reserves Act 1977 or the Queen Elizabeth the Second National Trust Act 1977*

(b) *Evidence of land management plan associated with the covenant that is for the purpose of developing the indigenous forest land to a steady-state mature forest*

(c) *Evidence of land management in accordance with the land management plan*

XXC Calculation of carbon stock changes by perpetual indigenous forestry participants

(1) *If the participant has opted for the long term averaging methodology then*

(a) *Until such time as regional and common indigenous forest type tables are developed the carbon stock will be assumed at a default rate of 3 units per ha per annum*

(b) *As applicable regional and common indigenous forest type tables are developed – then the applicable table*

(2) *If the participant has opted for the stock change methodology then*

(a) *The new improved FMA to be applied as per Clause 20 for post-1989 forest land participants*

XXE Method for the development of tables for Regional and common indigenous forest types for long term averaging and for stock change

- *The regions are bio-climatic regions and need to be determined through research*
- *The common indigenous forest types are as listed in Wiser et al. and based on broad classes modified by species distributions, successions and bio-climatic regions through research*
- *Stock change is to be determined by the change in biomass since the last measurement*
- *There is not a need to determine the forest age. There is a need to determine when a forest has reached steady state*

- ***When a forest has reached steady state there are no more emission removals and therefore no more units payable***

Appendix C Banks Peninsula Information

This appendix provides supplementary information about Banks Peninsula and the opportunity for applying the proposed new Perpetual Indigenous Forestry Activity in this area.

C.1 Banks Peninsula Native Forest/Climate Change Group

The Banks Peninsula Native Forest/Climate Change Group is a collaboration amongst organisations and agencies with knowledge of, an interest in and/or responsibility for the protection and enhancement of native biodiversity and landscapes on Banks Peninsula. The group formed to address the difficulties that landowners are experiencing when trying to register naturally regenerating properties in the Emissions Trading Scheme. There are many landowners on Banks Peninsula seeking to register properties – both existing covenanted land and current pastoral land, and they are looking to our agencies for assistance.

We are grateful to Steven Cox and other MPI staff members for engaging with this group, making a site visit to Banks Peninsula in August 2019 and giving us a better understanding of the current constraints and opportunities.

Figure 3 Native Forest/Climate Change group and MPI staff visit Hinewai Reserve in August 23, 2019



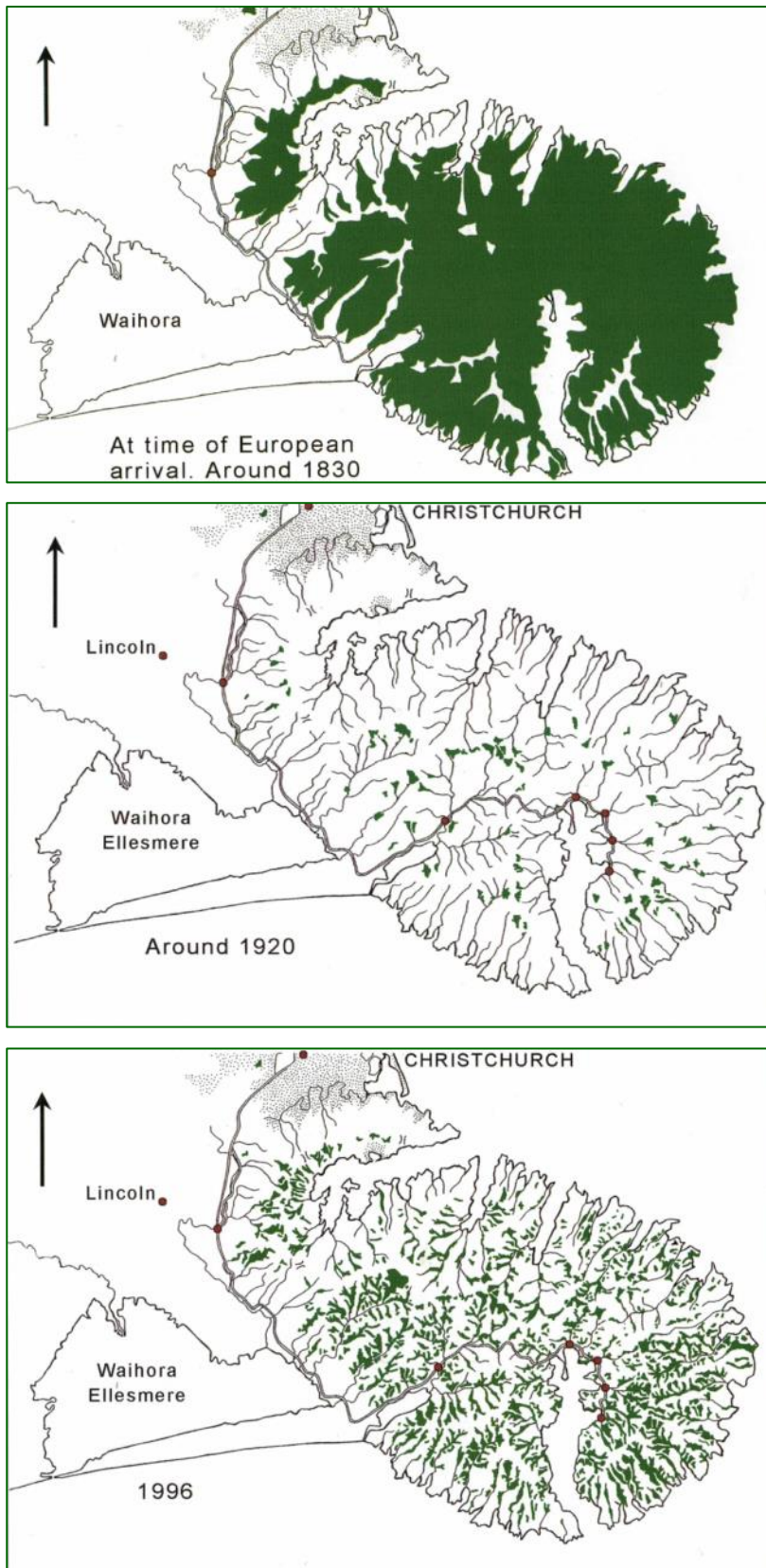
Pictured from left: Sophie Offner – Te Uru Rākau, Tom MacTavish –Department of Conservation, Larry Burrows – Manaaki Whenua/Landcare Research, Richard Simpson – Banks Peninsula Conservation Trust, Laura Molles – Christchurch City Council, Bryan Storey – Rod Donald Banks Peninsula Trust, Helen Greenep – Environment Canterbury, Hugh Wilson – Hinewai Reserve Manager Maurice White Native Forest Trust, Bob Webster - Rod Donald Banks Peninsula Trust, Bruce Hansen Maurice White Native Forest Trust, Alice Shanks – QEII National Trust, Steven Cox - Te Uru Rākau. Not pictured: Suky Thompson - Rod Donald Banks Peninsula Trust, Erin Flood - Te Uru Rākau

C.2 Deforestation and regeneration on Banks Peninsula

The following maps showing the original extent of native forest on Banks Peninsula, its lowest point after post-colonial deforestation and its recovery by 1996 are reproduced from Hugh Wilson's book "Plant Life on Banks Peninsula"¹¹. They are presented to indicate the extent of regeneration in the area.

¹¹ Wilson, HD, Plant Life of Banks Peninsula, Manuka Press 2013, p27-29

Figure 4 Indigenous deforestation and recovery on Banks Peninsula



C.3 Hinewai Reserve naturally regenerating forest example

Hinewai is an ecological restoration project in the south-eastern corner Banks Peninsula, privately owned by the Maurice White Native Forest Trust, and managed by eminent botanist Hugh Wilson.

The reserve started as 109 hectares purchased by the Trust in 1987. Since then the reserve has enlarged through several subsequent purchases and now occupies 1250 hectares and the Trust also looks after the adjacent 192 hectare Purple Peak Curry Reserve, owned by the New Zealand Native Forest Restoration Trust.

Figure 5 Progression of Regeneration at Hinewai Reserve



The images above demonstrate the success that Hinewai has experienced under Hugh Wilson's management, with establishing indigenous forest through natural regeneration including the progression through gorse. This has been achieved by a change in land management from pastoral farming to the complete exclusion of stock, including remaining feral stock, possum control and some weed control.

Figure 6 Hinewai Reserve visible on satellite image



The growth of vegetation over the entire Hinewai reserve is apparent from satellite images. The darker green area within the red circle extends to the boundaries of the Hinewai property and demonstrates the growth of vegetation taking place under this management regime.

Hinewai registered originally through the EBEX system and later has been in the PFSI. The credits generated from Hinewai attract a premium because they are widely recognised as coming from indigenous forest protected in perpetuity.

C.4 Similar properties seeking to register

Many other other land owners on Banks Peninsula would like to harness the power of nature in a similar way and change their land use from grazing to carbon farming, particularly on marginal land. However, experience with the current process confirms the perception that gaining entry for most properties is unlikely

Figure 7 Langer Reserve Le Bons Bay



The Josef Langer Reserve occupies 200ha of regenerating land in Le Bons Bay. Under the current rules most of this land is excluded as containing pre-1990 forest. An application to register 29.39ha into the ETS was declined on the grounds that MPI were not satisfied the areas were non-forest land at 31 December 1989.

¹² Map from Walking Access Management System on-line January 3, 2020. Sourced from the LINZ Data Service and licensed for re-use under the Creative Commons Attribution 4.0 New Zealand licence

Figure 8 Purple Peak Curry Reserve



Purple Peak Curry Reserve occupies 190ha of regenerating land above Akaroa. The land has been assessed but no application to register under the current ETS has been made because of concerns the application will be rejected for similar reasons.

Figure 9 Horseshoe Bay private land



Landowners at Horseshoe Bay on the southern side of Banks Peninsula battle to keep land gorse free by bulldozing and grazing with semi-feral goats. DOC would like to include this area in its goat eradication program, and the landowners would be prepared to change their land use from grazing to carbon farming if they could manage to register in the ETS, but under the current rules much of the land shown in this image is likely to be deemed as per-1990 forest and rendered ineligible. This is counterproductive to the NZ goals of biodiversity and carbon sequestration, and this practically unusable land is left in limbo.

C.5 Regenerating land under threat

Other landowners are also battling nature to retain marginal grazing areas on their land and halt the natural spread of regeneration. Once again this is counterproductive as steep land that could be sequestering carbon is instead used for methane emitting grazing.



The grey areas of bush evident in these examples of aerial sprayed regenerating land are an increasingly common sight on Banks Peninsula that could be halted if earning carbon credits through the ETS provided a viable alternative to grazing.