

# Catalyzing Forest Carbon Project Quality

Addressing Issues of  
Integrity in Improved  
Forest Management  
Carbon Projects

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American  
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# Introduction

The facts are clear: to avoid global climate catastrophe, we need significant investment in nature – the world’s most effective carbon capture technology. The voluntary carbon market (VCM) is one of the most viable financial mechanisms to maximize natural climate solutions. But globally to date, only 1.2% of the annual potential of nature-based solutions has been unlocked by the VCM – partially driven by market complexity, a lack of universal standardization, and corporate reticence to invest.

Standards bodies like the Integrity Council for the VCM (IC-VCM) and the Voluntary Carbon Market Integrity (VCMI) initiative among others have begun the hard work of setting the bar for quality for the entire global market. But in the process of finalizing those standards, to catalyze investment in this critical financial tool that the world needs *now*, carbon project developers must also prioritize the highest standard of quality in their project design.

At the American Forest Foundation (AFF), the commitment to quality and integrity is in our DNA. We have designed our flagship carbon project, the Family Forest Carbon Program (FFCP), to directly address many of the quality concerns often raised about projects in the VCM. Our improved forest management (IFM) practice is an exemplar of high-quality natural climate solutions, setting the bar for forest carbon project quality and integrity in the market.

This white paper details the approach AFF takes to ensure the highest quality and integrity in the implementation of our IFM practices through the Family Forest Carbon Program.

# Executive Summary

By the nature of their design, all improved forest management (IFM) projects must grapple with elements of additionality, permanence, leakage, and social integrity to ensure they produce the highest quality carbon credits. Projects that do not seek to address these challenges cannot claim they prioritize high integrity in their approach to climate action.

The Family Forest Carbon Program has been uniquely designed to tackle issues of additionality, permanence, leakage, and social integrity to ensure our climate impact is meaningful, sustainable, and durable – all through a lens of reaching small landowners. We are constantly improving upon our project's operations as new research, science, and technology becomes available.

**1. Our first-of-its-kind methodology uses a non-predictive dynamic baseline to measure the additional carbon our intervention captures in real time.** Methodologies using dynamic baselines are designed to measure the change in carbon storage more accurately than traditional methods and in turn produce much higher quality carbon credits.

- **FFCP also has built in safeguards against adverse selection**, including providing resources beyond financial incentives to enrolled landowners, using many variables to measure past management behaviors, and implementing high standards of eligibility criteria for project participation. AFF also continues to seek additional matching variables and/or programmatic design that could help further minimize the possibility of adverse selection.

**2. We have implemented a first-of-its-kind permanence fund** that invests in landowners and our forests well beyond our project's intervention and ensures the permanence of our nature-based credits beyond our methodology's requirements. The fund actively prevents reversals, monitors to true-up predicted reversals with actual reversals, and compensates for reversals identified via monitoring.

# Executive Summary



**3. We are supporting the creation of an evidence-based IFM leakage accounting based on the latest research.** This accounting will keep it both feasible for project developers to implement and closer to the reality of leakage than generic modeled leakage factors have historically produced, in addition to unlocking incentives for leakage mitigation. In this way, we move leakage accounting from forecasts of what might happen, to observations of leakage that did happen, mirroring the strengths of the transition from modeled baselines to dynamic baselines. FFCP also addresses leakage through its program design in the following ways:

- FFCP reduces timber harvesting volumes in the short- and medium-term but actually increases timber supplies in the long-term, displacing future harvests into the project area (a form of negative leakage).
- FFCP pairs IFM projects with ARR projects that increase timber availability.

**4. At AFF, our commitment to integrity means both environmental and social integrity.** FFCP is designed with and for small-holding landowners, with significant benefits sharing elements to ensure our intervention benefits rural American communities just as much as the planet. Regular landowner payments, forester capacity, technical knowledge sharing and assistance, and ongoing support beyond the life of enrolled landowners' contracts all help boost rural economies, increase the value of forest products, and ensure the climate impact of our program's intervention continues and scales in the areas that need it most. We can't fight climate change without supporting and empowering the communities hit first and worst by its impacts.

Finding innovative approaches to addressing these challenges is essential to reaching the highest quality nature-based credits that are needed to scale a voluntary carbon market that works for people and the planet. All IFM project developers must address these issues head-on, and now. We don't have any time to waste.

# Additionality

***AFF's first-of-its-kind, non-predictive dynamic baseline methodology measures the carbon our intervention captures in real time to ensure true additionality. We also built in safeguards against the presence of adverse selection in our project design.***

Hands down, the best-in-class IFM projects use non-predictive dynamic baselines in their methodologies to ensure they are actually making the additional climate impact they claim. Dynamic baselines measure how much additional carbon is stored as the direct result of a project's intervention compared to similar landscapes that are not enrolled in the project.

By measuring landscapes with real, independently sourced data, we track the true difference in additional carbon captured by the project. This is unlike traditional methodologies, which set one projected baseline at the beginning of a project, or with updates, based on assumptions rather than reality.

With dynamic baselines, if no additional carbon capture is measured on enrolled plots compared to similar, unenrolled plots, the project does not issue credits.

Methodologies using non-predictive dynamic baselines are designed to measure the change in carbon storage more accurately than traditional methods and in turn produce much higher quality carbon credits.

Going well beyond the periodic updating that some other dynamic baselines deploy, non-predictive dynamic baselines ensure independent replicability and adherence to the best practices that impact evaluation science has to offer. No one needs to wonder whether project developer choices played a role in the carbon accounting when the results are independently replicable. With FFCP's approach, projects don't get to submit or update their own assumptions of baseline harvesting constraints; those are updated by completely independent data and real observations of similar landowner behavior.

NPV and other factors required in a modeled baseline, but not consistent with how we know real people manage their woods, don't need to be relied upon in FFCP's approach.

# Additionality

## A note on adverse selection

Adverse selection occurs when those most likely to enroll and participate in a carbon project are also those who would have carried out the practices offered in the project anyway, and who participate knowing they have a pre-existing better chance than their baseline to outperform it.

This preferential enrollment based on pre-existing knowledge that the volunteers are likely to outperform their baseline even without the project intervention and without controlling for confounding factors is adverse selection.

Adverse selection is nearly if not entirely impossible to completely eliminate, in part because we can never fully know the likelihood of someone doing something without the project once we enroll the project, and some potentially confounding factors are difficult to control for.

However, FFCP is actively exploring the following ways to effectively minimize adverse selection:

- Providing tools and resources beyond just money that family landowners want and need. We know that many landowners intend to sustainably manage their woods, but the data tells us that there are barriers to them in making that a reality. Small landowners who do not intend to harvest unsustainably often do because they don't have the resources not to. FFCP solves this by providing the technical support for the long-term so landowners can reach their intended goals and also capture carbon.
- FFCP solves for this by both helping offset the opportunity cost of forgoing more degrading forms of harvest through incentive payments as well as providing technical support, forest management plans, and relationships with technical providers for the long-term so that landowners do carry out both their intended goals and carbon outcomes beyond what they would have carried out without support.

# Additionality

- We use many variables (e.g., stand age, commercial timber stocking, accessibility features, etc.) that tell the story such that we can appropriately match properties based on their trajectories of likely management, and thus isolate the difference in outcomes as FFCP participation. This enables us to control for those potentially confounding factors.
- Since property-to-property matches may be difficult, we instead match to composite baseline plots and to a population of project participants. This approach increases our confidence that a landscape of project enrollees is a good match to a landscape of matched baseline plots.
- We have identified multiple possibilities of advantageous selection that may mute or overwhelm individual instances of adverse selection. For example, we actively turn away landowners who do not meet our eligibility criteria of being at sufficient risk for degrading forms of harvest. Our eligibility criteria ensures that only land with sufficient timber and accessibility to be viable for a harvest can participate, and we market to landowners regardless of pre-existing conservation ethic.
- In the future, we will be working to see if additional matching variables and/or programmatic design could help us continue to minimize the possibility of adverse selection. For example, we may be able to match in the future based on similar property sizes, non-industrial vs. industrial ownerships, and distance to mill.

We propose that the risk of adverse selection for projects using a non-predictive dynamic baseline should not focus on the question, "would the landowner have done this anyway?", but instead should be, "regardless of whether they would have done it anyway (which is unknowable by us and the landowner), was the project population matched appropriately to a baseline population that behaved as the project population would have behaved without the project?". Traditional baselines must rely strongly on evidence of landowner intention, but that weakness is not the same for non-predictive dynamic baselines.

# Permanence

***Our first-of-its-kind permanence fund goes above and beyond our methodology's requirements, investing in landowners and our forests well beyond our project's intervention to protect against reversals of our credits.***

Ensuring the permanence of a project's carbon benefit is critical to its success in making sustained climate impact. AFF's Family Forest Carbon Program participates in Verra's buffer pool, where we put aside a number of credits determined by Verra's risk of credit reversal assessment framework. Our program then goes above and beyond by putting aside a portion of credit sales revenue into a permanence fund to grow over time to be used for alumni landowners who have completed their contract with FFCP to ensure they continue sustainable management practices on their land. Those funds are used to compensate for reversals by purchasing additional credits.

However, to get to permanence that is equivalent to the lifetime of the fossil fuel emissions a carbon credit may be used to address, we believe even more will be necessary, both for AFF and for the wider market. One such that AFF is now pioneering a first-of-its-kind concept to ensure even stronger permanence of our

project's intervention. In this new concept, a third-party entity would be created to pool permanence fund monies from multiple projects to ensure coverage of any reversals into a Permanence Trust. In the instance of a reversal, the entity would use the Permanence Trust resources to purchase geological or other long-term storage carbon credits. Once this system is in place, we would revise our buffer pool to a 40-year permanence period, depositing the credits through that period. Then after 40 years, the system would allow projects to address non-permanence risk in real-time through the Trust.

The Permanence Trust relies not on models that attempt to predict how much climate mitigation to set aside today to make up for non-permanence centuries in the future, but instead models that tell us how many financial resources to set aside today to grow and be actively used to manage non-permanence risk through prevention, monitoring, and compensation for actual non-permanence.



# Permanence

## An analogy for permanence

During FFCP's crediting period, using our dynamic baseline methodology, we compare enrolled plots to unenrolled plots. In this sense, our enrolled plots are track runners in a race. In order to win the race during the crediting period, they are "competing" against other track runners, or the unenrolled plots. In order to produce carbon credits, they must outperform the baseline, or the other track runners.

However, things change at the completion of the crediting period and beginning of the permanence period, or when enrolled plots are no longer enrolled in the program. Once we enter the permanence period, the track runners (formally enrolled plots) are no longer running against fellow competing runners (unenrolled plots), but instead against their best time. In this instance, track runners must perform at least as well as – or better than – their best time during the crediting period. In other words, the formally enrolled landscape must continue to capture and store as much or more carbon as they did when enrolled in the program, but no longer in comparison to a baseline, as new credits are not being issued.



# Leakage

***Our ongoing work of creating an evidence-based IFM leakage accounting will keep it both feasible for project developers to implement and closer to the reality of leakage than generic modeled leakage factors have historically produced, in addition to unlocking incentives for leakage mitigation.***

Leakage occurs when a policy intervention causes changes outside its intervention boundary that support or negate the policy's intended outcome.

In forest carbon projects, leakage has been studied for decades, but scientific consensus on leakage values remains elusive. Models are often relied upon by standards to provide leakage factors that discount the credits generated from a project to account for leakage, but model results vary widely, sometimes by more than 100%. This creates risk that leakage accounting used by projects is either under-counting or over-counting the true leakage effects.

Recently, [new research](#) has provided a better understanding of the main drivers of leakage, and how harvest leakage differs from carbon leakage. In addition, tools like Verra's new [module 0054](#) that accounts

for the leakage of Afforestation, Reforestation, and Revegetation projects by using observed evidence and conservative default factors that are specific to project contexts provide a model for improving IFM leakage accounting.

Work is underway to create evidence-based IFM leakage accounting based on this latest research, keeping it both feasible for project developers to implement and closer to the reality of leakage than generic modeled leakage factors have historically produced, in addition to possibly unlocking incentives for leakage mitigation.



# Social Integrity

***FFCP is designed with and for small-holding landowners, with significant benefits sharing elements to ensure our intervention benefits rural American communities just as much as the planet.***

While integrity in the climate and carbon space often refers to environmental co-benefits, equally as important to its definition is the social impact of carbon projects on the ground.

FFCP is designed for small-holding landowners – a population who have unique needs for and challenges to sustainably stewarding their land. Our IFM practices are only successful if not only the woodlands but also the stewards of those woodlands are better off.

FFCP does this in several ways:

- Guaranteed landowner payments that support enrolled family forest owners financial obligations to keeping their forests as forests
- Lifetime access to expert forestry professionals that runs with the land, not just the current landowner to ensure the implementation of IFM practices beyond the contract period

- Forest management plans customized to each landowner’s property, goals, and needs
- Lifetime access to a landowner community of like-minded stewards also enrolled in FFCP for sharing of knowledge and best practices, further encouraging continued implementation of IFM practices beyond the contract period

These interventions create a host of co-benefits, both for the landowners and their woodlands, including:

- Improving the ability to keep land in the family and encouraging long-term sustainable forest management
- Increasing the long-term value of forest products on enrolled lands
- Improving the air quality, water quality and environment of woodlands
- Unlocking corporate investment in rural American economies

Additionally, FFCP’s focus on small-holding landowners reaches a population that is far too often locked out of conservation and financial opportunities to care for their lands. Our program model intentionally reaches hard-to-reach landowners, including underserved and underrepresented landowners. Our

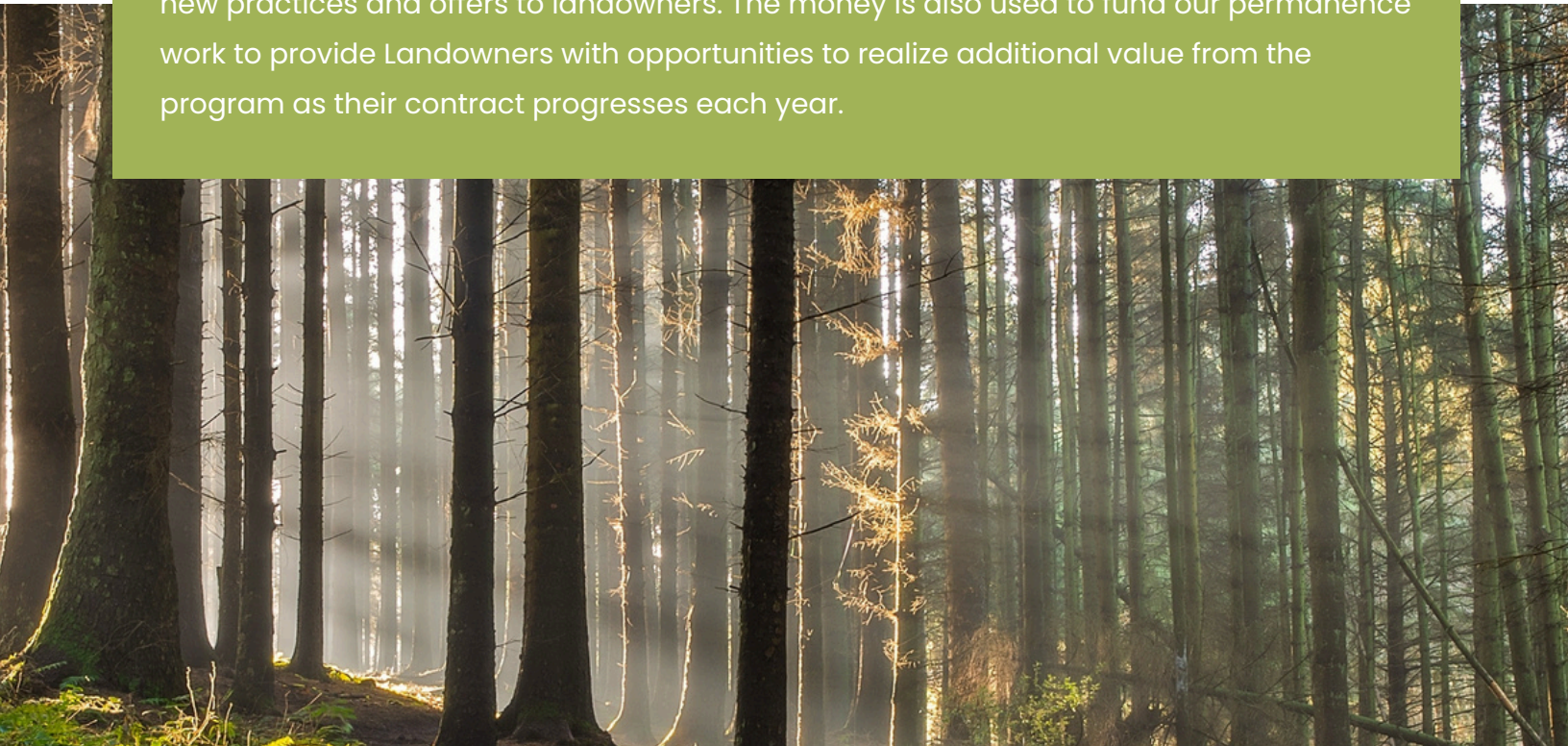
## Social Integrity

carbon accounting assesses our project on an aggregate scale, which allows for enrollment of plots as small as 30 acres – a stark contrast to traditional carbon projects that only enroll thousands of acres at a time.

All of these design elements help ensure that the climate impact of our program’s intervention continues and scales in the areas that need it most. We can’t fight climate change without supporting and empowering the communities hit first and worst by its impacts.

### A note on profit sharing

FFCP expects a rise in carbon prices in the near future, so we’ve factored this into our financial model. If the market performs better than expected, we intend to pass that benefit on to our enrolled family forest owners, in line with the missions of the two non-profits who founded and operate the FFCP. As a non-profit run program, we have no interest in clinging to additional profit for ourselves. FFCP uses the sales of enrolled landowner credits to fund the program, its expansion, and research & development of new practices and offers to landowners. The money is also used to fund our permanence work to provide Landowners with opportunities to realize additional value from the program as their contract progresses each year.



# About AFF

*Delivering meaningful conservation impact through the empowerment of family forest owners.*



The American Forest Foundation is a national conservation organization that empowers family forest owners to make meaningful conservation impact. The organization's flagship program, the Family Forest Carbon Program, helps landowners implement forest management practices to protect the health of their woodlands and help the planet. To learn more about the American Forest Foundation and the Family Forest Carbon Program, visit [www.familyforestcarbon.org](http://www.familyforestcarbon.org).

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