
Forest Project Verification Report

Verification under the Climate Action Reserve (CAR)

Reporter/Member: Mattamuskeet Ventures I, LLC (Forest Owner) and Blue Source, LLC (Project Developer)

Project: Alligator River Avoided Conversion Forest Project, CAR 497

Emission Year Verified: 2010

Scientific Certification Systems

Lead Verifier: Christie Pollet-Young

Technical Reviewer: Robert J. Hrubes

Site Visit Date: September 13-17, 2010

Report Date: May 6, 2011



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1 Summary

This report presents the findings of the verification assessment of the forest carbon pools of the Alligator River Avoided Conversion Forest Project developed by Blue Source, LLC on behalf of the Forest Owner, Mattamuskeet Ventures I, LLC. This assessment covers the Alligator River Avoided Conversion Forest Project's greenhouse gas emission reductions and removals reported to the Climate Action Reserve (the Reserve) for Emission Year 2010. The verification was undertaken to evaluate the Project Design Document (PDD) and assess whether the compiled data conform to the Climate Action Reserve Forest Project Protocol, Version 3.1 (FPP, October 2009).

The assessment was in accordance with the following documents of the Climate Action Reserve: the Forest Verification Protocol, Version 3.0 (September 2009), Verification Manual (December 2010), and Program Manual (March 2010). In the course of the verification assessment, the SCS verifiers developed findings which included New Information Requests (NIRs), Non-Conformity Reports (NCRs), and Opportunities for Improvement (OFIs). All NIRs and NCRs have now been adequately responded to and closed.

On the basis of the information provided and the analyses completed, SCS was able to reach a decision on the initial emissions reductions and removals reported by Blue Source on the Reserve website. SCS verified the adequacy of the information provided in the PDD, confirming that this document meets the requirements of the FPP. Further, SCS was able to reach a positive opinion on the claimed emissions reductions and removals presented in the PDD and on the Reserve website by Blue Source. Thus, SCS verified 80,847 metric tonnes of CO₂-e reductions and removals from the Alligator River Avoided Conversion Forest Project for Emission Year 2010.

2 Introduction

This report covers the verification of the calculated carbon stocks of the forest carbon pools of the Alligator River Avoided Conversion Forest Project for Emission Year 2010 from May 14, 2010 to December 31, 2010 submitted by Blue Source to the Climate Action Reserve. This report presents the findings of the assessment and provides a description of the steps of the verification process. This is the first complete verification of emission reductions and removals reporting for the Alligator River Avoided Conversion Forest Project. The results of this verification are presented in this report.

3 Project Description

The Alligator River Avoided Conversion Forest Project is located in Hyde County, North Carolina, within the boundaries of a 2,372-acre Project Area that is bordered by agricultural fields and the US Fish and Wildlife Service Alligator River National Wildlife Refuge. The Project Area is located within the Northern Atlantic Coastal Plain—Swamp Hardwood and Cypress Forest Assessment Area and the forest is a mixture of pine and bottomland hardwoods species. Of the Project Area's 2,372 total acres, 2,308 acres are forested by multi-aged stands of native species. The other 64 acres encompass roads and canals.

The Alligator River Avoided Conversion Forest Project is owned by Mattamuskeet Ventures I, LLC, a landholding group who is interested in preserving the natural resources of the area for the purposes of carbon sequestration, recreation, hunting, and aesthetic values. The forest project was developed by Blue Source, LLC, and technically supported by Winrock International.

The entire Project Area (2372 total acres) has been placed under a permanent warranty easement deed through the Wetlands Reserve Program (WRP) of the USDA Natural Resources Conservation Service (NRCS).¹ The WRP easement precludes general development and active management, including such activities as wood product extraction, agriculture, and grazing. With the easement, the Forest Owner has avoided the conversion of the project area to agriculture. In lieu of this economic activity, the Forest Owner has chosen to develop an Avoided Conversion project that conforms to the FPP. The Forest Owner has agreed to promote and restore wetlands on their property as well as accepted the terms of limited land use rights on their property. Nonetheless, they have retained the carbon rights from the creation of the Alligator River Avoided Conversion Forest Project. In accordance with the WRP, the NRCS does not “assert any interest” in the carbon credits generated from the avoidance of GHG emissions that would have occurred once the land was converted from forestland to agriculture.² The carbon credits remain the property of the WRP participant, Mattamuskeet Ventures I, LLC.

Forty years ago, much of the forest in the general vicinity, including the Project Area, was slated to be converted to agriculture. In preparation for the conversion, the land was ditched and drained but allowed to naturally regenerate when the land was not cleared. In 2008, the Forest Owner began to clear 2,740 acres of their property, including the Project Area, to finally convert this land to agriculture. After 180 acres were cleared, the Forest Owner became aware that carbon revenues could potentially provide sufficient resources to maintain the entire property as forestland and suspended planned clearing and conversion activities. Thus, the Project Area delineated by the Alligator River Avoided Conversion Forest Project does not include the 180 cleared acres but only the lands that remain forested and this land was placed under the permanent warranty easement deed with the WRP.

The sequestration associated with the naturally regenerating forest, combined with precluded commercial harvest, will provide reportable GHG reductions and removals net of the baseline scenario.

4 Verification

Scientific Certification Systems (SCS) is a global leader in third-party certification, auditing, testing services, and standards. Established as an independent third-party certification firm in 1984, our goal is to recognize the highest levels of performance in environmental protection and social responsibility in the private and public sectors, and to stimulate continuous improvement in sustainable development.

¹ Filed in Hyde County, NC on May 14, 2010, Register of Deeds, Book 241, Page 719.

² Federal Register Volume 74, No. 10, Section 1467.20(b)

SCS is currently accredited to ISO 14065 for GHG Validation and Verification by the American National Standards Institute (ANSI) and offers verification under the Voluntary Carbon Standard (VCS) and the Climate Action Reserve. SCS also offers verification services for the Chicago Climate Exchange (CCX) and the Climate, Community and Biodiversity (CCB) standards. To date, SCS has verified over 42,000 acres of forest under the Climate Action Reserve's Forest Protocols. SCS has been verifying forest carbon offsets for over four years and conducted the first verifications of Forest Carbon Projects under the California Climate Action Registry (CCAR) Forest Sector Protocols. The Greenhouse Gas Verification Program draws upon SCS's established expertise in field forestry, biometrics, and verification activities to serve the global forest carbon market.

SCS launched its forest management certification program in 1991. In 1995, SCS's Forest Conservation Program was accredited as one of the first Forest Stewardship Council (FSC) endorsed certification bodies. Since that time, SCS has become a global leader in forest management and wood products certification. Our diverse set of certification services provides forestry operators and manufacturers with a full range of quality services.

4.1 Verification Objectives

The purposes of this verification assessment are the following:

- Evaluate conformance with the verification criteria as defined in the FPP;
- Assess the likelihood that the GHG project has resulted in the avoidance of GHG emissions stated in the project documents;
- Evaluate the project information and documentation, including the baseline determination, field inventory, growth and yield modeling, and monitoring; and
- Evaluate reported avoided GHG emissions.

4.2 Level of Assurance

SCS performed the core verification activities described by the Reserve in the Forest Project Verification Protocol to determine whether it could establish a reasonable level of assurance that the project's avoidance of GHG emissions is materially correct. SCS used the Reserve's criteria to determine if the PDD addressed each requirement included in the FPP. Only projects in compliance with the FPP and associated Reserve program manuals are verified.

4.3 Treatment of Materiality

Projects submitted to the Climate Action Reserve must meet a materiality threshold that is called a "minimum quality standard." To meet the minimum quality standard, the Alligator River Avoided Conversion Forest Project must be free of errors, omissions or misstatements that would impact the GHG assertion regarding the number of CRTs asserted by the Project Proponent.

In addition, a material misstatement must be declared if the reported forest inventory does not appropriately describe the forest area and differs significantly from the verifier's assessment of the inventory, changes in stocks, and avoided GHG emission estimates as described in more detail in the Reserve's Forest Verification Protocol.

To meet the Climate Action Reserve minimum quality standard, the forest entity's inventory data are compared to the verifier's inventory data as described in Section 5.5 of the Reserve's Forest Verification Protocol, Version 3.0 (Section 7). Specifically:

Each plot set is installed by the verification body, or a consultant hired by the verification body, for an identified area and compared to the forest owner's reported inventory for the same area. The comparison is analyzed using a paired T-test at the 80% confidence interval to determine if the inventory is within the same population as the inventory submitted by the forest owner. A plot set will either support or raise concerns about the accuracy of the forest owner's inventory. A forest owner receiving an 80% score or better has demonstrated that their inventory is sound.

Estimates that do not fall within this threshold are considered materially inaccurate.

4.4 Verification Scope

The scope of the verification encompasses desk and site verification activities for the Alligator River Avoided Conversion Forest Project against the following publications of the Reserve:

- Forest Project Protocol, Version 3.1 (FPP; October 2009)
- Forest Project Verification Protocol, Version 3.0 (September 2009)
- Program Manual (March 2010)
- Verification Program Manual (December 2010)

The verification was performed using the Project Proponent's PDD and other supporting documentation.

The verification process involved the following activities:

- Assessment of the completeness of the inventory methodology;
- Verification of avoided GHG emissions reported on the Reserve software;
- Assessment of the baseline determination;
- Verification that a measurement and monitoring system is in place that is capable of delivering high quality carbon stock data;
- Assessment of data accuracy and any assumptions made in the manipulation of that data;
- Verification that the organization is operating according to the methodology approved by the CAR;
- Verification that the carbon stocks reported are real; and
- Conclusions developed on the declared CRTs for registration on the Reserve website.

4.5 Verification Team

Lead Verifier: Christie Pollet-Young, SCS GHG Verification Forester

Ms. Pollet-Young is a Verification Forester for SCS's Greenhouse Gas Verification Program. Ms. Pollet-Young has over 15 years of experience in forestry, ranging from forest ecology research to conservation planning to carbon offset verification in both tropical and temperate climates. Prior to

joining SCS, Ms. Pollet-Young worked for the international environmental consulting firm AECOM as an environmental planner and biologist, the Smithsonian Tropical Research Institute's Center for Tropical Forest Science as a Program Specialist and The Nature Conservancy in Peru as a Conservation Science Specialist. Ms. Pollet-Young completed a Master of Forest Science from the Yale School of Forestry and Environmental Studies and graduated with high honors from the University of California, Berkeley with a Bachelor of Science in Environmental Science, Policy and Management and a minor in Forestry. Ms. Pollet-Young is a lead auditor with SCS who has validated and verified forest projects under the Climate Action Reserve, the Verified Carbon Standard, the Chicago Climate Exchange, and the Climate, Community and Biodiversity Standards.

Verifier: Ryan Anderson, Contract Forestry Auditor

Ryan Anderson holds a BS in Environmental Science from the University of Denver and an MS in Natural Resource Science and Management with emphasis in geospatial assessment, monitoring, and modeling of forest resources. His experience with terrestrial carbon cycle related research includes work at the Cedar Creek Long Term Ecological Research Station, the Chequamegon Ecosystem Atmosphere Study, and the North American Carbon Program's Site Synthesis modeling effort. His Master's work focused on the use of LiDAR remote sensing for improved landcover classification, inventory of forest carbon stocks, and modeling of mean annual growth increments in the Chequamegon National Forest in northern Wisconsin. He is currently pursuing a Ph. D. in Forestry with the University of Montana's Numerical Terradynamic Simulation Group. His research focuses on the development and calibration of physiologically-based models of terrestrial ecosystem carbon, nitrogen, and water cycles.

Technical Reviewer: Dr. Robert J. Hrubes, SCS Senior Vice President

Dr. Hrubes, as a California Registered Professional Forester, holds a Ph.D. in Wildland Resource Science from UC-Berkeley, an M.A. in Economics from University of California, Berkeley, a M.S. in Resource Systems Management from the University of Michigan, Ann Arbor, and a B.S. in Forest Management and Outdoor Recreation Management from Iowa State University, Ames. Dr. Hrubes was employed for 14 years by the USDA Forest Service in a variety of field management, research and land management planning positions. Subsequently, Dr. Hrubes spent 12 years in private consulting, focusing primarily on forest management certification and natural resource economics, and has over 30 years of professional experience in both public and private forest management issues. Dr. Hrubes was lead architect of the programmatic protocols that guide all SCS Forest Conservation Program evaluations. He also provides executive oversight and has direct involvement in the SCS Forest Carbon Program. Dr. Hrubes served as lead auditor on the first three forest carbon projects that have been registered under the California Climate Action Registry (CCAR), and also sat on the CCAR Forest Protocol Working Group that was tasked with developing the revised forest protocols for CCAR, now CAR. He has been the Senior Vice President at SCS since 2000.

5 Verification Process

The verification process for the forest carbon pools of the Alligator River Avoided Conversion Forest Project can be divided into four stages:

5.1 Desk Assessment

In the first stage, SCS received and reviewed the PDD, Reserve submittals, and other supporting documentation to assess initial conformance with the data requirements of the FPP. Key factors that impact the reported emission reductions and removals were identified and a Verification Plan was created to focus on the critical elements presenting potential risk for errors. These elements included inventory data collection and handling, assumptions underlying the baseline characterization, application of the growth and yield model, and compliance with the eligibility requirements of the avoided conversion project type.

Prior to the field visit, the verification team conducted a desk review of the project documentation and found the documentation submitted by Blue Source for the Alligator River Avoided Conversion Forest Project to be adequate to proceed with the site visit.

5.2 Site Visit

Following the desk review, the auditors conducted an onsite audit of the Project Area from September 13 to 17, 2010. The site visit was used to verify the PDD, visit random portions of the ownership for reconnaissance and ground-truthing, and to conduct a field review of Blue Source's sampling methodology. The site reconnaissance included a general surveillance of the property to observe the forest typing, review the stratification, and survey the project lands to evaluate general stand dynamics, including forest structure and composition. Additionally, SCS evaluated the historic ditching and draining in the property area, the agricultural activities on adjacent lands, and assessed conformance with the warranty deed easement.

During the site visit, eight inventory plots were randomly selected and re-measured by the verification team. The collected data was used to confirm if proper field measurement techniques were used by the Project Proponent to conduct the forest inventory. Stand typing and general descriptions of the forested area were also verified as part of the general reconnaissance of the Project Area.

5.3 Quantitative Review

The third step of the verification process focused on the quantitative analyses undertaken by the Project Proponent to convert the raw inventory data into estimates of standing volume of woody biomass and then to translate volumetric measures into estimated tons of carbon for both the baseline and the project activity. Discussed in detail in Section 7, the latter included the following activities:

- Generate per acre estimates of standing and lying woody volume from the re-measured plots to assess the accuracy of the base year inventory and carbon stocks for the Project Area
- Review the baseline growth and eventual land clearing projections for forest carbon stocks over the 100-year project period

5.4 Findings

Throughout the verification, there were numerous iterative exchanges between SCS and the Project Proponent to gather additional information for review and examination. This exchange included Findings—New Information Requests (NIR), Non-Conformity Reports (NCR), and Opportunities for Improvement (OFI)—that were issued by SCS and sent to the Project Proponent. The Project Proponent was required to respond to NIRs and NCRs and with these responses and supplementary information, SCS was able to render a verification opinion. At this time, all Findings have been appropriately addressed by Blue Source and subsequently closed by SCS.

The Findings from the verification of the Alligator River Avoided Conversion Forest Project were compiled in a “List of Findings” and are available under separate cover. The List of Findings is a confidential document between the Project Proponent, the verifier, and the Reserve; it is not publicly available.

5.5 Documentation and Verification Statement

The last step in the verification process was the final review of the submitted data, completion of the verification activity log, and drafting of the Verification Statement and supporting Verification Report. A draft Verification Statement and Verification Report were completed based on the results of the verification assessment. The draft report was presented to an internal SCS Technical Reviewer who determined the Verification Statement to be justified given the evidence presented. The Verification Report and Verification Statement were then presented to Blue Source for review and comment. Once Blue Source approved these documents, SCS uploaded the draft Verification Report to the Reserve website for institutional review by Reserve staff.

The PDD for the Alligator River Avoided Conversion Forest Project meets the requirements of the FPP. SCS approved the PDD for the Alligator River Avoided Conversion Forest Project and this approved PDD is attached to the Project Implementation Agreement (PIA), executed between the Reserve and Mattamuskeet Ventures I, LLC (See Section 6.4.1). Once SCS verified that the PIA was filed,³ they uploaded the final Verification Statement to the Reserve website. If the Reserve renders a positive review of all of the documentation for the Alligator River Avoided Conversion Forest Project, the Reserve will register the emissions reductions for the reporting period of the verification assessment.

6 CAR Forest Project Requirements

SCS verified the Alligator River Avoided Conversion Forest Project against the requirements of the FPP. The following sections detail the most essential aspects of the verification of the Alligator River Avoided Conversion Forest Project.

³ Filed in Hyde County, NC on May 6, 2011, Register of Deeds, Book 245, Page 810.

6.1 Project Type

The Alligator River Avoided Conversion Forest Project is in compliance with the CAR project eligibility requirements set forth in the FPP. The project is eligible because it is characterized by the following:

1. The Forest Owner can demonstrate that there is a significant threat of conversion of project land to a non-forest land use by following the requirements for establishing the project's baseline in Section 6.3 of this protocol.
2. The project does *not* employ broadcast fertilization.
3. The project does not take place on land that was part of a previously registered Forest Project.

The Alligator River Avoided Conversion Forest Project has been defined as an avoided conversion project that is intended to avoid the release of carbon dioxide associated with the conversion of forest land to row crop agriculture. SCS reviewed a land clearing bid from Precision Custom Farming which indicated that the forest area would be cleared over a three-year period (Sections 6.3.2 and 7.2). As previously mentioned, Mattamuskeet Ventures I, LLC cleared 180 acres of their property in August 2008 and had the financial capacity to clear 2,740 acres over three years. Only when the potential for carbon revenues were identified did the clearing stop and this avoided conversion project was developed with assistance from Blue Source and Winrock International.

In conformance with the other two eligibility requirements for this project type, the project does not employ broadcast fertilization, and does not take place on land that was part of a previously registered forest project under the Reserve. Additionally, the Project Area was privately owned by Mattamuskeet Ventures I, LLC prior to the project start date.

6.2 Project Start Date and Crediting Period

The Alligator River Avoided Conversion Forest Project commenced on May 14, 2010, the date the Warranty Easement Deed was filed between Mattamuskeet Ventures I, LLC and the Wetlands Reserve Program. The Project Proponent is submitting this initial verification of GHG reductions and removals for the Alligator River Avoided Conversion Forest Project for the reporting period of May 14, 2010 to December 31, 2010. The crediting period for the project will be 100 years, commencing on the project start date of May 14, 2010.

6.3 Additionality

Climate Action Reserve forest projects must be additional to qualify for registration. SCS has found that the Alligator River Avoided Conversion Forest Project is additional because it meets both the legal requirement and performance tests.

6.3.1 Legal Requirement Test

The Blue Source signed and uploaded to the Reserve website a signed copy of the Reserve's Attestation of Regulatory Compliance and Attestation of Voluntary Implementation affirming that the planned activities of the Alligator River Avoided Conversion Forest Project are not required by law. In addition, the FPP includes the requirement that the project must meet to demonstrate that the anticipated land use conversion is legally permissible.

The Alligator River Avoided Conversion Forest Project meets the second requirement in Section 3.1.1.3 of the FPP, version 3.1 because “the Forest Owner has obtained all necessary approvals from the governing county to convert the Project Area to the proposed type of non-forest land use.” The project has met this requirement by providing documentation from two experts, H. Glenn T. Dunn, attorney, and Donald E. Fox, technical service provider, that the land is both legally and physically capable of being converted to agriculture. In the 1960’s, the project site was previous ditched and drained for agricultural use. Since this time, the water level in the Project Area has been maintained by flashboard risers. Presently, the flashboard risers maintain the high level of water that is required for the Northern Atlantic Coastal Plain Forest. The conversion of the Project Area would only require the removal of the flashboard risers and this removal is in accord with local, state, and federal regulations.

The attorney H.G. Dunn has stated in a letter dated May 2009 that no additional permits would be required to remove the flashboard risers to convert the land to agriculture as long as no dredging or filling is needed for the land conversion (Appendix B in the PDD). To address this latter issue regarding the possible need for dredging or filling to carry out the land conversion, the technical service provider, Donald E. Fox, stated in a letter dated September 2010 that the conversion from forestland to agriculture in the Project Area would not require dredging or filling (Appendix C in the PDD). As such, the project has obtained all of the necessary approvals from the governing county to convert the Project Area to the agriculture.

6.3.2 Performance Test

The Alligator River Avoided Conversion Forest Project is in conformance with the requirements of the performance test for the avoided conversion project type in Section 3.1.2.3 of the FPP. The requirements for an appraisal are as follow:

1. *The Project Area is suitable for conversion.* The appraisal must clearly identify the highest value alternative land use for the Project Area and indicate how the physical characteristics of the Project Area are suitable for the alternative land use.
 - a. At a minimum, where conversion to commercial, residential, or agricultural land uses is anticipated, the appraisal must indicate that the slope of Project Area land does not exceed 40 percent.
 - b. Where conversion to agricultural land use is anticipated, the appraisal must provide:
 - i. Evidence of soil suitability for the type of expected agricultural land use.
 - ii. Evidence of water availability for the type of expected agricultural land use.
 - c. Where conversion to mining land use is anticipated, the appraisal must provide evidence of the extent and amount of mineral resources existing in the Project Area.
 - d. The appraisal must identify specific portions of the Project Area suitable for the identified alternative land use. (For example, an appraisal that identified a golf course as an alternative land use must specify the approximate acres suitable for fairways, greens, clubhouses, and outbuildings.)
2. *The alternative land use for the Project Area has a higher market value than forestland.* The appraisal for the property must demonstrate that the fair market value of the anticipated

alternative land use for the Project Area is at least 40 percent greater than the value of the current forested land use.

In response to the first requirement, the Project Area is suitable for conversion. The real estate appraisal prepared by S. Ann Mc Roy, MAI, ARA and dated September 17, 2009 indicates that agriculture is the highest value alternative land use for the property. The appraisal also states that the physical characteristics of the Alligator River Avoided Conversion Forest Project are suitable for agriculture. The slope of the Project Area is less than 40 percent and there is evidence of both soil suitability and water availability for agricultural land use. It should be noted that the appraisal encompasses an area larger than the Project Area, yet all of the land is suitable for conversion from forestland to cropland.

The second requirement has been met because agriculture has a higher market value than forestland. Specifically, the fair market value of the Project Area as cropland is \$3,200/acre compared to \$500/acre as forestland, which exceeds the requirement for a 40% or greater increase in value over the current forested land use.

6.4 Project Implementation Agreement

The Climate Action Reserve requires forest owners to enter into a Project Implementation Agreement (PIA) with the Reserve to ensure the permanence of avoided GHG emissions through the forest owner's long-term commitment to comply with the FPP. Prior to issuance of CRTs, SCS will verify that the PIA has been recorded in Hyde County and communicate the verification of this activity to the Reserve.

6.5 Permanence

The Climate Action Reserve administers a Buffer Pool, which is a general insurance mechanism and holding account for Forest Project Climate Reserve Tonnes (CRTs). All registered forest projects are required to contribute a portion of their CRTs from avoided GHG emissions or GHG reductions and removals to the buffer pool to compensate for possible future reversals, avoidable or unavoidable, which could negatively impact forest carbon projects. Contributions to the Reserve's CRT Buffer Pool are determined by the Alligator River Avoided Conversion Forest Project's reversal risk rating procedure in Appendix D of the FPP and Exhibit G of the Project Implementation Agreement.

The Alligator River Avoided Conversion Forest Project will hold both a Warranty Easement Deed and Project Implementation Agreement throughout the project crediting period. However, it should be noted that the Warranty Easement Deed with the WRP is not considered by the Reserve to be a "qualified conservation easement." Thus, the project's risk profile and associated buffer pool contribution has been calculated based on the PIA only.

The Alligator River Avoided Conversion Forest Project calculated their reversal risk rating and it was verified to be 20.9%. As such, 16,898 metric tonnes of CO₂-e were contributed to the buffer pool.

6.6 Included Carbon Pools

The Alligator River Avoided Conversion Forest Project includes the following carbon pools: aboveground and belowground standing live biomass and aboveground standing dead biomass. In addition, the project includes the optional pool of lying dead biomass. The project also includes the optional pool of soil carbon that will be addressed in a separate verification report. The Project Proponent approached the Reserve about the bifurcation of the verification process because the soil carbon component had a different completion timeline. Thus, this verification report will only discuss the forest carbon pools of the FPP, the forest biomass component of the project and the second verification report will address the soil carbon component.

As discussed in Section 7.3, harvested wood products have not been included in either the baseline or project scenarios. No commercial harvesting of Northern Atlantic Coastal Plain Forest exists in the vicinity of the project site. Evidence of the lack of commercial harvesting within the vicinity has been provided by North Carolina Registered Forester James H. Quattlebaum.

6.7 Sustainable Harvesting Practices

The CAR requirements for sustainable long-term harvesting practices do not apply to the Alligator River Avoided Conversion Forest Project because the project will not entail commercial timber harvesting. Since the FPP's requirements for sustainable harvesting practices apply only when the project activity entails timber harvesting, this project is exempt from the requirement to conform to this section of the FPP.

6.8 Natural Forest Management

CAR requires that all Forest Projects promote and maintain a diversity of native species and utilize management practices that promote and maintain native forests comprised of multiple ages and mixed native species at multiple landscape scales. Additionally, projects are required to maintain forest types which are native to the Project Area. The Alligator River Avoided Conversion Forest Project is located in the Northern Atlantic Coastal Plain Swamp Hardwood and Cypress Assessment Area. The Alligator River Avoided Conversion Forest Project meets the native species requirement that forest projects which states that the project must consist of at least 95% native species based on the sum of carbon in the standing live carbon pool. While the Project Proponent claims that all of the species are native to the Project Area, trees were not identified to the species level during the field inventory. Despite the incomplete data provided, SCS was able to confirm that the project is composed of at least 95% native species.

The Alligator River Avoided Conversion Forest Project also complies with the requirement for the Assessment Area that no single native species comprise more than 60% of the project's basal area, the threshold for single species composition in this forest type, as defined by Appendix F of the FPP. With a value of about 24%, blackgum was the species with the highest basal area in the Project Area. It should be noted that bay, in Table 2 of the PDD indicates that bay comprises 26% of the basal area of the Project Area. In this case, bay is not one species, rather three species that were inventoried with the same common name during the field inventory. Thus, this "species" should not be used to determine conformance with the single species threshold requirement.

In terms of age-class distribution, the Alligator River Avoided Conversion Forest Project meets this natural forest management requirement by maintaining less than 40 percent of the Project Area in ages less than 20 years.

Finally, the natural forest management requirements of the FPP require that structural elements, in the form of standing and lying dead wood, are retained in ecologically sufficient quantities in the Project Area. The FPP requires projects to demonstrate the higher of either: 1) at least 1% of standing live carbon stocks in standing dead wood or 2) at least one metric tonne, on average, of dead wood per acre. Because the Project Area has not undergone any salvage harvesting (in fact, no harvesting of any kind for many years), the Alligator River Avoided Conversion Forest Project meets both requirements, including the former, which was higher. The standing dead pool comprised about 3.5% of standing carbon stocks, averaging about 1.65 metric tonnes of Carbon per acre.

6.9 CAR Attestation Forms

First, Mattamuskeet Ventures I, LLC signed the Reserve's Attestation of Title form which affirms that they have an exclusive ownership claim to the GHG reductions and removals achieved by the Alligator River Avoided Conversion Forest Project. SCS verified Mattamuskeet Ventures I, LLC's ownership of the Alligator River Avoided Conversion Forest Project by reviewing the land surveyor's map and description associated with the property Deed.⁴ SCS obtained the deed for the Project Area from the Hyde County Register of Deeds Office. SCS confirmed that the land described in the deed was identical to the Project Area and to the land placed under the Warranty Easement Deed. This review confirmed that Mattamuskeet Ventures I, LLC owns the two tracts of the Alligator River Avoided Conversion Forest Project and that both tracts have been placed under the Warranty Easement Deed with the NRCS. As previously mentioned in the verification report, the NRCS does not assert any interest in the generation of carbon credits so Mattamuskeet Ventures I, LLC is the sole proprietor of the CRTs gained from this avoided conversion project.

Second, Mattamuskeet Ventures I, LLC signed the Attestation of Regulatory Compliance, which attests to the project's compliance status throughout the project reporting period. During the site reconnaissance and desk review verification activities, SCS encountered no evidence suggesting violations of local, state or federal laws. Furthermore, because the project is avoiding forest conversion to agriculture and is not subject to site-disturbing management activities, the likelihood of regulatory non-compliance is extremely low.

Finally, the signed Attestation of Voluntary Implementation confirms that the Alligator River Avoided Conversion Forest Project meets the legal requirement test and that the project was established and implemented voluntarily. SCS confirmed through interviews with the Project Proponents (both Blue Source and Mattamuskeet Ventures I, LLC) that the Alligator River Avoided Conversion Forest Project is a voluntary project. In addition, Mattamuskeet Ventures I, LLC entered into a Warranty Easement Deed with the WRP, which underscores the project's standing commitment to the voluntary protection of the Northern Atlantic Coastal Plain Swamp Hardwoods in the Project Area.

⁴ Filed in Hyde County, NC on December 10, 2009, Register of Deeds, Book 239, Page 894.

7 Quantitative Review of GHG Reductions and Removals

A key element of the verification assessment was a review of the Blue Source's quantification of the avoided GHG emissions from the Alligator River Avoided Conversion Forest Project. This review included an examination of the baseline determination of carbon stock and an analysis of the raw data collected from the Project Proponent's field inventory. Finally, SCS assessed how these data were converted into carbon estimates.

SCS verified that all calculations for the Alligator River Avoided Conversion Forest Project were performed correctly. From the baseline determination to the estimate of onsite carbon stocks, SCS reviewed all calculations associated with the project's estimate of avoided GHG emissions and verified them to be accurate. Furthermore, all values presented in the Annual GHG Reduction/Removal calculation described in Table 6.4 of the FPP were determined to be correct and to meet all of the requirements of the FPP.

7.1 Project Carbon Stocks

The Blue Source imported the data from the summer 2009 field inventory into an Access database. The database contains tree level information for the Alligator River Avoided Conversion Forest Project such as tree species and diameter. This information was used as the basis for the Project Proponent's calculation of project carbon stocks using Jenkins et al's 2004 grouped and species-specific biomass equations.⁵

Appendix A of the FPP requires bole diameter and total height for live trees and sound standing dead trees for the calculation of biomass and carbon mass estimations. Because the Jenkins et al 2004 biomass equations only include diameter and not height as an input, the Project Proponent contacted the Reserve regarding the use of these biomass equations. In a guidance document dated September 13, 2010, the Reserve allowed the Alligator River Avoided Conversion Forest Project to apply the Jenkins et al 2004 biomass equations for the calculation of the project's carbon stocks.

The Project Proponent reviewed the equations associated with this publication and selected species-specific biomass equations when they were both available and appropriate. For many species in the Project Area, the generalized eastern conifer and eastern hardwood equations were found to be more ecologically appropriate and were thus utilized. For example, equations derived from upland sites or other forest types were deemed inappropriate. After a thorough review of the grouped and species-specific biomass equations in the Jenkins et al publication, Winrock International selected one generalized eastern hardwoods equation for magnolia, bay, oak, and sweetgum; one species-specific equation for black gum; one genus-specific equation for the pines; six species-specific equations for red maple, and one generalized eastern conifer equation for bald cypress and cedar.

⁵ Jenkins et. al. 2004. Comprehensive Database of Diameter-based Biomass Regressions for North American Tree Species. United States Department of Agriculture Forest Service Northeastern Research Station. General Technical Report NE-319.

It is important to note that the field inventory was completed in August 2009 and the project carbon stocks were modeled to provide an estimate of carbon stocks as of May 14, 2010, the project start date. To calculate project carbon stocks for this date, the Project Proponent assumed that the 2009 data were representative of the starting point of the project. Based on this assumption, the data were then grown forward using the USDA Forest Service's Forest Vegetation Simulator (FVS) growth and yield model. FVS is an approved model under the FPP.

First, the 2009 field inventory was grown forward for a period of five years, which increased the diameter of each tree. Second, the growth rate for each stratum was determined for the five year period. Third, the stratum growth rate was divided by five to determine the average annual growth rate for each of the five forest strata. To determine the field inventory values for the project start date, the 2009 data was grown forward one year to the May 2010 project start date. Finally, the growth model was used to "grow" these values forward an additional 7.5 months to determine the December 31, 2010 project stocks, the end of the initial reporting period.

SCS reviewed the carbon calculations for the project carbon stocks and found them to be correctly computed and in accordance with the FPP (see Section 7.7). No errors, omissions, or misstatements were found during the review of the calculation of project carbon stocks.

7.2 Baseline Determination

The FPP requires the Project Proponent to create a baseline, an estimate of carbon stock losses had the forest been converted to a non-forest land use. In the case of the Alligator River Avoided Conversion Forest Project, the baseline was characterized and projected by identifying agriculture as the alternative, highest-value land use for the Project Area. This was justified through the aforementioned real estate appraisal. The rate of conversion of the forest land to agriculture, as demonstrated by a land clearing bid and the commencement of land clearing in August 2008, was determined to be three years. The Project Proponent demonstrated that the rate of conversion was feasible both logistically and economically over the three year period. Finally, the FVS growth and yield model was used to simulate the changes in carbon stocks over a 100-year period with agriculture as the sole land use.

For this avoided conversion project, the baseline was comprised of the aboveground standing live carbon pool (296,059 metric tonnes of CO₂-e), belowground standing live carbon pool (73,522 metric tonnes of CO₂-e), standing dead carbon pool (13,999 metric tonnes of CO₂-e), and the lying dead carbon pool (27,055 metric tonnes of CO₂-e). In total, the baseline at the project start date was determined to be 410,634 metric tonnes of CO₂-e.

The baseline stock level at the end of the reporting period, December 31, 2010, was determined to be 325,085 metric tonnes of CO₂-e. The baseline stock level decreased during the initial reporting period because one third of the forestland would have been cut during the first year in the absence of the project. However, the first reporting period covers only 7.5 months of 2010 so the Project Proponent modeled the forest clearance with a constant rate. Thus, the baseline value on December 31, 2010 was reduced by 7.5 months of forest clearing or 85,549 metric tonnes of CO₂-e. All of these calculations were reviewed in detail and verified to be correct.

7.2.1 Discount for Uncertainty of Conversion Probability

The FPP requires avoided conversion projects to apply a discount factor for the uncertainty of conversion probability in the cases where the fair market value of the anticipated alternative land use for the Project Area, as determined by the real estate appraisal, is not more than 80% greater than the value of the current forested land use. The Alligator River Avoided Conversion Forest Project is not one of those cases because the fair market value of cropland was appraised to be far more than 80% greater than the value of the current forested land. Thus, the project was not required to apply the avoided conversion discount factor to their calculation of GHG reductions and removals.

7.3 Harvested Wood Products

Harvested wood products were not a component of the baseline because commercial harvesting opportunities do not exist in the vicinity of the avoided conversion project. Both the tree species on the property and the lack of pulp markets within an economical haul distance preclude the extraction of wood products in the baseline. These assertions are supported by James H. Quattlebaum (NC Registered Forester #406) in a letter of opinion dated August 2010 that provided by the Project Proponent (Appendix A of the PDD).

Similarly, there are no project carbon stocks in harvested wood products because the Alligator River Avoided Conversion Forest Project will not harvest due to restrictions in the Warranty Easement Deed.

7.4 Secondary Effects

Estimated annual secondary effects were also computed by the Project Proponent for the Alligator River Avoided Conversion Forest Project. This value is based on the default conversion displacement risk of 3.6%. Thus, the secondary effect adjustment was calculated to be -3249 mT CO₂-e per year. This value was subtracted from the estimate of avoided GHG emissions for the project reporting period. SCS verified that this calculation of secondary effects for the project was correct.

7.5 Verification Cruise

During the site visit to the Alligator River Avoided Conversion Forest Project site, SCS conducted a check cruise of eight plots to verify the forest inventory sampling accuracy. These plots were selected by replicating the inventory methodology provided by the Project Proponent. Per the verification criteria elaborated in the Climate Action Reserve Forest Project Verification Protocol, SCS verified the inventory estimates of onsite carbon stocks by measuring 60% or 5 randomly selected plots in the highest stocking area and 40% or 3 randomly selected plots in the middle stocking area of the Alligator River Avoided Conversion Forest Project. The field instruments used by the SCS verifiers to complete the re-measurements were:

- Compasses, adjusted for the declination of the Project Area
- GPS (Garmin MapGPS76)
- TruPulse 200 Laser Rangefinder/Hypsometer for measuring distances and tree heights

- Logger tape for measuring diameter at breast height (DBH) and measuring horizontal distances

With the data from the check cruise, SCS compared its data to those collected by Winrock International for the Alligator River Avoided Conversion Forest Project. Per the verification protocol, SCS conducted this comparison using a paired t-test at an 80% confidence level to determine if its inventory estimate was within the same population as the inventory conducted by Winrock International. The t-test was performed using biomass as the metric of comparison and the Alligator River Avoided Conversion Forest Project inventory passed ($p=0.419$), confirming the soundness of the inventory conducted by the Project Proponent. The average difference in biomass between SCS' estimates and the Project Proponent's estimate was 11.6 metric tonnes per hectare or 6.7% of SCS' estimate.

The verification cruise also confirmed that the forest inventory methodology employed on the Alligator River Avoided Conversion Forest Project met the requirements of the FPP. The forest inventory methodology employed by the Project Proponent involved two deviations from the requirements of the FPP. The Reserve provided guidance regarding the two deviations in a letter dated September 13, 2010. The first deviation was in regard to the standing dead carbon pool. The Project Proponent did not measure the length of lying dead wood. The protocol states that lying dead wood must have a minimum average diameter of 5 inches and a minimum length of 8 feet. Since lying dead material not meeting this requirement is to be considered litter, the Reserve provided guidance to Blue Source to take a subsample of lying dead material during the verification site visit. During the site visit, Blue Source sampled 6 transects of 50 feet and made observations about whether the length of the lying dead wood met the minimum average diameter requirement. It was determined that 90.9% of the lying dead material (10 out of 11 pieces) met the minimum length requirement of 8 feet. On the basis of this sample, the original lying dead carbon pool was discounted by 9.1%.

The second deviation in the project's field inventory was in the standing dead carbon pool. Height measurements were recorded only for Class 2 standing dead trees during the 2009 inventory so the Project Proponent could not demonstrate that the standing dead, Class I trees met both the minimum diameter requirement of 5 inches and a minimum height requirement of 15 feet. Similar to the re-measurement of the lying dead pool, the Reserve provided guidance, suggesting a sampling of 11 standing dead trees be taken during the Fall 2010 verification site visit. During this site visit, Blue Source recorded the height for the first 11 trees at least 5 inches in diameter that were encountered in the field and recorded the height for these standing dead trees. All of 11 individuals were at least 15 feet in height. As such, no discount was made to the original standing dead carbon pool from the 2009 inventory.

Also during the verification site visit, the Project Proponent placed additional forest carbon inventory plots in the 10-19 year old stratum and 20-29 year old stratum which ensured that all strata of the Project Area were sampled. Previously, these strata (the two youngest strata in the Project Area) had been excluded from the sampling due to high within-stratum variability.

With these adjustments, all of the forest carbon pools were determined to be measured adequately. The field inventory protocol within the PDD describes the processes for forest inventory measurements, growth and yield projections, and monitoring in greater detail. SCS has verified that the PDD and its contents are in conformance with the FPP.

7.6 Verification Plot

SCS reviewed the carbon estimates developed from the Alligator River Avoided Conversion Forest Project inventory and species-specific biomass equations. SCS provided Blue Source with a 'verification plot' which consisted of all of the tree species in the Project Area of varying diameters. Winrock International calculated the carbon tonnes for this plot and SCS confirmed that all of the conversions, expansions, and calculations were performed correctly, matching SCS's calculation using the same formulae and tools used by the Project Proponent.

7.7 Computations

The inventory estimate, growth estimates and sampling error were computed through various Excel spreadsheets. SCS thoroughly reviewed these spreadsheets and verified the actual computations for the estimate of sampling error. No material misstatements were discovered during this review.

7.8 Confidence Deduction

The FPP requires all forest projects to account for the statistical uncertainty of its forest carbon inventory estimates. The Project Proponent calculated the sampling error for the forest project which is defined as a percentage of the mean inventory estimate from field sampling at a 90% confidence interval for the standing live and standing dead carbon pools. Guidance from the Reserve dated December 2, 2010 allowed the Project Proponent to include the lying dead carbon pool in the calculation of standard error to account for the high variability of the 50m transects utilized in the field inventory. The Alligator River Avoided Conversion Forest Project employed a stratified random sample design in the Project Area and calculated the standard error for this design through the use of two peer-reviewed forest biometrics sources⁶. In addition, the Project Proponent utilized an estimator to account for post-stratification because the Project Proponent altered their strata boundaries after the field inventory. With an estimator to account for post-stratification, the sampling error was calculated to be 6.6%, yielding a confidence deduction of 1.5%. The confidence deduction can be updated with an on-site verification, yet remains unchanged between verification site visits. SCS confirmed that both the standard error and confidence deduction were calculated correctly.

8 Verification Statement

SCS was able to arrive at a positive opinion on the accuracy of the calculated emission reductions and removals from the forest carbon pools of the Alligator River Avoided Conversion Forest Project

⁶ Wenger, K. 1984. Forestry Handbook. SAF Publication 84-01. Wiley-Interscience.

IPCC. 2003. Good Practice Guidance for Land Use, Land-Use Change and Forestry. Institute for Global Environmental Strategies.
http://www.ipcc-nggip.iges.or.jp/public/gpglulucf/gpglulucf_contents.html

through a review of the PDD, additional requested information, the site verification, and office visits with the Blue Source team. SCS confirmed the soundness of the data regarding project eligibility, inventory procedures, baseline and project characterization, and methodologies related to the calculation of carbon stocks and avoided GHG emissions. Through the verification assessment, SCS has determined that the Alligator River Avoided Conversion Forest Project, developed by Blue Source, is in conformance with the FPP and meets the minimum quality standard. At this time, we conclude with reasonable assurance that no errors, omissions or misstatements that would impact the GHG assertion made by Blue Source exist. All issues identified during the verification are now resolved and found to be in conformance with Reserve standards. The PDD and data are considered accurate, complete, transparent, and free of material misstatements.

Therefore, SCS is able to issue a positive Verification Statement for 80,847 metric tonnes of CO₂-e emission reductions and removals (CRTs) of the forest carbon pools of the Alligator River Avoided Conversion Forest Project for Emission Year 2010.

While all 80,847 CRTs will be issued, 20.9% of the project's CO₂-e emission reductions and removals (16,898 metric tonnes of CO₂-e) will be set aside in the Reserve's buffer pool. As such, the forest carbon pools of the Alligator River Avoided Conversion Forest Project will be issued a total of 63,949 CRTs for Emission Year 2010. The Climate Reserve Tonnes for the Alligator River Avoided Conversion Forest Project in this Verification Report are consistent with those claimed by the Project Proponent in the PDD and on the Reserve website.