

**Determine Certainty Program Framework of a Market Based Conservation Initiative for
Longleaf Pine Habitat Improvements in Eastern North Carolina**

**Project Introduction Report
Component Report 1 of 6**

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The NC Foundation for Soil and Water Conservation (Foundation) obtained a USDA Natural Resources Conservation Service Conservation Innovation Grant in 2013 entitled “Determine Certainty Program Framework of a Market Based Conservation Initiative for Longleaf Pine Habitat Improvements in Eastern North Carolina”, contract number 3A75-13-229. Collaborating partners include; NC State University’s Department of Forestry and Environmental Resources, Texas A&M University’s Institute of Renewable Natural Resources, Environmental Defense Fund, NC Department of Agriculture and Consumer Services, NC Farm Bureau Federation, and the NC Association of Soil and Water Conservation Districts.

Project Scope

On a national scale, mitigation for impacts to the habitats of threatened or endangered species has focused on a single species approach with a strong emphasis on permanent habitat protection. We extended this narrow approach by examining the following broader questions for North Carolina:

- Is there a way to design a program that takes into account climate change and/or multiple species benefits?
- If such a program were developed what are the economic and wildlife lifecycle dynamics to be considered?
- What types of regulatory assurances would private landowners and industry need before participating?
- What type of regulatory framework needs to be developed to support the legal aspects of such a program, including permitting?

- What organizations in North Carolina can serve as the program delivery points at the county and state level?

The focus of the project was to enhance discussions in North Carolina regarding the future promotion of the longleaf pine ecosystem and the best delivery system for ecosystem services at the county level. The project was a scoping exercise, which did not intend to enroll landowners into a crediting system or offer mitigation impact credits to industry. Partners have developed an innovative process for handling impacts to threatened and endangered species on a multiple species approach that was vetted with the existing community that supports longleaf pine habitat preservation.

Historic Partnership Efforts

The Foundation and its partners are interested in moving forward the concept of a national streamlined model of endangered and threatened species habitat improvement efforts allowing for a landscape scale approach within the longleaf pine ecosystem. Several factors came into play making this the opportune time to engage in landscape scale ecosystem improvement efforts including; (i) potential land usage changes in eastern North Carolina and private landowner preferences, (ii) an existing market-based project approach to open space conservation coined the Market Based Conservation Initiative, (iii) on-going longleaf pine ecosystem restoration efforts, (iv) nationally recognized habitat exchange systems and (v) state level Certainty Program efforts. All of these efforts have their own sets of merits and weaknesses, but the overarching missing piece is a national streamlined model that can work across an entire ecosystem.

i. Eastern North Carolina Land Uses and Private Landowner Preferences

North Carolina is a strong agricultural state with agriculture, agribusinesses and forestry as the largest contributors to the total state economy. More than 90% of the land in the state is privately owned, including in eastern North Carolina. A recent major strategic planning exercise for eastern North Carolina was held in Trenton in 2012 found that population growth patterns research estimates that over one million new people could move into eastern North Carolina by 2050 (1). The projected infrastructure, land, and land value impacts of this forecast are staggering. Large increases in population, building and expansion of major roads, and other development projects will place even more pressure on scarce natural environments and habitat.

Landowner willingness to participate in innovative programs is crucial. A wealth of research information exists on the factors that influence landowners to participate in farm and forest conservation programs (3), including a study by Rodriguez et al. (3) assessing the interest in market-based conservation programs in North Carolina. In addition, during the recent economic downturn, many private landowners delayed timber harvests, waiting for prices to improve. The regional delay in timber harvests and less forestland development presents a unique

opportunity for longleaf pine ecosystem conservation. Government and nongovernment organizations have the ability to work with private landowners to manage existing longleaf pine stands and the more common southern pine species, on longer rotations to develop mature stands with an open understory improving the extent of the longleaf pine ecosystem. Extending rotations will allow a greater suite of habitat improvement options to be considered. This window of opportunity may be short lived as the economy appears to be improving and threats of land development are reemerging, especially in eastern North Carolina.

ii. Market Based Conservation Initiative

The North Carolina conservation partnership delivered a regional scale pilot program called the Market Based Conservation Initiative (MBCI), focusing conservation efforts in portions of 18 eastern North Carolina counties. The North Carolina conservation partnership cooperated with the US Marine Corps Marine Corps Installations East to promote the preservation of working forests and farms, promote sound natural resource management, and protect the airspace of a mission critical military flight training route and special use airspace. Private landowners were given the opportunity to enter into voluntary performance based contracts through a reverse auction process to obtain contracts that will restrict future non-agricultural or non-forestry development of tall structures and upward shining lights on private lands under the targeted flight path.

A newly tried framework with a delivery mechanism of local Soil and Water Conservation districts was utilized. The pilot program was an active effort to stack funding resources allowing the agricultural and forestry communities to stay economically strong while achieving regional wide conservation. Lessons learned from the pilot program informed Department of Defense efforts regarding development of a national model for the conservation of lands critical to military training and national defense not directly adjacent to the base, coined Sentinel Lands.

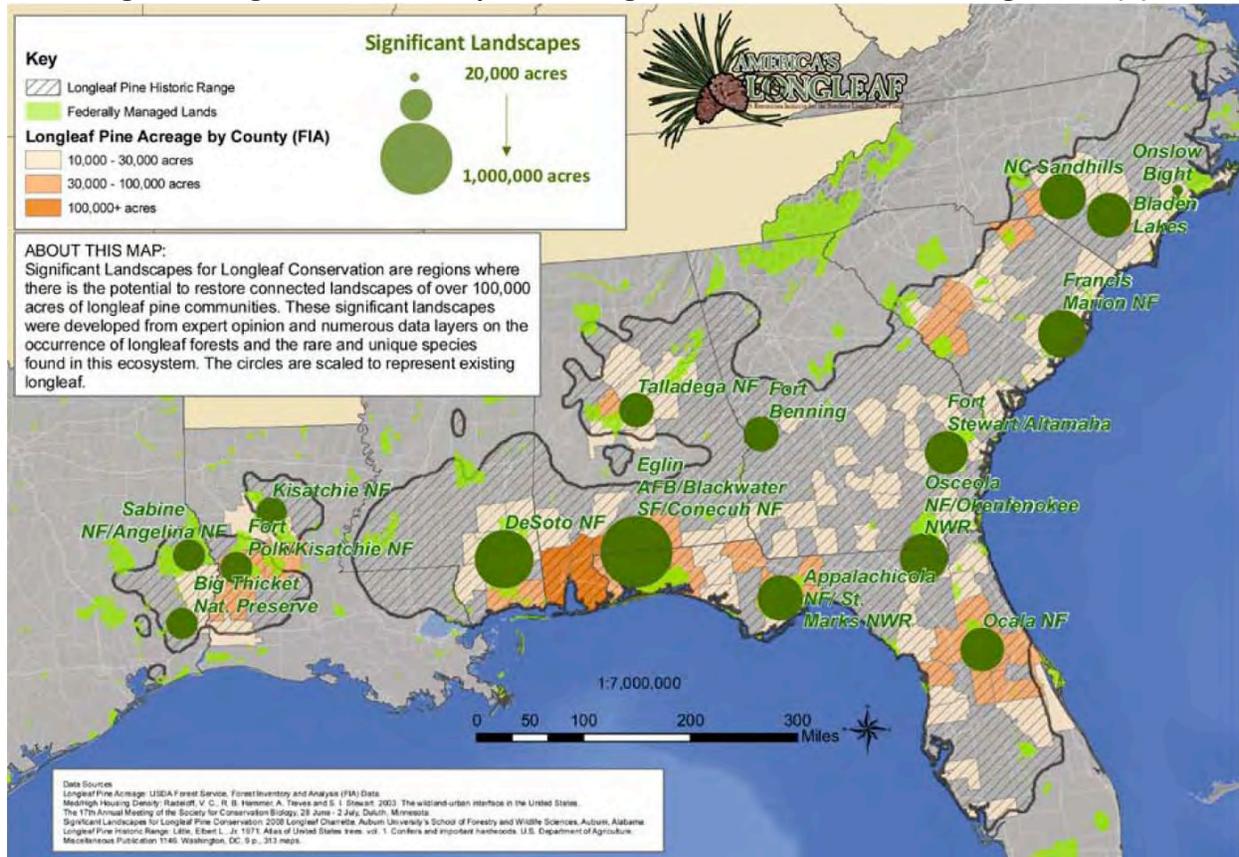
iii. Longleaf Pine Ecosystem Restoration Efforts

Longleaf pine forests historically covered a vast range, from southeastern Virginia to the coastal plains of east Texas. Longleaf pine forests once extended over 90 million acres of the southeastern United States, but today less than 4% of the habitat remains (4). These forests provide a variety of unique habitat for flora and fauna that are not available through short rotation intensively grown timber plantations or agricultural lands, including habitat for 26 federal listed endangered species such as the red cockaded woodpecker (RCW), gopher tortoise, and whorled loosestrife. Secondary ecosystem benefits include foraging habitat for game birds such as quail and turkey, pine straw for commercial use, and water quality improvement and retention.

In 2005, a group of longleaf conservationists articulated the need for a focused, range-wide restoration approach resulting in a diverse coalition named America's Longleaf—A Restoration Initiative for the Southern Longleaf Pine Forest. Recognizing that the vast majority of forestland available for conservation and restoration is privately held; to achieve any measure of success,

private landowners across the southeast will need to be engaged to plant, restore, and improve longleaf pine habitat across the Southeast. The America's Longleaf focus area are shown in Figure 1 (5).

Figure 1. Significant Landscapes for Longleaf Pine Conservation: Range-wide (5)



Recent studies identified potential longleaf pine stands on private lands, but very little acreage has the open canopy structure needed by specific species of concern. Several federal and state cost-share conservation programs have components that encourage planting and enhancement of longleaf pine. These natural resource programs and government/nongovernment organizations contribute to the demand for longleaf or other open pine species habitat establishment or restoration.

The Endangered Species Act (ESA) makes a strict distinction between the responsibilities of federal versus private landowners. Private landowners are not mandated to participate in threatened or endangered species recovery but they are not permitted to perform any activity that results in direct harm to the species or its habitat where there are identified populations. Because of these rigid requirements, federal lands have become central to the recovery plan for many longleaf pine ecosystem dependent species such as the RCW. With much of the land in eastern North Carolina being privately owned, an opportunity exists to find market-based

approaches to working with landowners while providing participants with assurances protecting their future involvement.

iv. National Habitat Exchange Systems

Habitat exchange systems are the most innovative way to support habitat improvement for a specific species of concern. The systems focus on private landowners lacking the resources and technical skills to manage private lands for a declining wildlife population. A market is created by entities needing to mitigate impact to a species of concern as required by the ESA, and the market demand prompts private landowners to take on a voluntary role in species specific habitat improvement projects. As habitat credits are created in one location, entities anticipating an impact to the species of concern in another location can purchase those credits. These habitat exchange systems are also proving to be a valuable tool in preempting a species listing.

The majority of the created exchanges focus on one species, when habitat improvements can benefit more than one species. The habitat exchange systems have evolved from a geographic area of a small number of counties to a multi-state approach. What is missing is the integrated ecosystem approach where habitat improvement for other species of concern and secondary ecological benefits are integrated into the crediting system.

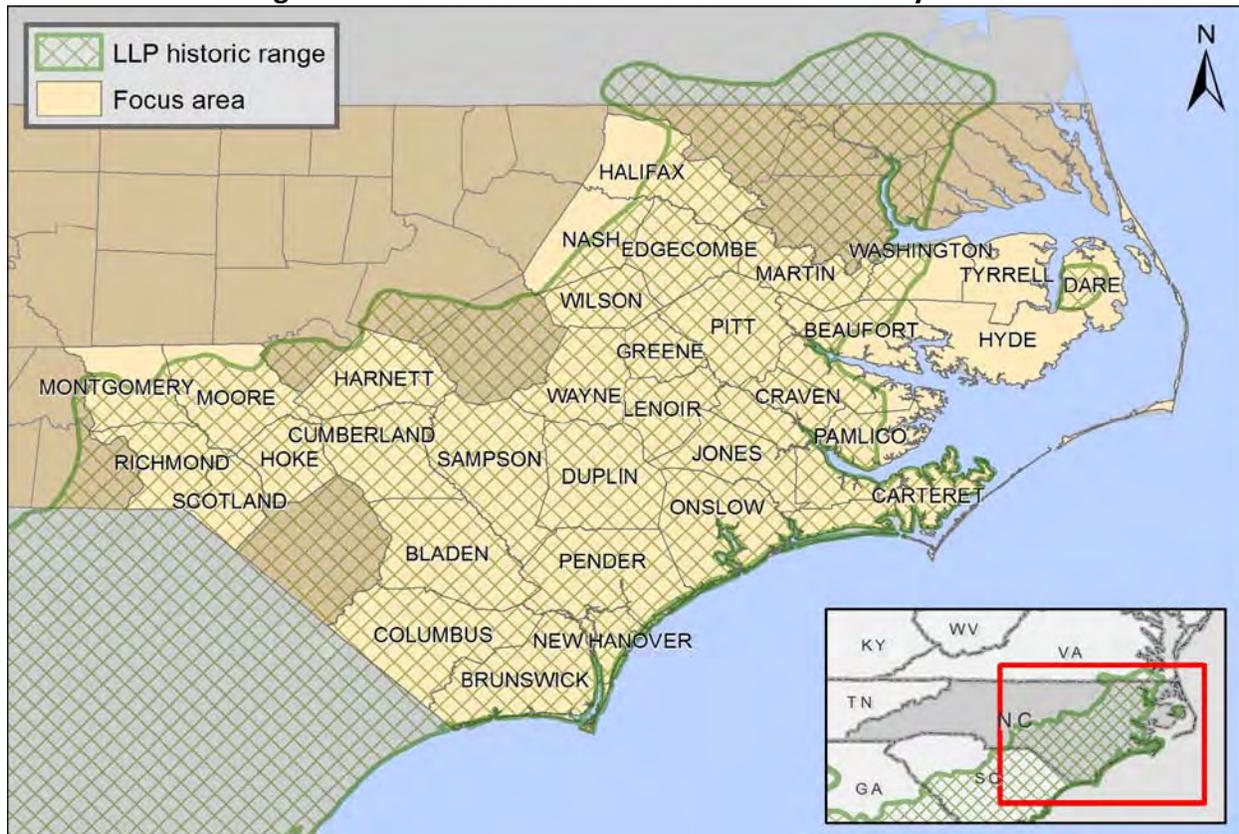
v. Certainty Programs – Conservation Candidate Agreements with Assurances

Local Soil and Water Conservation Districts are beginning to test, develop, and implement Certainty Programs. These programs which reflect the model principles of being voluntary and locally led, being based on sound science, and structured to offer incentives for participants while providing administrative and regulatory certainty that regulations and administrative requirements will not increase over time. Most of the state led soil and water conservation district efforts are focusing on water quality initiatives such as programs being implemented in the Chesapeake Bay and Minnesota. Private landowners participating are given legal compliance assurances from the Environmental Protection Agency and state programs related to Total Maximum Daily Load requirements of the Clean Water Act. Another new wildlife initiative is the Working Lands for Wildlife, a partnership of the USDA Natural Resources Conservation Service and the US Fish and Wildlife Service, which is modeled after the traditional “safe harbor” program and leads to development of Conservation Candidate Agreements with Assurances. The water quality driven Certainty Programs are being led by direct involvement from local districts across a large region, this has yet to be done for wildlife habitat or ecosystem initiatives.

Project Process

This project focused on the development of a habitat exchange system framework for wildlife species mitigation at an ecosystem level. Project partners considered market-based conservation and Certainty Program models within the traditional range of the longleaf pine ecosystem in eastern North Carolina (Figure 2). The integration of these approaches represents a substantial innovation in the delivery of wildlife habitat conservation on a landscape scale and provides a pilot model approach that can be expanded and replicated regionally within the ecosystem and nationally to address other ecosystem needs.

Figure 2. The Conservation Innovation Grant Study Area



What is missing from the current wildlife mitigation models is the integrated ecosystem approach where habitat improvements for other species of concern and secondary ecological benefits are folded into a mitigation crediting system. The proposed voluntary incentive based approach also reflects the successful methods utilized by local soil and water conservation districts in delivering locally led conservation efforts.

The project focused on several key components in order to achieve an integrated market based, certainty program as a prototype for eastern North Carolina including the following (see our separate component reports for more details):

1. Overarching Stakeholder Process – Establishment of a stakeholder advisory board that was actively engaged for the entire process with specific emphasis on science, economics, and policy aspects.
2. Longleaf Pine Ecosystem Conservation Credit Creation and Development – Development of quantifiable metrics and the framework to craft marketable credits for the conservation of specific habitats and related ecosystem services.
3. Longleaf Pine Ecosystem Conservation Credit Supply – Assessment of the willingness of private landowners to provide a supply of conservation ecosystem credits and related ecosystem services under various types of incentives and levels of regulatory certainty.
4. Longleaf Pine Ecosystem Conservation Credit Demand – Assessment of the demand and end uses for conservation credits for longleaf pine and other open forest ecosystem habitat improvements. Organizations that anticipate the need to offset impacts to specific habitat and targeted species were engaged within the public and private sector.
5. Policy Development – Development of a catalogue existing federal, state, local, and nongovernmental programs that provide incentives for the longleaf pine ecosystem as well as an evaluation of current policies and policy recommendation to overcome any private landowner adoption hindrances.
6. Program Delivery / Aggregators – Determination of how delivery of ecosystem credits for a large number of small and dispersed privately held lands can be encouraged through an innovative delivery mechanisms mirroring aggregator systems in other ecosystem service programs.
7. Third Party Tracking and Verification – Assessment of methods used in other programs to track and verify credits in order to ensure program compliance and success.

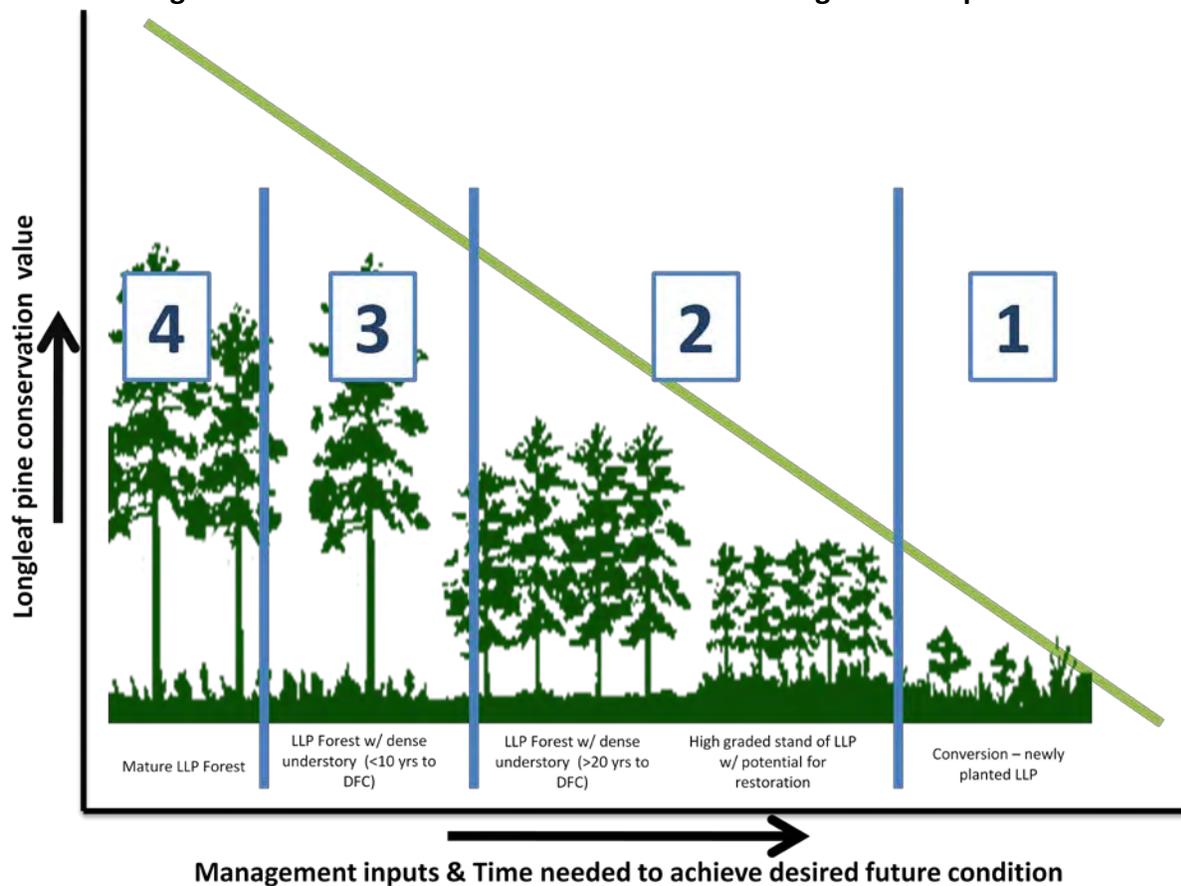
Project Process - Biological and Financial Concept Models

Current longleaf pine restoration work focuses on technical and cost share assistance as well as placing the land under permanent easements. Based on past project experiences, many landowners may not feel comfortable with considering permanent land management options. Longleaf pine is assumed to have a lower economic return than loblolly pine. Due to the perceived economic returns and the lack of understanding of how conservation easements work, less acreage is planted in longleaf pine than other pine forest systems. The question raised was how to design a program that promotes a constant revolving inventory of mature longleaf pine acreage across the landscape.

Consider the model below (Figure 3) that represents five typical stand conditions as well as the amount of time, level of management to achieve the desired future conditions along the x-axis and the relative conservation value of each group as measured along the y-axis. Four different levels of engagement based on level of commitment and incentive are required:

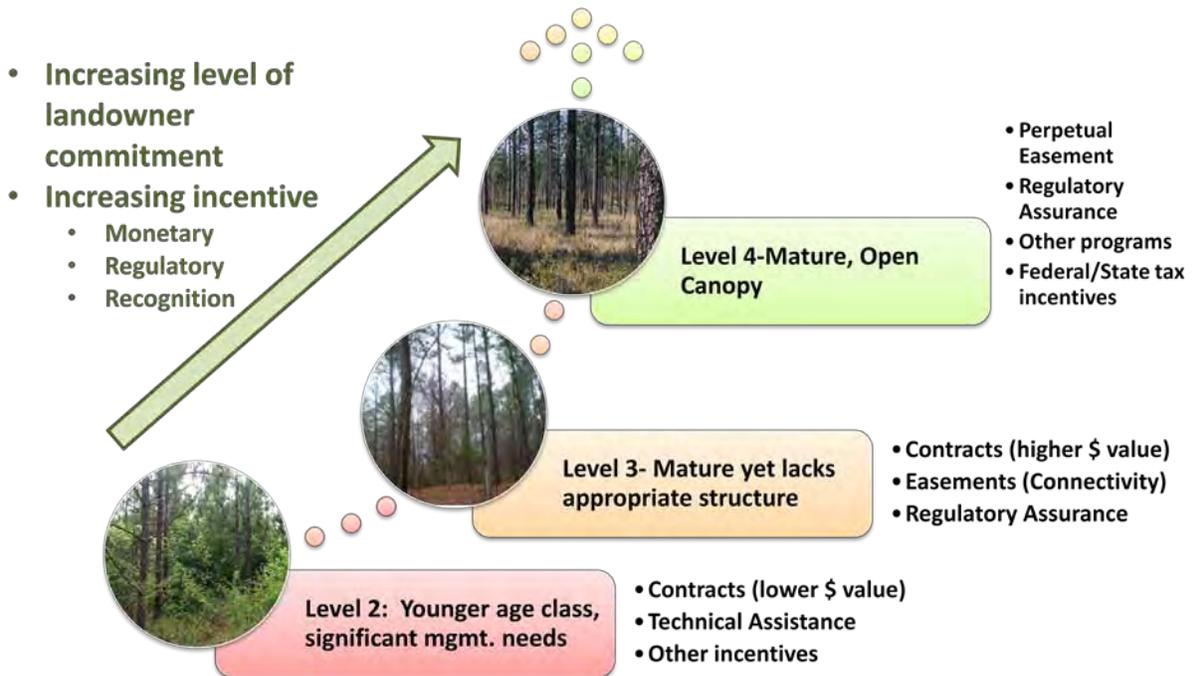
1. Mature open canopy longleaf pine forest: suitable wildlife habitat, easements
2. Longleaf pine forest with dense understory: with appropriate management (prescribed fire, understory control, thinning, etc.) potential habitat in 10 years, performance based contracts and long-term or perpetual easements based on location in landscape i.e. connectivity
3. Longleaf pine forest with dense understory (younger age structure): with appropriate management (prescribed fire, understory control, thinning, etc.) potential habitat in 20-30 years, blend of performance based contracts and technical assistance programs
4. Conversion – newly planted longleaf pine: many years of active management needed, long term investment of 50-80 years, technical assistance programs

Figure 3. The Conservation Innovation Grant Biological Concept Model



What kinds of resources and landowner assurances are needed to move a property from the younger aged trees to the more mature trees? Consideration must be given to the level of technical assistance, financial incentives, and contract obligations. The basic thought process is outlined in Figure 4.

Figure 4. The Conservation Innovation Grant Financial Concept Model



Project Process - The Stakeholder Process

Several organizations were invited to discuss the project and critique the tools as they were developed. All the information was readily accessible on a project website and detailed notes were taken at each stakeholder meeting. The meetings were not designed to reach consensus but only to explore ideas and identify areas where consensus could not be reached. Many topics discussed were considered to be beyond the scope of this project including overcoming obstacles to implementing prescribed burn and the future trends of the international biomass markets as a forest conversion pressure. A record of conversations is included in each meeting packet.

The project was organized as depicted in the following flow chart (Figure 5). Stakeholder meetings were held on a quarterly basis in Raleigh North Carolina. The Conservation Innovation Grant Project Team (Table 1) led the stakeholder engagement process; convened meetings quarterly; and performed the research, surveys, analyses and cooperative discussions that provided the substance for the discussions at the stakeholder meetings. Organizations were invited to join the process and received regular program updates by email (Table 2).

Figure 5. Conservation Innovation Grant Stakeholder Involvement Process

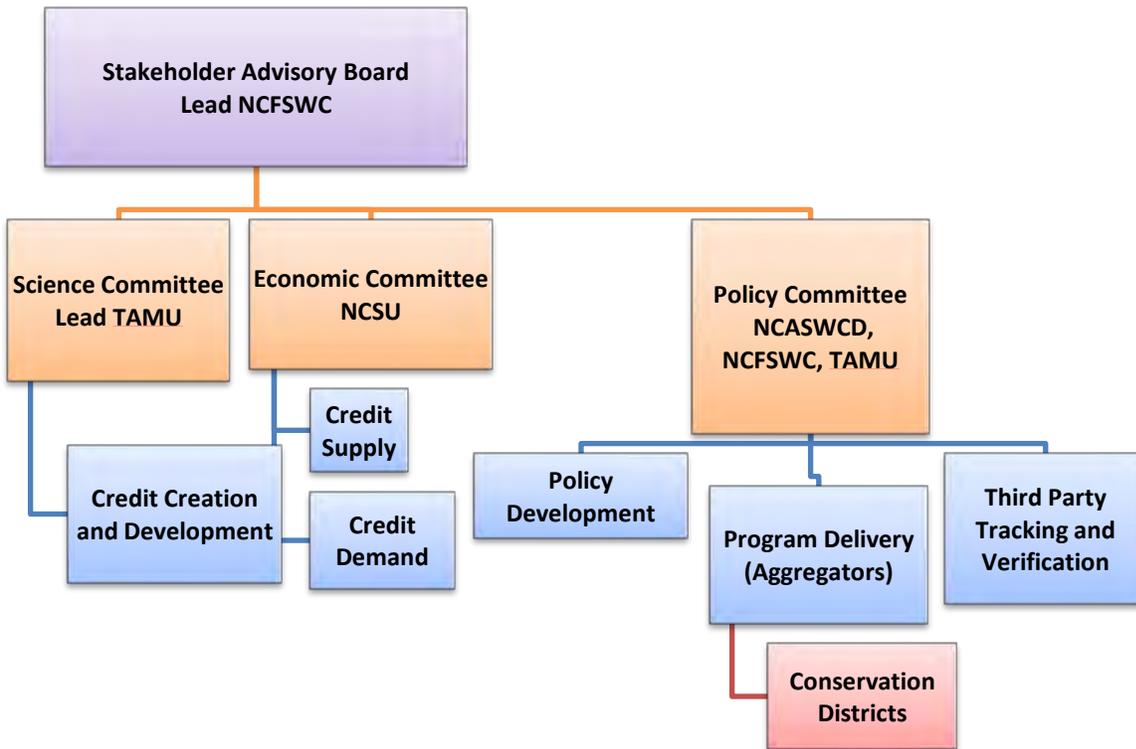


Table 1. Conservation Innovation Grant Project Team

Project Team Agencies	Project Team Personnel
NC Association of Soil and Water Conservation Districts (NCASWCD)	Dick Fowler (former) Julie Groce
NC Department of Agriculture and Consumer Services; NC Agriculture and Farmland Development Trust Fund	Dewitt Hardee
NC Farm Bureau Federation	Chester Lowder
NC Foundation for Soil and Water Conservation (NCFSWC)	Michelle Lovejoy
NC State University, College of Natural Resources, Department of Forestry and Environmental Resources (NCSU)	Dr. Fred Cabbage Dr. Nils Peterson Jessica Pope Chris Serenari Damien Singh
Environmental Defense Fund, North Carolina office	Will McDow
Texas A&M University Institute of Renewable Natural Resources (TAMU IRNR)	Todd Snelgrove (former) Brian Hays Amanda Dube Alison Lund

Table 2. Conservation Innovation Grant Invited Stakeholders

Organizational Category	Organizations
Federal Agencies	US Department of Agriculture Forest Service Natural Resources Conservation Service Office of Environmental Markets Southeast Regional Climate Hub US Department of Interior Fish and Wildlife Ecological Services Raleigh Field Office
State Agencies	NC Clean Water Management Trust Fund NC Department of Agriculture and Consumer Services North Carolina Forest Service Research Stations NC Department of Natural and Cultural Resources Division of Land and Water Stewardship NC Wildlife Resources Commission
Nonprofits	Audubon Society NC The Longleaf Pine Alliance The Nature Conservancy NC Conservation Network NC Sierra Club NC Wildlife Federation The Wildlands Network
Universities	NC Cooperative Extension Forestry Duke University Nicholas Institute for Environmental Policy Solutions
Partnerships	South Atlantic Landscapes Conservation Cooperative Regional Longleaf Pine Partnership Council

Accompanying Reports

To learn more about the project, the following reports contain the findings of the five project components. All information can also be found at www.ncsoilwater.org.

- Component Report 2 - Longleaf Pine Credit Creation and Development Report
- Component Report 3 - Longleaf Pine Credit Supply Report
- Component Report 4 - Longleaf Pine Credit Demand Report
- Component Report 5 - Model Ecosystem Credit Program Report (incl two attachments)
- Component Report 6 - Ecosystem Credit Policy Review

References

1. Planiteast.org. 2012. Welcome to PlanItEAST. Accessed at: <http://planiteast.org/plan-iteast>. 28 April 2012.
2. Rodriguez, S. L. M. N. Peterson, F. W. Cabbage, E. O. Sills, H. D. Bondell. 2012. Private landowner interest in market based conservation incentive programs for endangered species. Wildlife Society Bulletin 36: 469-476.
3. Frost, Cecil. 1993. Four Centuries of Changing Landscape Patterns in the Longleaf Pine Ecosystem. North Carolina Plant Conservation Program, Plant Industry Division, NC Department of Agriculture.
4. Significant Landscapes for Longleaf Pine Conservation: Range-wide. www.americaslongleaf.org