



Incentives for Forest Landowners



**Action for
Adaptation**

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Executive Summary

Context Setting

The Action for Adaptation Project is being delivered by UBC Botanical Garden, the Coastal Douglas-fir Conservation Partnership (CDFCP) and UBC Okanagan. The focus of this project is to support local governments and First Nations in southwest BC that are looking to accelerate how they mitigate and adapt to the effects of climate change by protecting, restoring, and creating nature-based solutions.

This report is focused on identifying gaps and opportunities to establish incentives for forest landowners. This project included:

- A Carbon Feasibility Assessment for private forest owners.
- A Carbon Feasibility Assessment for local government.
- Detailed conversations with forest landholders to understand their perspective on carbon offsetting and direct payments for ecosystem services.
- A survey of small private forest landowners to understand their perspective on carbon offsetting and direct payments for ecosystem services.

Carbon Feasibility Assessments

The Assessments identified that a grouped carbon project for small landowners and local governments would be possible with the following parameters:

- Follow Verra VCS group methodologies.
- Minimum of 300 ha, but preferably ≥ 400 ha of forested land eligible for carbon credits to provide a return while covering costs.
- Pursue avoided conversion methodologies rather than Improved Forest Management as landowners do not typically have evidence of a historic harvesting regime and implementation costs could be returned in 3 years rather than 7 years.
- Have an anchor project that can pull in smaller landholdings.
- The grouped projects should include similar forest types and past approaches to management.
- Landholdings joining a group project after the initial verification will have a shorter project duration to match the initial group project, which will impact on return.
- Develop tools to reduce start up costs as these remain a significant barrier to any project e.g. collective modelling.
- Seek funding to cover implementation costs and modelling.
- Clarify best practice in response to hazard trees, windblown trees, wildfire etc.

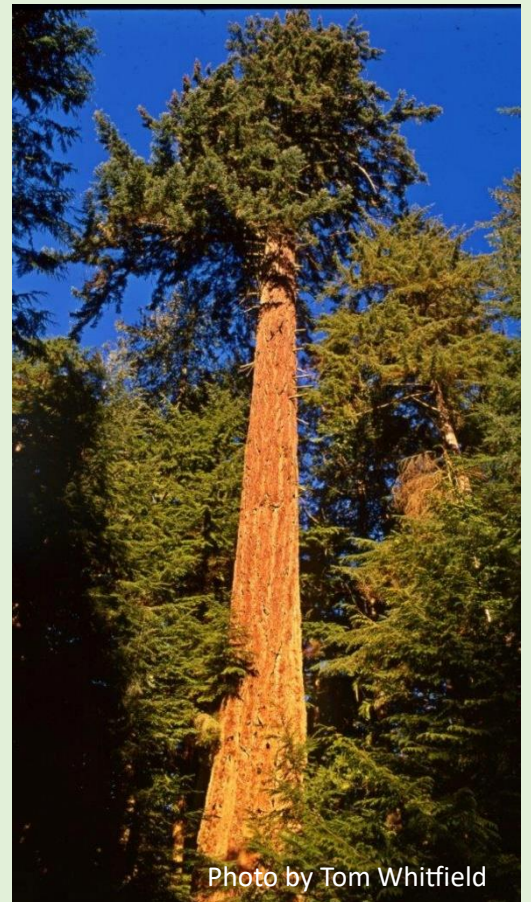


Photo by Tom Whitfield

Incentives for Forest Landowners

In-depth conversations and surveys were completed with forest landowners to understand what their concerns and drivers are in relation to the management of forests and subsequently what might incentivise them to retain their forested lands through to 2050 to help meet the Canadian target of zero net emissions.

- **Key drivers** for accepting incentives payments – biodiversity. Secondary drivers – next generation, carbon, water, urban cooling, cultural plants, income.
- **Key concerns** for forest landowners - tree dieback and wildfire resilience. Other concerns included windthrow and disease and pests.
- Incentives schemes should be 30 years or less. Shorter schemes could increase uptake.
- Landowners will contribute to start up costs if it makes sense financially.
- Small landowners do not typically have comprehensive forest management plans and inventories.
- Payments should be linked to work completed e.g. wildfire resilience or the ecosystem services provided.
- Seventy eight percent of landowners indicated they might support a local government tax increase (e.g. property tax) for an incentive to protect forests, depending on the level of the tax.
- Incentives should be simple, be easy to communicate and have a demonstration site.
- Guidance is needed on what to do following a natural event e.g. windthrow that impacts on carbon stores.

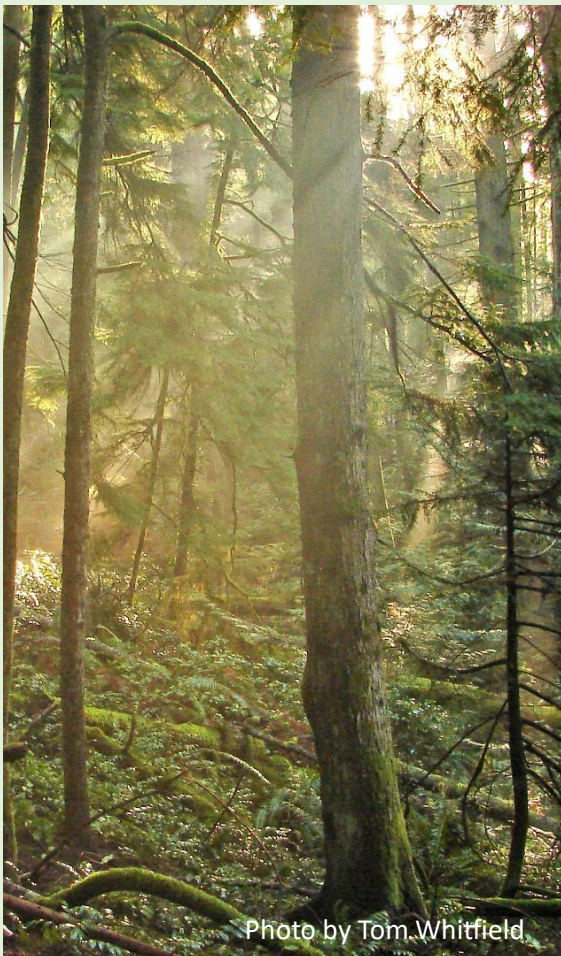


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Potential Approaches to Incentives for Forest Landowners

The following recommendations were provided by forest landowners.

- Inclusion of private landowners in the BC Government Community Wildfire Protection Planning (subject to privacy concerns).
- Public acknowledgement that a landowner is contributing towards forest protection.
- Education relating to forest management in a changing climate.
- Reduction in land tax for forests not in the Private Managed Forest Lands program.
- Payments for actions that lead to healthy forests e.g. wildfire management.
- A financially and logistically possible route of disposal of thinned timber, especially from the islands.
- Cooperative scheme for sharing equipment to undertake tree thinning.
- Cooperative scheme to help cover any start up costs for an incentive e.g. forest management plans, inventories, modelling etc.

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We would also like to thank the private landowners, the District of Metchosin and the Sunshine Coast Regional District for their interest and involvement in our review of carbon offsetting and its potential to provide revenue for the management and maintenance of forested ecosystems.

1 Introduction

The Action for Adaptation Project is being delivered by UBC Botanical Garden, the Coastal Douglas-fir Conservation Partnership (CDFCP) and UBC Okanagan. The focus of this project is to support local governments and First Nations in southwest BC that are looking to accelerate how they mitigate and adapt to the effects of climate change by protecting, restoring, and creating nature-based solutions.

To be able to protect, restore and create nature-based solutions local governments and First Nations must consider the following three routes of influence:

- Policy e.g. Official Community Plans and Land Use Plans
- Tools e.g. mapping, calculators etc.
- Incentives e.g. funding to undertake wildfire mitigation.

This report is focused on incentives for forest landowners and presents the results of four projects;

- Carbon Feasibility Assessment of four small private forest owners.
- Carbon Feasibility Assessment of two land parcels held by local government.
- Detailed conversations with forest landholders to understand their perspective on carbon offsetting and direct payments for ecosystem services.
- Survey of small private forest landowners to understand their perspective on carbon offsetting and direct payments for ecosystem services.

The purpose for undertaking these projects was to;

1. Identify barriers for small landowners entering a carbon offsetting project or direct payment for ecosystem services.
2. Identifying tools that a not-for-profit organisation or federal or provincial government could provide to enable forest landowners to enter existing incentives schemes e.g. carbon offsetting.
3. Explore new approaches to the delivery of incentives to private landowners for the protection of forest and other high carbon ecosystems.

1.1 Study Area

The study area for the Action for Adaptation project is indicated in **Figure 1** by the blue line boundary.

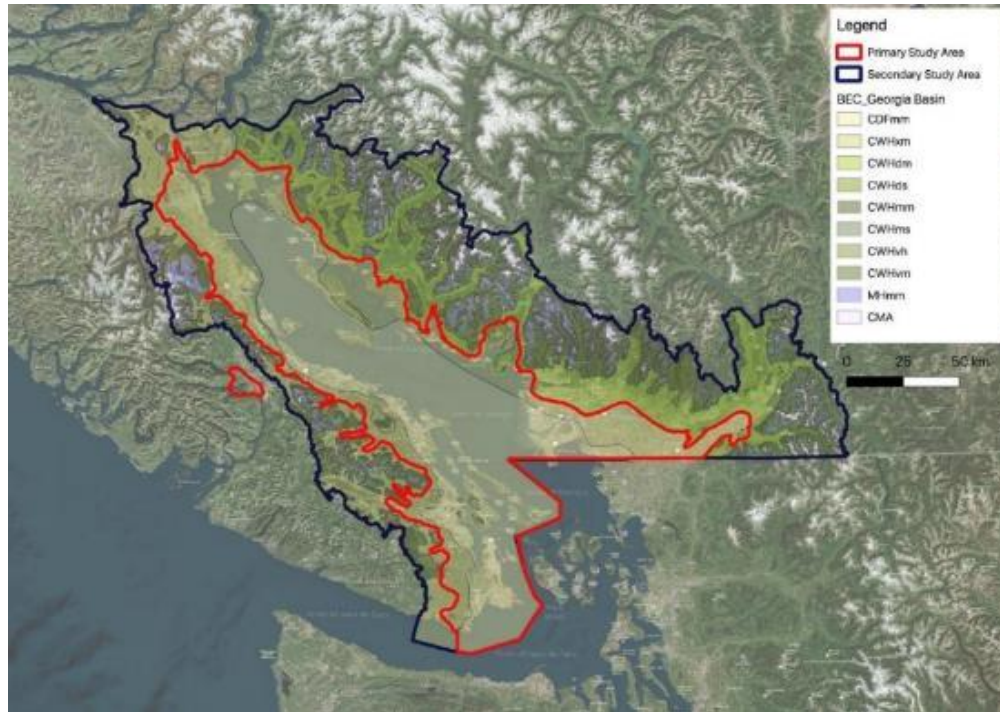


Figure 1. The red line boundary represents the CDFCP area of interest which includes the CDFmm and CWHxm1. The blue line boundary represents the Action for Adaptation boundary which includes the catchments that feed the ecosystems in the CDFmm and CWHxm1.

2 Gaps and Opportunities – Carbon Offsetting and Direct Payments

In 2022 and 2023 the CDFCP and UBC Botanical Gardens talked to local government and First Nations representatives (end users) and technical specialists to understand current opportunities and gaps in relation to carbon offsetting and other incentives.

The full report is titled [Incentives – Carbon](#), a summary of the comments shared are provided below.

Note: These comments may not represent the views of the CDFCP, they are views and opinions shared during the conversations.

Legislation and Policy

- Policy indicating how Atmospheric Sharing Agreements can be obtained on crown / public lands needs to be produced by the Ministry of Forests.

- Federal and provincial policies on Indigenous Protected and Conserved Areas (IPCA) needs to align with their carbon offsetting protocols to ensure that land held within an IPCA would meet the additionality¹ requirements of carbon offsetting.

Setting up a Carbon Project

- Remote sensing to quantify carbon is still in development and most carbon offset protocols require on the ground quantification of biomass / carbon, which is expensive.
- Lack of information relating to carbon offsetting is a limiting factor to landowners entering a scheme.
- Carbon offsetting projects are complex and expensive as they require the appointment of carbon developers and marketing consultants.
- The initial costs of starting a carbon project can be covered by a lump sum of back dated credits received when a project is verified. The start point of a scheme is when a proponent starts working towards verification rather than the point of verification.
- The duration (1, 30 or 100 years) of a carbon project selected is influenced by the type of landholding.
- Carbon developers are concerned that carbon offsetting schemes that require short term commitments will undermine the industry e.g. one year.
- Small landowners may prefer to enter an Improved Forest Management carbon project rather than Avoided conversion to provide them with the option to generate harvesting income.

Aggregate / Group Projects

- Group / aggregate projects can reduce the cost for new landowners entering a carbon project.
- The standardisation of Forest Management Plans is unlikely to reduce costs when setting up an aggregate carbon project as each site is different so requires a separate plan.

Project Viability - Credit Deductions

- The funds placed into a buffer pool can be significant for a project, but some standards allow some funds to be returned.
- Leakage (emissions move elsewhere) calculations are not standardised and can significantly impact on the viability of a project.

Project Viability – Tests to Meet

- Projects need to demonstrate that they have the right to sell the carbon stored and sequestered on a parcel of land.
- Projects need to be able to demonstrate that it will lead to a real carbon reduction (additionality) as a result of entering into a carbon offsetting project.
- Permanence (carbon removed is not released back to the atmosphere) is demonstrated through contract rather than a legal mechanism such as a covenant.

¹ Additionality is the evidence that the new management regime has led to a real reduction in GHG emissions that would not have occurred without the carbon project. For example if land is held as a provincial park there is no potential for the stored carbon to be released and therefore it does not meet the additionality test.

Project Viability – Indigenous Consultation

- First Nation consultation should be undertaken during the establishment of carbon offsetting schemes on all landholdings.

Carbon Pricing

- Co-benefits can increase the value gained from the sale of a carbon credit e.g. protection of old growth forest.
- It is difficult to quantify biodiversity gains delivered by land management practices whereas the quantification of carbon storage and sequestration and its connected market is well established.
- The quality of the carbon standards followed, and marketing effort will affect whether a carbon credit sells. Not all credits sell.
- Landowners are monitoring the carbon market waiting for the price to reach a point where there is a financial incentive (timber extraction followed by land conversion or timber extraction without reforestation).
- It is anticipated that the scale of the voluntary and compliance market will continue to increase as will the price of carbon.
- The economics of afforestation projects can be cost prohibitive because carbon sequestration is lower than carbon emissions until 15-20 year post planting, which means credits are not gained until that point.
- A common misunderstanding is that carbon offsetting encourages deforestation. This is not the case. The financial return from an afforestation project is delayed as a newly planted site is typically emitting carbon until the trees become established after 15-20 years. It is at this point that an afforestation project starts to generate income. Revenue is initially small and continues to increase as the trees age.
- Selling credits locally realises the principals of circular economy.

Compliance and Voluntary Market

- Prescriptive carbon methodologies can be advantageous as they make verification and auditing easier.
- A potential benefit of FCOP 2.0 is that it includes multiple methodologies e.g. afforestation, improved forest management and avoided conversion.
- A lack of consistency between protocols could hinder the market in the future as it could limit where credits can be sold in which market.

Potential Negative Outcomes of Carbon Offsetting

- A perverse outcome of carbon offsetting could be market leakage. If timber extraction reduces / stops in parts of BC it could enhance demand in other parts of Canada or the world.
- The establishment of carbon offsetting projects could have an impact on jobs within the local area.
- Active management is permitted under a carbon offsetting scheme, but it can be difficult to quantify the effect on carbon.
- Carbon offsetting can be viewed as green washing that organisations use to prevent making real reductions in emissions.

Incentives

- We need to increase financial incentives for private landowners to encourage protection of carbon stores outside of the carbon market.
- Working forest conservation easements developed in the US could be an example of how incentives could be developed in Canada.

3 Carbon Offsetting Feasibility Assessment – Small Landowners

3.1 Introduction

To understand the potential for small forest landowners to enter a group carbon offsetting scheme, on the south-west coast of BC, the CDFCP provided match funding to four private forest landowners to evaluate the carbon credit potential of their properties.

The four properties have a combined area of approximately 500 ha, and the sites are located on Vancouver Island and the Gulf Islands of BC. The properties are in the Coastal Douglas-fir moist maritime (CDFmm) Biogeoclimatic subzone and the Coastal Western Hemlock eastern extra dry (CWHxm1) biogeoclimatic zone.

The feasibility assessment completed by Zimmfor Management Services included:

- The completion of a timber assessment to determine the availability of merchantable standing timber.
- A description of the process for entering an existing group carbon crediting project.
- An estimate of the carbon credit potential of the properties; and
- A potential carbon project implementation plan.

A summary of the Zimmfor report is presented here.

3.2 Carbon Standard

Verra is a carbon certifier for voluntary carbon offsets². Verra administers the Verified Carbon Standard (VCS) for certifying carbon credits to offset greenhouse gas (GHG) emissions. This standard defines the rules and procedures to determine eligibility, additionality³ and baseline⁴ and project⁵ emissions for a particular project type⁶. At the time of writing, the active carbon projects in BC were either administered through Verra or the B.C. Forest Carbon Offset Protocol (FCOP) V1.0. FCOP V1.0 provides credits to the

² Voluntary carbon offsets are sold to companies that would like to reduce their carbon footprint but have no legal requirement to do so.

³ Additionality is the carbon benefit of a project – the amount of carbon emissions reduced or removed as a result of the project.

⁴ A baseline scenario is a projection of the changes to carbon on the site, over the project duration, in the absence of the project (e.g. woodland creation) going ahead.

⁵ A project scenario presents the reduction or removal of emissions as a result of the carbon project in comparison to the baseline.

⁶ Project type – Potential project could include avoided conversion, improved forest management or afforestation.

compliance market⁷, however, this standard is no longer active. The BC government finalised FCOP V2.0 in April 2024.

This feasibility study was focused on the potential for the small forest landowners to meet the requirements of a VCS methodology called VM0012 – Improved Forest Management in Temperate and Boreal Forests (LtPF). This methodology allows credits to be sold either through the voluntary or compliance markets. No commercial timber harvesting is permitted for the duration of the project; however, low levels of harvesting can occur to maintain the health of the forest. The duration of a project administered through VCS is typically 40 years.

The feasibility assessment assumed that the four properties would be entering into an existing group carbon project. This assumption was made as the cost of implementation e.g. registration with Verra, forest management plan development, forest inventories, validation etc. would exceed the revenue from the carbon credits generated by the individual properties.

3.3 Data Required for Carbon Modelling

To be eligible to enter a VCS VM0012 carbon project a landowner needs to:

- Demonstrate they have legal rights to the trees.
- The project area must be in the Temperate and Boreal Domain Global Ecological Zone.
- Illegal, unplanned or firewood removals must be less than 5% of the total annual harvest levels at the start of the project.
- The properties can't include managed peatlands.
- The extent of wetlands can't change because of the carbon project.
- The properties need to demonstrate that there is no leakage of harvesting from the project site to another owned by the same landowner.
- The project must meet the VCS criteria.

To be able to undertake the modelling that will determine the number of carbon credits a project will produce the following information would be required:

- The total forested and non forested area where the forest landowner can operation (total area).
- The area that is forested and available to harvest excluding areas such as roads, riparian areas, covenants etc. (forested area).
- Description of past and future uses of the forested land without the carbon project e.g. deforestation, reforestation.
- GIS data indicating total area, forested area and prominent landscape features such as roads, waterbodies, covenants etc.
- Volume (m³) of timber to be typically harvested within the project area without a carbon project.
- Description of the use of harvested timber e.g. percentage converted into lumber and pulp⁸.
- Description of tree species and their associations.

⁷ Compliance / regulatory markets are usually linked to a cap-and-trade scheme where industries have a regulatory requirement to reduce their emissions. However, it is understood that this can take time so carbon credits provide a means of offsetting their emissions e.g. polluter pays.

⁸ Harvested Wood Products – the models take into consideration that carbon is stored in wood products for a period of time and this is taken into consideration in the carbon models. Thinning and similar treatments would be included in harvested wood products calculations.

- Timber volume per hectare (m³/ha)
- Average mean annual increment (m³/ha/yr) for forested areas. This relates to the amount of anticipated tree growth per annum.
- Growth curves for each stand type. These can be single species or mixed. If mixed, then the curve is based on the dominant overstorey species.
- Any forest stand data held by the owner describing species, height (m), diameter at breast height (DBH (cm)), site index⁹ etc.

VCS VM0012 methodology is for reducing harvesting in forests that are under active and planned forest management, therefore, landowners should have the information listed above available. In addition, the managing body of the group project may hold this information, collected when they originally registered the group project with Verra.

VCS VM0012 methodology stipulates requirements for the type of carbon model used. The standard for BC is the Carbon Budget Model of the Canadian Forest Sector (CBM-CFS3). This model is used for national carbon reporting in Canada.

3.4 Monitoring to Predict Carbon Removals / Emissions Reductions

The landowner will be responsible for developing a monitoring protocol that will assess forest conditions through the lifespan of the carbon project. The landowner will need to annually monitor any land cover changes that occur naturally or through human activities that are greater than 4 ha. The cause of these instances will need to be determined and the mapping updated. Forest plots will also need to be established. These will enable the landowner to demonstrate the amount of stored carbon they have in standing and dead organic matter. This information will be fed into the modelling to confirm that predictions were accurate.

3.5 Carbon Credit Generation

Carbon credits (Verified Carbon Units) are generated from the reduced or avoided emissions that occur because of the project scenario (no harvesting) when compared to the baseline (commercial harvesting regime). A key requirement of any carbon project is the demonstration of additionality. Additionality is the evidence that the new management regime has led to a real reduction in GHG emissions that would not have occurred without the carbon project.

3.6 Reductions in Carbon Credits

Verra VM0012 requires landowners to assess potential risks and uncertainties to the carbon project, which could mean that the GHG reductions predicted by the carbon models do not occur.

- Buffer pool (non permanence) – There is a risk that the predicted carbon reductions may not occur due to illegal logging, windblow, tree dieback, fire etc. Verra provides tools to assess this risk and a project must place credits into a buffer pool to reflect the level of risk e.g. wildfire risk in the interior would be higher than on the south-west coast of BC. The group scheme that was the focus of this feasibility assessment has a risk rating of 19%, which is determined by location and knowledge of past threats.

⁹ Site index (SI) is a measure of potential site productivity – the capacity of an area of land to grow trees of a given species

- Leakage – this is when a carbon project results in harvesting elsewhere within the land owned by the landowner (activity shifting leakage) or when a carbon project causes an increase in demand or production elsewhere (market shift leakage). The group scheme that was the focus of this feasibility assessment has a market leakage reduction factor of 10%.
- Uncertainty – this reduction factor is to adjust for any errors that might have occurred during the forest inventory, estimates of growth rates, modelling etc. The group scheme has an uncertainty reduction factor of 1.5%.

Therefore, a project entering the group scheme would need to remove 30.5% of the credits from the total predicted by modelling, to consider the risks and uncertainties.

3.7 Entering an Existing Group Carbon Project

To enter an existing group carbon project the landowner would need to ensure that they meet the requirements of VCS VM0012 and of the organisation managing the group project. New properties will be added as a new Project Activity Instance (PAI). PAIs can be added to a group project once initial validation is complete.

Section 2.3 lists some of the requirements of VCS VM0012. Other requirements for the addition of a new PAI will include:

- It must occur within the geographical area specified by the group project.
- It will be included in the monitoring reporting of the group, so must meet the group monitoring protocol (including technology and measures).
- It will be added to the group project description at the time of verification.
- It must have a start date that is the same or later than the group project.
- It is only eligible for carbon credits in the verification period they are added.
- It can not have been enrolled in a previous VCS project.
- It must meet the same baseline scenario described by the group project.
- It will have similar characteristics in relation to risk compared with the group project e.g. additionality, leakage, uncertainty.

The group project that is the focus of this assessment has chosen to obtain an additional certification under Verra’s Sustainable Development Verified Impacts Standard (SD Vista). This is a marker for the sustainability performance of the lead organisation, and it means that the SD Vista label is added to the credit potentially resulting in the credit being sold at a higher price than one without the label. The assessor has not recommended that new properties pursue the SD Vista certification due to the additional financial resources required.

3.8 Feasibility Assessment of Four Small Forest Landholdings

A carbon developer undertook a site visit to each of the properties in 2023/24 to determine their suitability for the group project. The combined area of the four properties was approximately 500 ha of which the assessor determined approximately 340 ha supported merchantable forest. Subsequently the volume of merchantable timber was calculated¹⁰. The volume was determined by;

- Removing stands with operational constraints e.g. inaccessible for harvesting.

¹⁰ Volume merchantable timber has not been shared in this report as this information is considered commercially sensitive.

- Removing polygons where timber volume was <math><150\text{ m}^3/\text{ha}</math> (minimum merchantable threshold).
- Removing riparian areas and fish sensitive zones.
- The extent of mature forest in relation to area that are pre-harvest.

To calculate carbon credits the following assumptions were followed:

- The group projects baseline harvesting rate would be the same for joining landholdings.
- The baseline is modelled using Woodstock or a similar timber supply model.
- Timber harvest would occur on a 75-year rotation period with 3-year harvest entry period.

The site visit and subsequent assessment determined that of the available merchantable timber volume 53% would be eligible for carbon credits. To generate credits the new landowners would need to go through the verification and validation process and then credits would be issued every three years following the completion of an audit. A summary of the process to attain verification and validation is presented in **Appendix A**.

The financial appraisal which looked at adding the four forest landowners to an existing group project estimates the initial sales price of carbon credits in 2024 to be between \$25-30. The assumption is that this price will increase over the project period (35 years) based on current demand and regulatory targets to reduce GHG emissions (e.g. potentially \$40-50 by 2034).

A marketing body will be required to sell the credits, and this would cost between 6-11% of the revenue generated by the credit.

There are activities that the landowners of the carbon projects would need pay for though the life of the project to maintain verification and generate credits. A summary of these activities is presented in **Table 1**.

These costs equate to 30% of the revenue generated through the lifetime of the project (35 years) (costs are similar to those presented in **Section 4.4.1 Table 5**). However, the costs are higher at the beginning of the project due to initial costs of carbon modelling; equipment; staffing; reporting; verification etc. Therefore:

- at the point of issuance of the first round of credits (Year - 2025) the landowners would be at a financial deficit.
- at the second issuance of credits (Year – 2028) the predicted revenue would exceed the costs but would not be sufficient to cover the project maintenance costs until the third issuance of credits (Year – 2031).
- at the third round of credits (Year 2031) predicted revenue would cover costs to next issuance of credits (Year 2034) and provide an income to the landowners.

Therefore, it would take seven years until initial costs and project maintenance costs were repaid / exceeded and an income was received by the landowners.

Table 1 List of activities that landowners must pay a third party to complete to generate carbon credits.

Activity
Implementation costs (VCS)
Project maintenance fee
External auditor
Verra credit issuance fee
Forest inventory contractor
Travel expenses

3.9 Conclusions

The Feasibility Assessment indicated that if the four landowners were to enter the existing group carbon project as a collective then they would generate carbon credits every three years after initial verification in 2025, for the life of the project (2063).

However, due to initial start up costs in 2024/5 and the costs of maintaining the carbon project the landowners would be at a financial deficit until 2031. In 2031 the predicted revenue from the carbon credits are predicted to cover the costs of project maintenance to the next issuance of carbon credits (2034) and provide a positive financial return to the landowners for the period 2032 till 2063.

The advantage of the four landowners entering the group carbon project together is that the start up and maintenance costs are shared between the four landowners rather than everyone incurring this cost individually. However, the costs still pose a significant hurdle to entering a carbon project.

One of the potential drivers for landowners with forested land in south-west BC entering a carbon project is to assist the Canadian governments reach its objective of net zero GHG emissions by 2050, while providing an income to each of the landowners to enable them to undertake maintenance works on their property e.g. removal of hazard trees, clearing paths, fire smart works, or to meet other financial needs. The landowners and their descendants will maintain control of the forest for the duration of the carbon offsetting project.

The retention of mature trees will also provide ecosystem services in a changing climate through water retention, urban cooling, and biodiversity.

The group project that was the focus of this Feasibility Assessment is currently the only active carbon project that small landowner (<1000 ha) could enter during its next verification and validation period (2024/25).

4 Carbon Offsetting Feasibility Assessment – Local Governments

4.1 Introduction

In December, 2023, the CDFCP engaged ClimeCo to undertake a feasibility assessment to determine the potential for developing a grouped carbon offset project on the south-west coast of BC focusing on local government landholdings.

The goals of the assessment were to:

- Assess the viability of a carbon project on land held by the District of Metchosin and the Sunshine Coast Regional District. This assessment considered additionality, economic feasibility, and potential returns.
- Evaluate implementation costs of a grouped project in relation to carbon revenue.
- To provide guidelines for local governments regarding the eligibility criteria for aggregated carbon projects.

The ClimeCo Feasibility Assessment did not include a site visit or a detailed analysis of inventory data. Therefore, the estimates of carbon credits presented may change following further assessment e.g. identification of in accessible areas for harvest, riparian areas etc.

4.2 Carbon Standard

The Feasibility Assessment presents an overview of four potential routes to register an aggregate carbon project in BC:

- **Verra** administers the Verified Carbon Standard (VCS) for certifying carbon credits to offset GHG emissions. Once credits have been certified, they are issued through the registry as Verified Carbon Units (VCUs). VCUs can be sold through the compliance and voluntary carbon market. There are three Improved Forest Management (IFM) projects registered under the VCS program within Canada, and two in BC. There are eight projects going through the validation process.
- **BC Forest Carbon Offset Protocol (FCOP)** - FCOP v1.0 was withdrawn from use in 2015, and v2.0 was finalised in April 2024. Therefore, new projects have not yet been developed under the new protocol. FCOP v1.0 projects include the Great Bear Forest and Cheakamus Community Forest. The focus of this protocol is to generate carbon credits for the compliance market. This protocol will be linked to a cap-and-trade scheme designed to encourage the reduction of GHG emissions. The draft protocol does allow for aggregate projects.
- **American Carbon Registry (ACR)** – most of the ACR protocols are only applicable to the US, although there is an IFM methodology specifically for Canadian Forestlands. Aggregates are allowed under the IFM methodology, but the methodology advises against aggregating multiple forest types. There are currently no active project in BC.
- **Climate Action Reserve (CAR)** – this registry operates for the voluntary market and for California’s compliance cap and trade program. There are currently no active projects in BC.

As indicated in **Section 2.2** of this report Verra VCS is the most likely route for a group project to be registered in BC.

4.3 Estimating Carbon

The Feasibility Assessment looked at an area of forested land owned by the District of Metchosin (Study Area 1) and two adjacent parcels of land owned by the Sunshine Coast Regional District (Study Area 2). The assessment was desk based. A detailed forest inventory was not available for either site, so the assessment was based on the Vegetation Resource Inventory (VRI).

- Study Area 1 – comprises 46 ha of secondary growth forest that is currently zoned as Commercial Recreation 2 and 3 which would allow subdivision. Adjacent land in Langford has been cleared for residential and industrial development. The forest is Douglas-fir/ dull Oregon-

grape (*Pseudotsuga menziesii*/*Mahonia nervosa*) which is part of the Coastal Douglas-fir (CDFmm) Biogeoclimatic subzone.

- Study Area 2 – comprises 113.4 ha of secondary growth forest that was harvested between 60-120 years ago. Part of the site has been used for gravel extraction. The land is currently zoned for residential and industrial subdivision or resource use. The stand is dominated by Douglas-fir and western hemlock, with a deciduous component primarily of red alder and big leafed maple. The land is in the Coastal Western Hemlock (CWHxm1) Biogeoclimatic zone.

The baseline scenario is the hypothetical description of what the most likely land management on the site would have been in the absence of the carbon project (business-as-usual).

- Study Area 1 – taking into consideration current zoning and surrounding land uses the most likely baseline scenario would be that the forest is cleared for commercial recreational facilities such as a golf course, campground, riding stables etc.
- Study Area 2 – taking into consideration current zoning and land uses the most likely baseline scenario would be timber harvesting in conjunction with wood processing. This land may then be replanted or developed.

The project scenario assumes that the Sunshine Coast Regional District and the District of Metchosin will retain and protect the existing forest over the duration of the carbon project (at least 20 years). Under this scenario, the forest would continue to grow and sequester additional carbon in biomass and coarse woody debris. This assumes no significant unplanned forest clearing but does not preclude activities such as trail development; removal of danger trees; wildfire management works or other uses that do not materially affect the total forest carbon stocks.

Carbon modelling was undertaken to understand how the baseline (clearing/harvesting) and project (no harvesting) would impact on carbon sequestration dynamics. The annual change in carbon storage in the baseline was subtracted from the associated value in the project scenario to calculate the net CO₂e at each Study Area.

Deduction from the net CO₂e were then made for harvested wood products which provide a temporary store of carbon (10%) and uncertainty and leakage (15%) (**Figure 2**). Deductions totally 25% (**Section 2.6** Zimmfor indicated a total reduction of 30.5% for their existing group project). **Table 2 and 3** presents the predictions for credit generation for Study Area 1 and 2.



Figure 2 Carbon credits are based on the difference between baseline and project carbon emissions. Image provided by ClimeCo.

Table 2 The annual net CO₂e /VCU in Study Area 1 (46 ha).

Year	Project Annual Change in Tot C (t)	Baseline Annual Change in Tot C (t)	HWP (t C)	Uncertainty & Leakage Discount (t C)	Net benefit (t CO ₂ e) or VCU
0					
1	84.2	-2,140.0	141.8	312	6,490
2	89.6	-66.8	0	23	488
3	86.2	-45.6	0	20	411
4	91.6	-24.6	0	17	362
5	88.2	-14.8	0	15	321
6	78.4	-12.8	0	14	284
7	89.9	3.0	0	13	271
8	80.1	1.4	0	12	245
9	80.9	6.7	0	11	231
10	96.7	22.4	0	11	231
11	82.6	15.3	0	10	210
12	83.4	18.7	0	10	201
13	88.5	25.1	0	10	198
14	84.9	24.7	0	9	188
15	85.6	27.2	0	9	182
16	86.3	29.6	0	9	177
17	87.0	31.7	0	8	172
18	87.7	33.7	0	8	168
19	88.4	35.6	0	8	164
20	89.0	37.3	0	8	161

Table 3 The annual net CO₂e /VCU in Study Area 2 (113.5 ha).

Year	Project Annual Change in Tot C (t)	Baseline Annual Change in Tot C (t)	HWP (t C)	Uncertainty & Leakage Discount (t C)	Net benefit (t CO ₂ e) or VCU
0					
1	174.5	-3,801.8	256.5	558	11,593
2	175.1	-125.0	0	45	935
3	189.1	-67.1	0	38	799
4	176.7	-43.2	0	33	685
5	186.9	-11.7	0	30	619
6	176.7	-1.7	0	27	556
7	195.7	26.0	0	25	529
8	181.6	26.0	0	23	485
9	182.9	35.5	0	22	460
10	191.1	48.7	0	21	444

Year	Project Annual Change in Tot C (t)	Baseline Annual Change in Tot C (t)	HWP (t C)	Uncertainty & Leakage Discount (t C)	Net benefit (t CO2e) or VCUs
11	193.2	56.2	0	21	427
12	175.1	47.7	0	19	397
13	196.7	68.4	0	19	400
14	138.7	28.9	0	16	342
15	136.8	31.1	0	16	330
16	133.5	31.8	0	15	317
17	114.3	20.3	0	14	293
18	114.2	22.8	0	14	285
19	111.8	23.4	0	13	276
20	98.1	15.3	0	12	258

4.4 Estimating Costs and Revenue

4.4.1 Costs

The final part of the feasibility analysis involved estimating costs associated with implementing forest carbon projects within the designated study areas. A comparative analysis was conducted to evaluate the viability of running these projects independently versus adopting an aggregate approach, potentially supported by an anchor project.

There are costs associated with establishing and maintaining a carbon project and these need to be taken into consideration when determining the viability of a project **Table 4** provides a summary of these costs.

Table 4 Summary of start up and maintenance costs.

Activity	Description	Approximate Costs
Project Development	Carbon modelling; equipment; staffing; reporting; verification.	Year 1 = \$140,000 Year 2 = \$105,000 Year 3-20 = \$70,000 per annum
Forest Inventory	Field work, data analysis, reporting.	\$97,000 Dependent on parcel size.
Validation and Verification	Third party audits, certification fees and documentation.	\$70,000 – 110,000 Per verification event which occurs once every three years.
Registry Fee	Cost for registering a project with a relevant carbon registry.	\$700
Issuance Fee	For each carbon credit there is a fee.	\$0.25 per credit (VCU)

A group project can share many of the costs listed above, rather than each member of the group incurring them individually.

4.4.2 Revenue

The assessment looked at the financial viability of each of the study areas being taken forward as an independent avoided conversion carbon project. It considered their financial viability if combined and the point at which the size of a group project is likely to make a positive financial return.

The revenue projections indicated that the carbon credits generated by each of the study areas or in combination (150 ha) would not result in a positive financial return due to the costs incurred to establish and maintain a carbon project. However, the modelling does show that when a group of land parcels reaches 300-450 ha it starts to become financially viable (**Figure 3**).

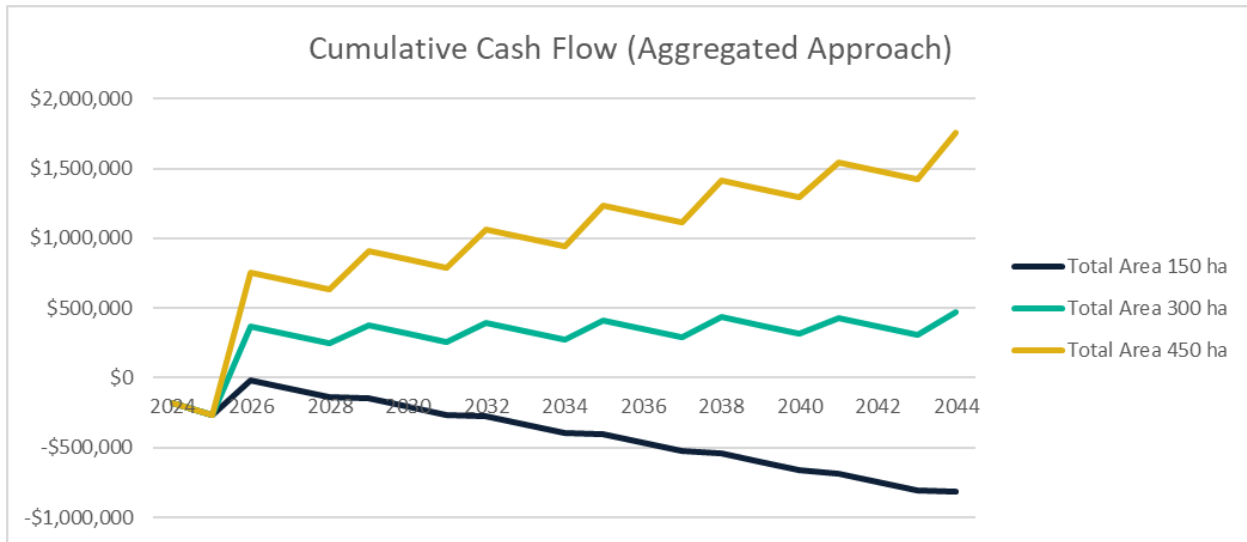


Figure 3 Cumulative cash flow under group approach with the projected addition of new project sites.

Figure 3 illustrates that with a carbon project where credits can be generated from 300 ha of forest that the financial gains during each issuance only slightly exceed the costs of maintaining the project, while by 450 ha the revenue at the start of the project and during subsequent issuances of credits provides a steady return. It should be remembered that this modelling is completed on the assumption that the value of credits will increase with time. A 300 ha project may struggle financially if the value of a credit does not increase at the rate predicted but the cost of maintaining the project continue to increase as predicted.

The Carbon Feasibility Assessment completed by Zimmfor and ClimeCo differs in their methodology and subsequently the generation of credits, which significantly impacts on cashflow and potentially the viability of a project.

ClimeCo's approach of avoided conversion results in a large output of credits at the start of the project because carbon was not released due to harvesting. It should be noted that the output of credits at the start of the project was because of the assumption (the baseline scenario) that 25% of the study area would be cleared (whole tree harvest, stump removal, removal of coarse woody debris) at once. The output of credits would lower if the assumption (baseline scenario) was that forest clearance spanned a couple of years (e.g. 25% is cleared but at annual rate of 10%). Likewise, the output of credits would potentially increase if 50% or 75% clearing was assumed.

The revenue generated for the remainder of the project period is less than the first issuance of credits. The credits for the remainder of the project period will mainly occur due to the protection of below ground biomass (**Table 3 and 4 – VCU and Figure 4**).

The advantage of this approach is that the high costs of implementation are covered early in the project and provides funding for the maintenance of the remainder of the project.

The Improved Forest Management approach taken by Zimmfor is focused on sustainable forestry. Therefore, it is preventing timber extraction that would be occurring on a three-year cycle. Therefore, payment of credits is more consistent for the project period, but it also means that it takes seven years for the project to reach a point where it the revenue exceeds initial start up costs and subsequent maintenance cost.

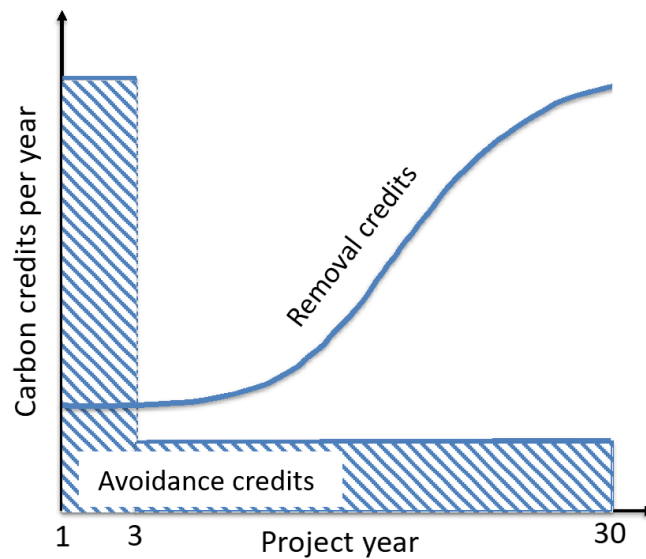


Figure 4 The annual flow of carbon credits over a 30-year period from a carbon removal project activity e.g. planting trees in a reforestation project or enrichment planting in a IFM project, and avoidance project activity e.g. forest cover loss is avoided.

4.5 Conclusion

The Feasibility Assessment concludes that individually or grouped the two parcels that were the focus of the study were not large enough to be financially viable as carbon projects, but the assessment does indicate that an aggregate of 300 ha or more will provide a positive financial return, with a baseline of 25% forest clearance.

The main benefits of a group project are:

- Reduction of transaction costs, investment risks, and uncertainties for individual participants.
- Faster approval process as many instances can be validated at the same time.
- Broader access for smaller landowners that might not have a feasible carbon project on their own.

- Emission reductions can be continually increased post-registration by adding instances later.
- Support different project activities with significant co-benefits, particularly at the social level.

The Feasibility Assessment includes guidelines on the establishment of a group carbon project by a local government or a not-for-profit organisation in south-west BC. A key step for starting a group project will be developing a build out strategy which considers maximising return while ensuring that project risks are kept to an acceptable level. The easiest way to establish a group carbon project is to have an anchor project from which others can join (**Figure 3**). It should be noted that new projects can be added after the group project has begun.

Based on the information obtained during the two feasibility studies (**Section 3 and 4**) it appears that a grouped avoided conversion carbon project may provide small landowners with an option that will ensure that initial start up costs are repaid within a three-year period. However, there are a couple of considerations that require further investigation:

- It is unlikely that all of someone's landholding will be eligible for carbon credits as an essential test that must be applied is additionality. If trees could never be extracted due to ground conditions or other constraints, then they are not eligible for carbon credits. Therefore, to achieve 450 ha of land that is eligible for carbon credits the total landholding is likely to be larger.

It should be noted that the baseline scenario followed by ClimeCo assumed that only 25% of the land holding would be cleared. If the threat of clearance is greater e.g. 50% then the extent of the grouped landholding may be smaller than 450 ha to be financially viable.

- Further clarification would be required in relation to the extent of works that can be undertaken in relation to an IFM and avoided conversion project. Both Feasibility Assessments indicate that all harvesting would stop, but both also indicate that maintenance works and path creation can also continue. Considering concerns around wildfire and the desire for active management of forests further clarification would be needed in relation to what works could be undertaken.

5 In depth Conversations with Forest Landowners about Incentives

In February-April 2024 the CDFCP undertook in depth conversations with seven private forest landowners. The purpose of the conversations was to explore how private landowners viewed potential financial incentives focused on the protection of forested lands, such as carbon offsetting and direct payments for ecosystem services. The conversation questions were designed to investigate the drivers that may encourage a private landowner to apply for a financial incentive rather than develop or harvest their property.

5.1 Characterisation of the Forest Holdings

The landowners who took part in the in-depth conversations had forested lands between 150 -500+ acres. The forest is typically second growth coastal Douglas-fir forest (CDFmm) or Coastal Western Hemlock (CWHxm1) with trees that range from 30 - >150 years old. Two of the landowners indicated that their landholding had been impacted by wildfire.

- 80 ha mature second growth coastal Douglas-fir forest, felled in the 1860s (>150 years old).
- 60 ha of young forest, replanted in 1999 and 400 ha woodlot (75-80 years old).
- Multiple forest landholdings on Vancouver Island, often bought post timber extraction and replanted.
- 200 ha of second growth coastal Douglas-fir forest, which has historically been impacted by fire (80-100 years old). Small area logged in the last 10 years.
- 70 ha on two land parcels. Some of it was logged 30 years ago and some of it was logged 60-70 years ago.
- 70 ha of second growth of coastal Douglas-fir forest between 60-80 years old with pockets of mature growth from 135-185 years old.

5.2 Carbon Offsetting

When did you start thinking about carbon offsetting?

- There was pressure to harvest the forest as it was seen to be an asset / resource and it was considered there was a risk it could be lost if impacted by wildfire.
- I started to hear about carbon offsetting in 2005 through the Private Managed Forest Lands (PMFL) Association. Consultants would come and present on the concept but there was never any detail with the information.
- We looked at carbon offsetting as a small landholder and decided that it would not provide a good return on investment. Carbon credits has been a murky area and it's been abused.
- About eight years ago I put in a bid on another woodlot. I thought it was too young to harvest and therefore thought about carbon offsets.
- I have learned about carbon offsetting from my own reading in the local papers and from the presentations from carbon projects.
- I have known about carbon offsetting for a long time, over 20 years, but it has never made sense for small landowners.

What were your main drivers for considering carbon offsetting?

- To respond to public pressure to provide ecosystem services and to provide cash flow for providing services for public good. Carbon markets are the closest thing I have found where someone will pay me to keep my trees standing.

Did you find it easy to understand what carbon offsetting is and how you could enter into a scheme?

Do you think carbon offsetting is easy to understand?

- Not easy at all.
- I think there is a lot of rubbish out there and it is really hard to disseminate what's real and what's complete rubbish.
- I found it relatively easy to understand the general concept. It's very difficult once you start to get below the surface in terms of how it's assessed, how it's monitored. What are the risks and certainly there's a lot of uncertainty about the price.
- Yes, but there is no cost benefit, especially with being in a frequent fire system.
- We were always told we were too small, so it didn't really encourage us to look much further than that.

Is there anything that you could think of that would have helped you to understand carbon offsetting or access the carbon offset market?

- An independent organisation guiding us through the development of a carbon offsetting scheme.
- A central source in the provincial government who can support your understanding around how to enter a carbon project.
- Demonstration of an active carbon market is a definite interest.
- A presentation by the Pacific Forestry Centre clearly explaining carbon storage and sequestration of different aged forests.
- Clarification of how to respond to natural processes / events if you were in a carbon offsetting scheme e.g. fire, windthrow, pest, dieback – remove or keep?.
- Clarification on whether managing a forest for carbon is legally accepted under the current legislation for Private Managed Forest Lands.
- A two-page cheat sheet that outlines the process and the pluses and minuses and some of the variables.
- Access to some level of inventory. LiDAR probably would reduce the amount of field time and enable a lot of this assessment to be done in the office and reduce those upfront costs.
- A standard contract template with common phrases, common sections and terminologies so you don't have to go to a lawyer who wouldn't necessarily understand anything about carbon offsetting.

Do you have a forest inventory with forest plot data?

- There is a rough inventory / ad hoc forest inventory / not a proper one.
- I have a forest inventory but no forest plot data.
- There is no forest inventory for my private land, the inventory for the woodlot is more detailed.
- I have an inventory from 1993.

Is the forest protected by a conservation covenant or similar tools?

- We don't have any covenants on our property, but the local First Nation has a strong cultural connection to the property.
- There are restrictions for example a large area of riparian habitat, archaeological site and areas of rock bluffs.
- We have a 50-year covenant on our property which came about through a rezoning application. Harvesting is permitted but on an 80-100 year rotation.

What would you consider the positives and negatives of entering a carbon offsetting scheme for 30 years or 100 years?

- If there was going to be a revenue stream associated with an agreement for 30 years I feel like we could overcome any negative views about committing the organization to that length of time.
- I think 100 years is a barrier. It is hard for people to really wrap their head around that kind of timeline.
- A 100-year commitment seems absurd. Carbon offsetting has only made sense in relation to the schemes in the US which pay on a yearly basis.
- Historically in BC, harvesting has happened about every 50 years, so the forest was given 50 years to recover. From that point of view alone, anything less than 50 years seems odd.

- Thirty years or 100 years are unlikely to appeal. The shorter commitment might be of interest in relation to the appraised value of the land.
- There are not many corporations or voluntary groups that last 30 or 100 years.
- For me 100 years as an individual is just too long. That's probably three generations. Twenty-five to 30 years, that's doable in my timeframe.
- I would be happy to put the woodlot into carbon offsetting for 100 years if the returns were reasonable.
- I think a lot of farmers are sole proprietors and do not know what will happen to their land when they stop farming. Therefore, farmers will need to consider whether a carbon offsetting project could be a benefit or a limiting factor when selling their property.

Would you be able to cover the implementation costs of a carbon offsetting scheme to gain a revenue return for 30+ years?

- Potentially private funders could be interested in providing the implementation costs.
- I like the idea of a financial institutions providing us with the initial implementation costs and therefore assuming the risks.
- No, I'm averse to risk, work with bird in the hand.
- The woodlot is 400 ha so could provide a good return from carbon. My concern would be that I provide the upfront investment for a carbon project and then the land is taken back by the government.
- It would be difficult for farmers to find the funds to cover the implementation costs. The only option would be a credit union approach, e.g. buy into a collective to reduce the overhead costs.
- An upfront costs / investments would need to be paid back in three years, potentially five at a stretch.

Do you have any concerns about a group carbon project being managed by a commercial forestry company?

- It seems like the best option on the table at this moment.
- Large commercial forestry companies often have different drivers than small forest landowners.
- I view a potential partnership with them as having more benefits than downsides.

Do you consider carbon offsetting to be an effective way to manage climate change?

- I would envision it as one of the tools in the toolbox. It's going to be a multifaceted approach.
- Climate is changing all the time, and it is being twisted by politicians. If a polluter is made to pay for his pollution through carbon offsetting, then that makes sense.
- Yes and no. In part it is just a way for people to make money. However, if it is a way to see forest cover increase and forest management to improve then it could be good.
- Yes, I do. Partly, my rationale is that we need more than one tool.
- No, I think that it is robbing Peter to pay Paul. I like that companies and government are thinking about making polluters pay, but it may give them permission to do what they like.
- I think it's one tool. I don't know if it's the most effective tool because we aren't really changing our behavior.
- The climate's always been changing. I think we need to consider better forestry and better carbon storage.

5.3 Direct Payments for Ecosystem Services

Would you be interested in direct payments for the protection of ecosystems services in preference to carbon offsetting?

- Direct payments seem far more straightforward. The entry requirements could present less of a barrier. However, there would need to be an understanding about the forest as a living changing entity and we will be actively managing it in relation to hazard trees, blow down, removal of culturally important trees.
- How can we find resources to spend on the ground to improve forest health and to do some research in parallel to determine what we should do in the future?
- The island is dominated by quarter sections of second growth forest. There is no market for the timber that would be extracted for wildfire management (thinning). This is an area where incentives or help with the disposal of timber would be beneficial.
- I would be quite interested to see an approach where funding is provided for work to be done in the forest, restoration work, wildfire risk reduction.
- I would advocate for the PMFL regime that leads to tax relief to be upgraded to align with current forest management objectives e.g. carbon, fire, biodiversity etc.
- I think we need to educate landowners and provide them with the person to undertake the forest management work.
- We need to consider whether we can share equipment for thinning works.
- It is my assumption, that if I only had a 15-year-old plantation I would get less payment reflecting the fact that it's not sequestering that much carbon. Whereas if you came with your 100-year-old stand, it would get more payment as it sequesters more carbon.
- I've often used the term financial or non-financial benefits, like a change of policy where my land could be assessed as part of the community wildfire resilience plan, and maybe the data is not published but then any actions on public land could be combined with actions on private land.
- It would be interesting to see if the province would be interested in asking farmers if they would place forested land into a covenant for a set period for providing carbon storage. This would lead to a tax reduction.
- Watershed protection by retaining forests would be a big lever to attaining funding from tax revenues.
- I think there are the people who are looking for incentives and will be happy to take them up. At the other end of the spectrum there are those that do not want to be told what to do on their land.
- The biggest incentive is trying to teach the complexity of forestry to landowners and remember to listen to the landowner to hear what their actual goals are this will enable incentive to be focused.
- I wouldn't consider taking on a conservation covenant until they become more open to the idea of active management in relation to fire.
- Another financial incentive to me would be the BC government, promoting use of thinning material for bio energy.

5.4 Other Issues Raised

Is the risk of wildfire an issue that you are considering in relation to management of the forest?

- Absolutely. We have fuel building up every year. The trails are to the point now where their very inaccessible. If the worst were to happen, all that revenue would just be burnt up and gone.

- There's a pervasive attitude in these islands that doing nothing is the best intervention. I think there's risks to that. If there was a catastrophic fire they're creating good conditions.
- It's a concern but not a big concern as they are wet sites. The west coast and the interior of BC are two different worlds. Fire on the coast is not such a big thing.
- In Canada, we are totally swamped by the wildfire disaster. This is a big emergency and, in my opinion, requires a similar kind of commitment nationally, which means the forests need to be managed much more intensively to promote biodiversity.
- I think that there's a lot of interest in fire smart. As farmers our whole economy is tied up with your land and any threat to your land. You need to have your own resources in place to manage fire as you have animals etc. that can not be relocated easily.

Do you think we have the knowledge to create healthy forest ecosystems?

- We have the knowledge, but every site and its management history are different and management needs to be tailored.
- Education would be beneficial. There's a pervasive attitude in these islands that doing nothing is the best intervention, letting time do its thing, but I think there's risks to that.

6 Forest Landowner Incentives Survey

In February and March 2024, the CDFCP issued a survey to private forest landowners and managers to build on the in-depth conversations summarised in **Section 5**. The intent was to reach a larger number of people than the in-depth conversations could. The purpose of the survey was to understand how private landowners viewed potential financial incentives focused on the protection of forested lands, such as carbon offsetting and direct payments for ecosystem services. The survey was designed to investigate the drivers that may encourage a private landowner to accept a financial incentive rather than develop or harvest their property.

The survey was circulated through the:

- CDFCP eNewsletter
- CDFCP members social media accounts / sites.

The survey was shared with the Private Forest Landowners' Association (PFLA) and the South Island Woodlot Association. The Woodlot Association responded indicating their members would not be able to enter a carbon offsetting project at this time as FCOP v2.0 was in development and declined to circulate the survey. No response was received from PFLA.

The questions were divided into three parts:

- A characterisation of the forest landholding of each respondent.
- Barriers and opportunities of direct payments for ecosystem services.
- Barriers and opportunities of carbon offsetting.

Appendix B presents the detailed responses provided for each of the survey questions. A summary of the results is provided below in **Sections 6.1 to 6.3**.

6.1 Characterisation of the Forest Holding of Respondents

A total of 28 forest landowners / managers responded to the survey. The initial questions are focused on characterising the forest holding of each respondent (**Appendix B – Fig B1-2 and Table B1-2**).

- Most people who responded to the survey had **≤10 ha of forested land** (71% - 20 of 28), but the survey did reach landowners with >1000 ha.
- It was found that 39% (11 of 28) of respondents had forest aged ≤80 years. However, 61% (17 of 28) indicated that their forest landholding was a mix of ages including mature and old growth forest.
- The majority of respondents had **purchased the forest land in their life-time** (75% - 21 of 28), but their were respondents holding land that had been passed down three generations.
- **Tree dieback and wildfire resilience** were identified most frequently as forest health concerns landowners had (61% 17 of 29), but windthrow due to severe storms and disease and pests were also highlighted as management issues also being considered.

The following two questions relating to management plans and forest inventory were asked in the survey as a landowner would need this information if they were looking to enter a financial incentives scheme such as carbon offsetting (**Appendix B – B4-5**).

- Most respondents indicated that they **don't have a forest management plan** (75% 21 of 28). The landowners that did have a management plan had developed them for a range of reasons including ethnobotany, biodiversity conservation or forestry. They may not be suitable for a carbon offsetting project.
- Most respondents indicated that they **don't have a forest inventory** (82% 23 of 28)

The following three questions focused on possible constraints that influence whether a project could enter a carbon offsetting project. To be a viable carbon offsetting project the forest needs to be accessible for harvest or development e.g. infrastructure in place or could be readily developed, slopes don't prevent harvesting, not in a riparian area etc.

If the land is protected by a covenant or similar that would prevent harvesting and development of a site then the forest could not enter into carbon offsetting. If a covenant or similar only covers part of the land holding potentially the remainder of the property could still be suitable (**Appendix B – Fig B3, 6 and 7**).

- The management of forested lands owned by respondents are subject to several regulatory and policy tools including Private Managed Forest Lands; Agricultural Lands Reserve; covenants; strata agreements and zoning bylaws.
- Approximately half of the respondents indicated their forest could be accessed for harvest or development (57% 16 of 28). However, **43% indicated that there wasn't access for harvesting** or there were significant constraints. This would mean these properties are unlikely to be eligible for carbon offsetting as the threat of removal is reduced.
- Most respondents **did not have a covenant or similar on their forested lands** (71% 20 of 28).

The respondents were asked what their long-term objectives were for their forested land to understand the level of threat of harvesting and development. It was noted that the people who completed the survey were reached through CDFCP communications or through their members communications. As

conservation organisations our audience will be those landowners who have acquired land with the view of conserving it which appears to have influenced the results below (**Appendix B Table B5-6**).

- Most respondents indicated that they **wanted to maintain their land as forest** (75% 21 of 28). Two of the respondents indicating they were actively looking to restore their sites and one indicated they were looking to protect the land in perpetuity by selling to a Land Trust. Three respondents indicated they wanted to harvest and replant.
- The three respondents who indicated that they were looking to harvest, and replant indicated this would happen once the trees were between 50 – 80 years. The driver for these works for two of the respondents was the poor health of western red cedar in the forest. The third respondent indicated harvesting would occur due to tax implications (Private Managed Forest Land Tax Incentive) and cashflow.

6.2 Direct Payments for Ecosystems Services

In the last five years several environmental / conservation funds have been established on the southwest coast of BC with a view of supporting the local community with the implementation of activities that will help local governments achieve climate change resilience and adaptation:

- [District of West Vancouver Environment Levy](#)
- [City of Burnaby's Climate Resilience Initiative](#)
- [Township of Langley Climate Action Funding](#)

This survey looks at whether forest landowners would be interested in receiving direct payments for the provision of ecosystem services to the wider community, by delaying harvesting or development of their forested landholdings (**Appendix B- Fig B8 and Table B7-B8**).

- Most respondents indicated they **would be interested in direct payments for ecosystems services** or that they might be interested (93% 26 of 28).
- Respondents were asked to rank their **drivers for accepting a direct payment**:
 - Primary driver - the protection of biodiversity.
 - Secondary drivers – retention of forest for future generations; water storage; carbon storage and sequestration and urban cooling.
 - Tertiary drivers – protection of culturally important plants and income.
- There was no clear conclusion as to the length of time a landowner would be happy to protect their forest because of a direct payment. Responses range from 5 years to perpetuity.

Carbon offsetting projects require a certain level of information to confirm that a project is delivering on its intended outcome e.g. storage of carbon. A direct payment scheme may also incur some initial start up costs e.g. establishment of a covenant for the duration of the payments; forest inventory; administration etc. Therefore, the survey investigated how willing and/or able landowners would be to cover these costs (**Appendix B – Fig B9-11 and Table B9-10**).

- As respondents did not know the scale of the costs, most respondents indicated that they **may be able to cover start up costs** (71% 20 of 28).
- Respondents were asked who they would prefer to administer a direct payment scheme. The majority (64% 18 of 24) did not have an opinion on whether a direct payment scheme should be

administered by a government organisation or a non-profit organisation. However, only one respondent thought it should be delivered by a government organisation.

- Most respondents indicated that **payments should be linked to the ecosystems services** provided by a forest rather than providing a standard rate per hectare to all forest types (68% 19 of 28).
- A potential route of generating funds to support financial incentives is through local government taxes for all landowners. Therefore, the forest landowners were asked if they **would accept a tax increase if the money were to be invested in forest management**. Nine of 28 respondents (32%) indicated that they would support a local government tax increase. An additional 13 (46%) indicated they might be in support depending on the level of tax increase.
- Respondents indicated a range of \$100 - \$1000 per hectare / per year for delayed harvest for the provision of ecosystem services. Others approaches suggested:
 - any payment would be welcomed;
 - payment to cover the cost of establishing a covenant; or
 - a payment to cover the cost of land tax.

Respondents were divided on whether carbon offsetting led to real protection of the natural environment and climate resilience (**Appendix B – Table B11**).

- Ten (34%) of the respondents believe carbon offsetting is effective at protecting ecosystem services while seven (25%) indicated that they thought it was green washing. Four (14%) respondents indicated direct payments from provincial or local government would be easier than carbon offsetting.

6.3 Carbon Offsetting as an Incentive

The information gained through the survey in relation to carbon offsetting is limited as very few respondents have considered carbon offsetting (**Appendix B – Fig B12 and Table B13**).

- Five of the 28 respondents (18%) had considered carbon offsetting.
- Three of the 5 respondents (60%) had taken a carbon offsetting project through to a feasibility study stage. These respondents were all larger land holders; either 11-100 ha or 101-1000 ha.
- The reasons given for not taking projects further forward included:
 - Identification of constraints that meant the project was not viable e.g. covenants, no access etc.
 - Lack of clarity around impact on tax break - Private Managed Forest Lands.
 - Landholding was too small to be financially viable for the current carbon offsetting projects.

7 Conclusions and Recommendations

7.1 Carbon Feasibility Assessments

The Carbon Feasibility Assessments highlighted that start up and maintenance costs for carbon offsetting schemes remain high and are a limiting factor for small landowners to be able to enter a formal carbon offsetting scheme even as a grouped project.

The Feasibility Assessments indicated that for a grouped landholding of ≥ 300 ha it is potentially financially viable to enter a carbon offsetting project with Verra. The suggestion being that avoided conversion could provide a faster return on the implementation costs (3 years). The IFM approach took seven years to reach a point where the landowners were making a profit while covering on going maintenance costs when the grouped landholding was 350 ha. The return would be quicker on a larger grouped landholding.

The Feasibility Assessments highlighted the value of having an anchor project which would then enable smaller landowners to be part of the project. Financial return for the lifetime of the project was improved when the grouped land holding eligible for carbon credits reached ≥ 400 ha. It should be noted that the baseline scenario for forest clearance used by ClimeCo was 25%. If a valid baseline was 50% then a smaller grouped landholding could be financially viable.

Key considerations include:

- Research and develop tools that could reduce the start up and maintenance costs on the southwest coast of BC e.g. collective carbon modelling. The models and yield curves used by the carbon developers are the same as those used by Natural Resources Canada (NRCAN) for their national reporting on carbon emissions. The problem will be scale. These models are run at a national scale rather than at a parcel level.
- Seek funding to cover the start up costs of group carbon project on the southwest coast of BC.
- Identify a group of interested landholders with a landholding that exceeds 400 ha collectively as not all areas of each property will be eligible to enter the carbon project e.g. inaccessible for harvest, riparian, covenant etc.
- Clarify what can be done by landowners in a carbon project following a natural event e.g. wildfire, pest, dieback, windthrow etc. or in relation to wildfire management (e.g. $< 5\%$ change – **Section 3.3**).
- Investigate the potential to develop an independent source of information for landowners.

7.2 In-depth Conversations and Survey

The intent of the in-depth conversations and surveys with forest landowners was to understand what their concerns and drivers are in relation to the management of forests and subsequently what might incentivise them to retain their forested lands through to 2050 to help meet the Canadian target of zero net emissions.

- The key drivers for the protection of forest identified by landowners was biodiversity. Secondary drivers included retention of forest for future generations; water storage; carbon storage and sequestration, urban cooling, culturally important plants and income.
- Key concerns for landowners are tree dieback and wildfire resilience. Other concerns include windthrow and disease and pests.
- Landowners favoured incentive schemes of ≤ 30 years, as they felt they were unable to make a longer commitment. However, people expressed concern as to whether carbon reductions would be real.
- Landowners indicated that they might be willing to cover some costs of entering an incentives scheme depending on when the costs would be repaid and the scale of the income.
- Small landowners don't typically have forest management plans or inventory plots required to quantify carbon for incentives schemes.

- Landowners did not have a strong opinion on who should administer an incentives program e.g. government vs not for profit.
- Landowners felt that payments should be linked to works being delivered or the quality of the ecosystem services provided.
- Seventy eight percent of landowners indicated they might support a tax increase for an incentive to protect forests depending on the level of the tax.
- Information on incentives schemes needs to be simple, there need to be demonstration sites and information shared from a reliable independent source.
- Clear guidance is needed for all incentives scheme on the best approach when natural events such as wildfire, pest, dieback, windthrow etc. occur as this can impact on carbon stores.
- If covenants are used as part of the incentive scheme, make them simple with a clear objective but with flexibility on how to achieve the objective. Active management is something landowners are focused on.

Potential approaches to incentives included:

- Inclusion of private landowners in the BC Government Community Wildfire Protection Planning (results to remain private).
- Public acknowledgement that a landowner is contributing towards forest protection and the ecosystem services they provide.
- Education relating to forest management in a changing climate.
- Reduction in land tax for forests not in the Private Managed Forest Lands program, leading to a covenant for the duration of the incentive scheme.
- Payments for actions that lead to healthy forests e.g. wildfire management.
- A financially and logistically possible route of disposal of thinned timber, especially from the islands.
- Cooperative scheme for sharing equipment to undertake tree thinning as it doesn't require commercial equipment but requires more than household equipment.
- Cooperative scheme to help cover any start up costs e.g. forest management plans, inventories, modelling etc.

Appendix A Steps to Achieve Verification to a Group Project

The following steps were provided by the assessing carbon developer to determine how a group of small forest landowners could approach entering the group project.

Table B1 Steps for entering a group project.

No	Description of Steps
1	Select appropriate timber harvest scenario.
2	Select the project scenario appropriate for all parties.
3	Determine the data needed and how to obtain it.
4	Review requirements of VM0012 methodology.
5	Complete formal test of additionality using the VCS AFOLU Tool.
6	Determine the baseline scenario.
7	Update project description document and monitoring report to include new properties.
8	Undertake consultation on the proposal to enter a group project e.g. community.
9	Complete requirements of the methodology and identify any deviations.
10	Undertake final quantify GHG emissions reductions and removals.
11	Implement monitoring plan.
12	Determine project uncertainty, non permanence (risk of loss) in accordance with VCS methodology.
13	Project carbon credit generation.
14	Retain a third-party verification body.
15	Finalise project description and monitoring report.
16	Submit the project to Verra for technical review.
17	Address comments from Verra.
18	Register project and credits issued.
19	Sell credits on global market.
20	Continue cycle of verification to release future credits.

Appendix B Survey of Forest Landowners

Characterising the Forest Owned / Managed

Figure B1 Size of forest landholding indicated by survey respondents.

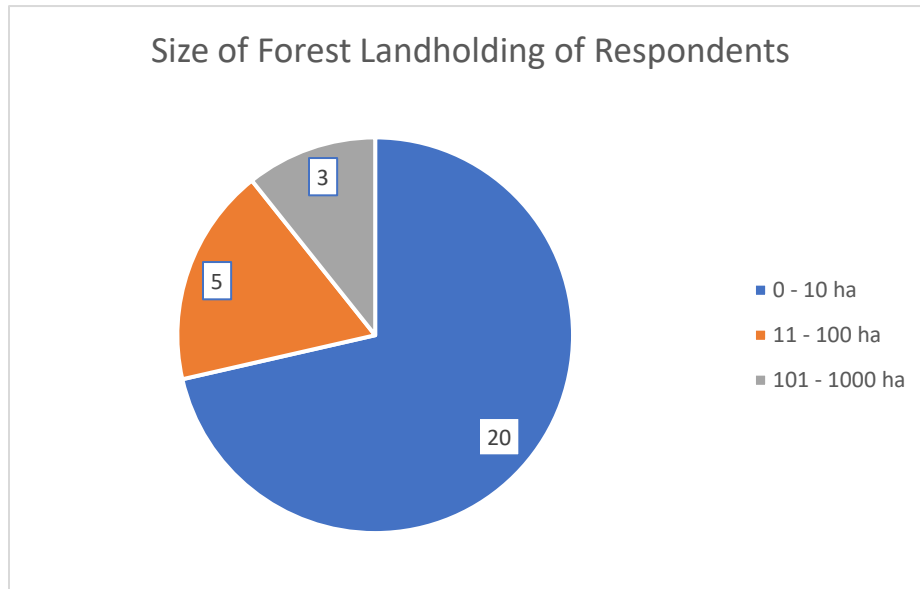


Table B1 Age of forest landholding indicated by survey respondents.

Age of Forest	Number of Respondents
0 - 80 years - young forest	11
80 - 250 years - mature forest	8
0 - 250 years - mix of young and mature forest	3
0 - >250 years - mix of young, mature and old growth	3
80 - >250 years - mix of mature and old growth	3

Figure B2 Period that the forested land has been in the ownership of the respondent's family

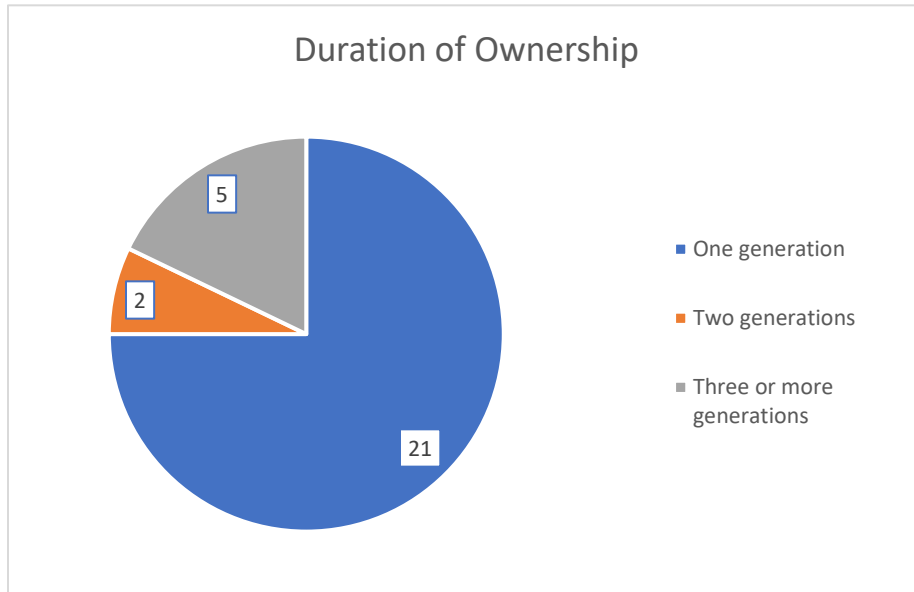


Table B2 Forest health concerns that respondents are considering - respondents could select multiple options.

Forest Health Concerns	Number of Respondents
Tree dieback	17
Wildfire resilience	17
Windthrow due to severe storms	12
Disease and pests	10

Figure B3 Zoning or registration which may impact on management of the forested land.

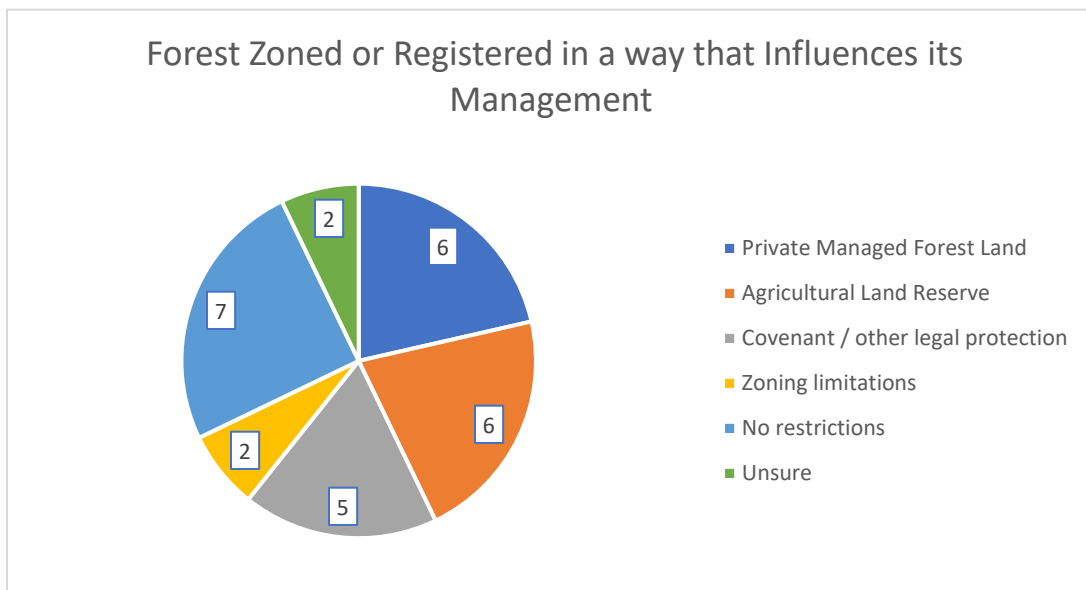


Figure B4 Respondent who have a Forest Management Plan

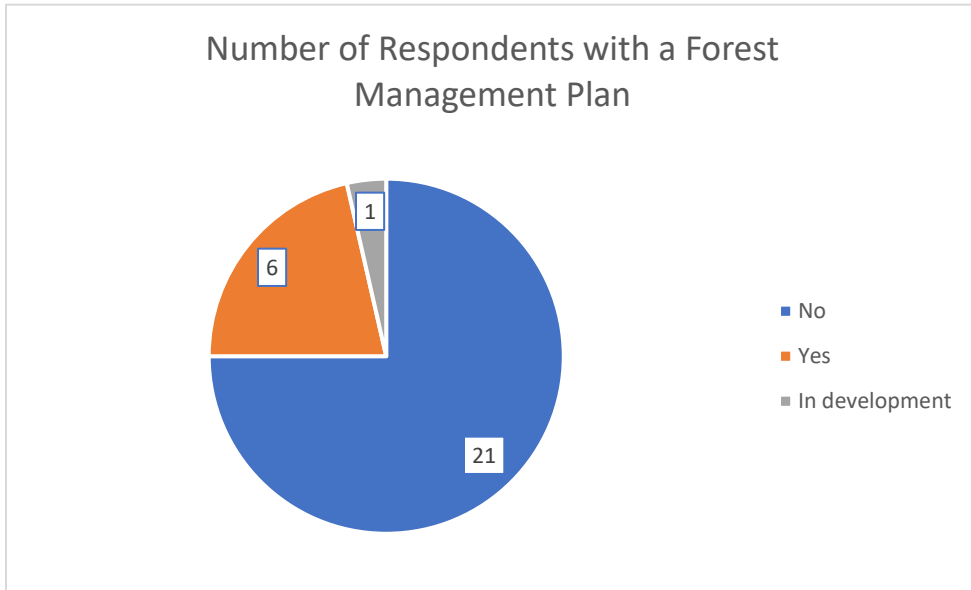


Figure B5 Respondent that have a Forest Inventory

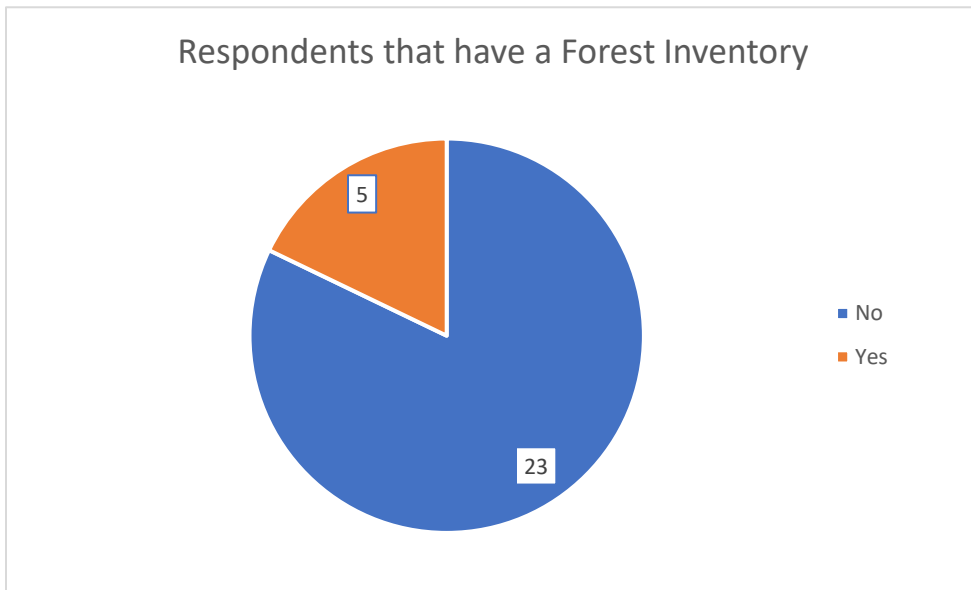


Figure B6 Accessibility of forest for harvesting.

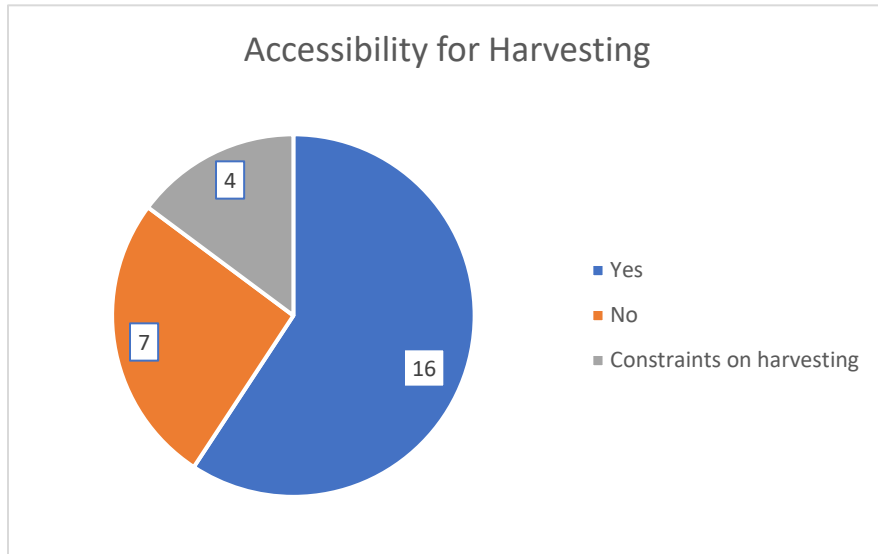


Figure B7 Covenant or other limitations on harvesting.

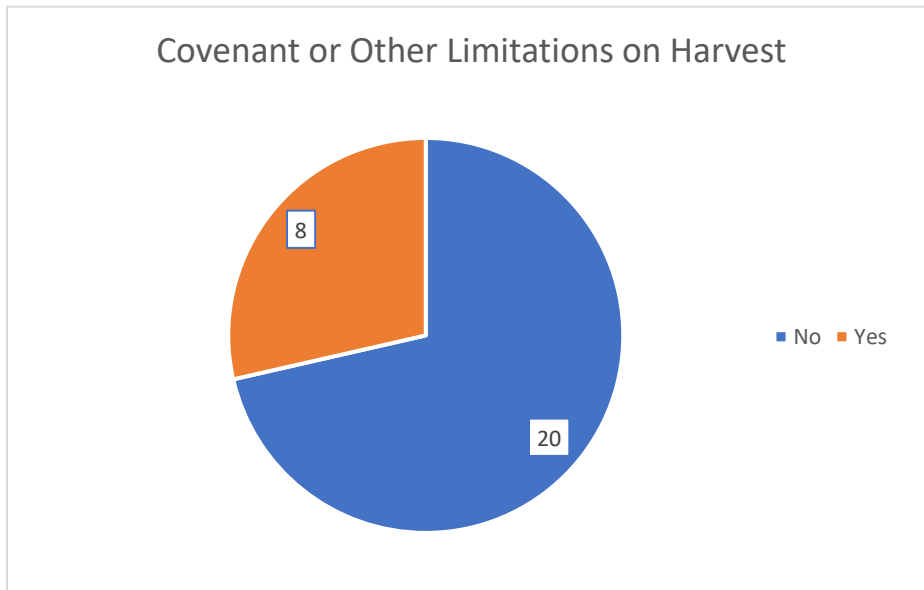


Table B3 Types of covenants or similar restricting harvesting.

Types of Covenants or Similar Restricting Harvest
Conservation Covenant with the Islands Trust.
EcoGift
Personnel Management Decision
Strata Agreement
Riparian Area

Table B4 Local government zoning influencing further development.

Local Government Zoning	Number for Respondents	Type of Zoning
Yes	14	Residential; Rural Residential; Watershed Residential
No	14	N/A

Table B5 Long term management objective shared by the landowners for their forest.

Long Term Management Objective for the Forest	Number of Respondents
Maintain as forest	21
Harvest and replant with trees	3
Maintain existing forest and add new plantings (eg Garry Oaks) to expand total treed area.	1
Restore Garry oak ecosystem	1
Sell to a conservation organisation	1
No plans	1

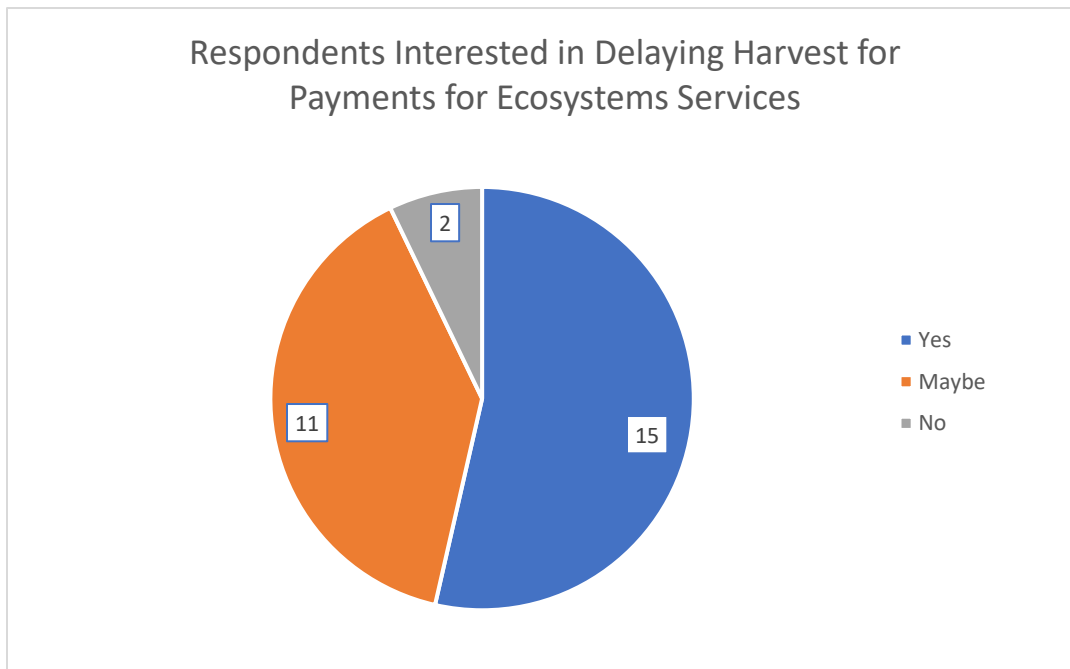
The following question was answered only by the three respondents that indicated that their long-term management objective was to harvest.

Table B6 Indicates when landowners intend to harvest and the main driver for harvesting.

When will you harvest?	Number of Respondents	Main Driver for Harvesting
50 to 70 years old	1	Cedars are dying from the crown down, plus root rot.
60 - 80 years	1	Many Cedar trees are dying at the crown, because of three drought years.
80 years	1	Tax implications and cash flow

Direct Payment for Ecosystem Services

Figure B8 Number of respondents interested in delaying harvesting for and direct payment.



Note: two respondents indicated no to direct payments. Both properties are protected by a covenant or other long term conservation commitment.

Table B7 The drivers for the protection of forest and subsequently direct payments, ranked 1 - 7

Driver for Accepting Direct Payment	1st Choice	2nd Choice	3rd Choice	4th Choice	5th Choice	6th Choice	7th Choice
Protection of biodiversity	16	5	2	2	1	0	0
Retention of forest for future generations	9	3	3	4	4	3	3
Water storage	9	4	5	5	1	2	0
Carbon storage and sequestration	9	8	3	3	1	0	2
Cooling of our communities by transpiration	9	0	3	2	7	3	2
Protection of culturally important plants and animals	6	4	2	4	4	1	5
Income while maintaining the forest	2	3	2	3	1	9	6

Table B8 Length of commitment a landowner is willing to make in response to a direct payment.

Length of Commitment - Direct Payments	Number of Respondents
5 years	1
10 years	5
15-20 years	1
30 years	3
100 years	6
My lifetime	2
Indefinite	3
No payment needed of taxes were reduced	1
Any period	1
Duration would depend on scale of payment	1

Figure B9 A review of the landowner's ability to cover initial costs of a direct payment scheme.

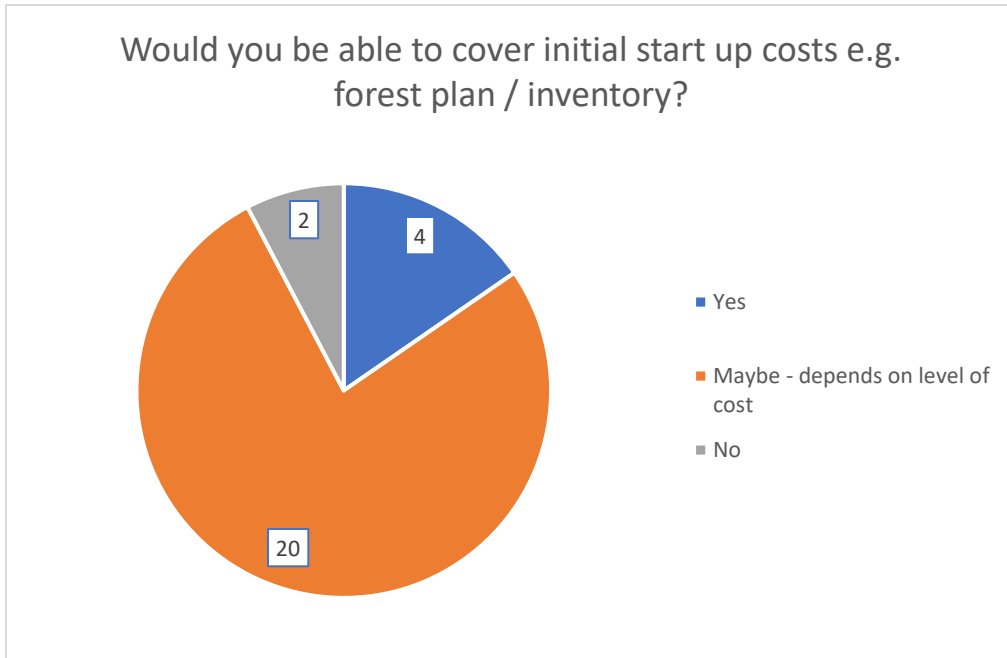


Figure B10 Who the respondents think should administer a direct payment scheme.

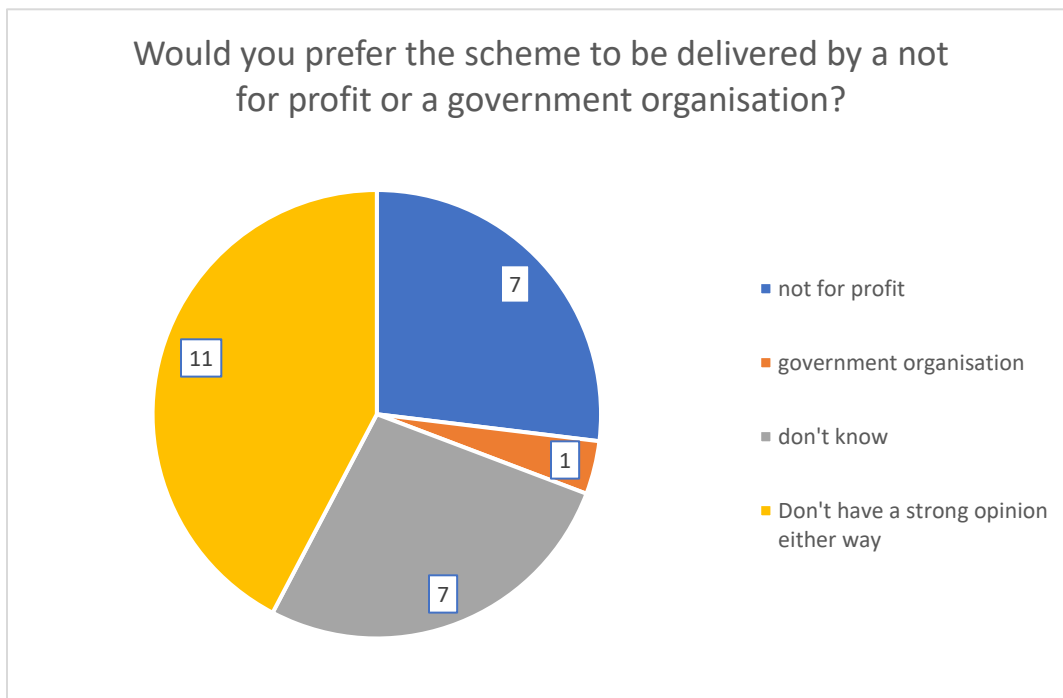


Table B9 Respondents indicated how direct payments should be calculated

Should all forest be considered equal and payments for all forest types be the same?	Number of Respondents
Payment made in line with the level of ecosystem services provided	19
Equal payments no matter the nature of the forest	0
Don't know	7

Figure B11 Respondents indicated if they would accept a tax increase to cover direct payments.

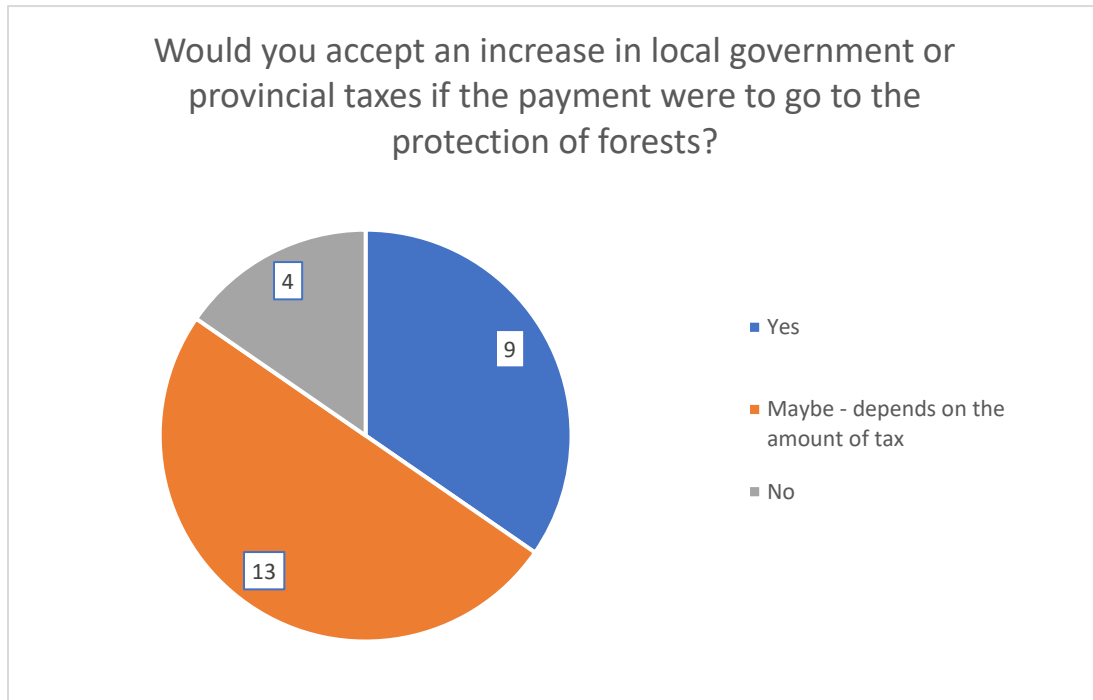


Table B10 How much would a direct payment need to be per hectare / per year.

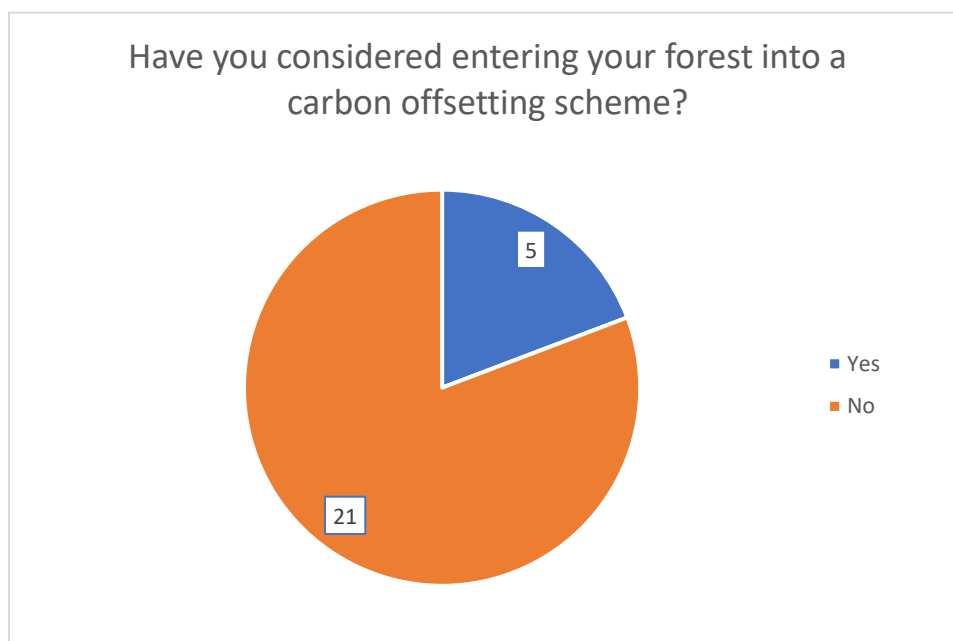
How much would you want / need to be paid per hectare/ year to retain and manage your lands as forest?	Number of Respondents
\$100 per hectare per year	2
\$200 per hectare per year	1
\$500 per hectare per year	1
\$1000 per hectare per year	1
\$500 - 1000 per hectare per year	1
Any payment would be beneficial	2
Payment equal to land taxes	1
Payment equal to land taxes plus an amount to reflect ecosystem services	1
Payment to cover cost of covenant	1
No idea	9
No payment needed	5
Value of forest can not be reduced to a monetary value	1
Not applicable	1

Table B11 Respondents opinion on the effect of financial incentives.

Do you think carbon offsetting is an effective way to pay forest landowners to protect carbon, water and biodiversity or is it green washing?	Number of Respondents
Carbon offsetting is an effective way to compensate forest landowners for the protection of ecosystem services	10
Carbon offsetting is green washing and doesn't lead to the protection of forests	7
Don't have an opinion	5
Direct payments from provincial and local government would be easier than formal carbon offsetting	4
I don't know what carbon offsetting is	2

Carbon Offsetting as an Incentive

Figure B12 Respondents interest / knowledge of carbon offsetting schemes



Note: Five respondents indicated that they had considered entering a carbon offsetting scheme. Therefore, the remaining questions are answered by those five respondents.

Table B12 How far respondents investigated carbon offsetting.

How far did you take your consideration of carbon offsetting?	Number of Respondents
Thought about the possibility following a conversation / presentation	2
Investigated on the internet what a carbon offsetting is	0
Spoke to a carbon developer to understand opportunities	0
Undertook a feasibility assessment	3
Undertaking studies to enter a carbon offsetting project	0

Table B13 Reasons why people did not continue investigating carbon offsetting.

What is the main reason you did not continue with your research into carbon offsetting?	Number of Respondents
Identified constraints that meant the project was not viable e.g. covenants, no access etc.	1
Lack of clarity around impact on tax break - Private Managed Forest Lands	1
Landholding was too small to be financially viable for the current carbon offsetting projects	1
Not sure if a small piece of land is worth the effort; no idea of financial returns	1
Several of the above and more.	1