

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

**Project Executive Summary
March 31, 2016**

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This material is based upon work supported by the Natural Resources Conservation Service, U.S. Department of Agriculture, under number 69-3A75-13-229. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the U.S. Department of Agriculture.

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 from 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.

Longleaf Pine Ecosystem Credit Creation Analysis

The Longleaf Pine Ecosystem Conservation Credit Creation and Development element of the Conservation Innovation Grant explored habitat metrics and credit calculation for a longleaf pine habitat exchange system, implementing knowledge of existing credit systems and species of conservation concern in the longleaf ecosystem.

Research of four existing wildlife habitat credit systems indicated that this conservation tool has not only successfully contributed to management of endangered species, but also prevented listing of species. Existing systems focus on provision of habitat for a single species, awarding more credits to properties with higher conservation value based on specific habitat needs of the species of interest. Habitat preferences shared by the seven species researched herein – mature, open longleaf stands – suggest a longleaf habitat exchange system can benefit multiple species of varying degrees of conservation concern. We proposed a credit calculation method designed to assess the conservation value of a property based on points and multiplier values assigned to 21 habitat metrics. These metrics evaluate the spatial and temporal context of habitat, stand structure, length of time managed as wildlife habitat, and total area managed as habitat. Assignment of credits based on such metrics encourages conservation of mature, open longleaf stands with native, herbaceous understories existing in large, contiguous areas managed as wildlife habitat for longer periods of time. As additional research becomes available for other open pine ecosystems, this same credit framework can be adjusted and applied to provide adequate habitat for relevant species of concern in those systems.

Longleaf Pine Ecosystem Credit Supply and Demand Analysis

The potential supply of longleaf pine habitat in Southeast North Carolina for an ecosystem based credit market was analyzed using landowner surveys and economic analyses of rural land management alternatives. Results from a logistic regression and a choice-based-conjoint (CBC) statistical analyses revealed that landowners were most influenced by program requirements such as contract length and legal obligation in a conservation contact. Short term contract agreements of 5 to 10 years were favored, as were the least land restrictions. Annual payments were somewhat less important than contract agreement or level of obligation, although higher payments were more desirable, as expected. The initial cost share rate and level of technical assistance were the least important factors affecting willingness to participate in longleaf conservation programs. The presence of longleaf pine on the landowner's property, previous

participation in a FSA benefits program, a willingness to participate in a permanent easement to promote longleaf pine, the amount required amount to accept a permanent easement, and ownership of 101 – 500 acres of forest positively impacted landowners' interest in a conservation credit program to promote longleaf pine habitat. Conversely, persons who were unwilling to participate in a permanent easement were less interested.

The financial and capital budgeting analysis indicated that for longleaf pine versus Loblolly pine, the incentive payment required for landowners to breakeven and plant longleaf in the low intensity 2011 analysis at a 4% annual discount rate, was between \$7 per acre and \$83 per acre per year, not including establishment costs. If establishment costs of \$306 were paid, longleaf returns would exceed Loblolly returns for the higher site indexes and pine straw raking scenarios. Greater costs in our more intensive 2015 management scenarios resulted in annual incentive payment requirements of \$66 to \$496 per acre per year for longleaf to break even and meet the 4% discount rate when converting agricultural land, which are prohibitive at the high end. However, if the initial year costs for mature forest conversion of longleaf pine tree planting received a 50% cost share rate, required annual payment costs could decrease substantially. Also, if the very expensive \$2000 to \$2500 per acre shrub establishment practice were dropped, even the intensive longleaf annual payment rates for mature and planted stands could decrease to less than \$100 per acre per year, which is still within current Farm Bill program payment levels. Conversion of good quality agricultural crop land to longleaf pine would be too expensive based on high 2011 crop prices, but for poor croplands and at current lower 2015 prices, conversion could be economically attractive, especially with prevailing cost share payments.

We performed a demand survey of organizations that were familiar with longleaf demand, although most were government agencies or intermediaries, not potential buyers of credits. We had a small sample of 12 returned surveys, but received thorough and conscientious answers. All the respondents were familiar with and engaged in some current conservation credit programs – wetlands, water, endangered species, or other ecosystem goods. Nearly every participant was affected and/or limited to some degree by environmental regulations ranging from the national level (ESA and CWA) to more local policies (for instance, NC Prescribed Burning Act) that often require permits, studies and/or consultations to ensure proper management and development actions, but they did not express interest in purchasing credits to promote longleaf pine habitat yet. In addition to regulatory mandates, voluntary credit markets also could be developed in anticipation of future regulatory requirements, or used for corporate social responsibility (CSR) and good will efforts by companies. By setting aside critical habitat, or purchasing such efforts on other private lands, public or private organizations can demonstrate their commitment to environmental quality and biodiversity.

Our demand survey also provides insight into how a longleaf pine habitat credit market could be designed. An ability to track, monitor and enforce credits and their standards is important to prospective buyers. Forest certification systems such as SFI and FSC can help provide a solution given their popularity and strong framework. The demand survey respondents stated a

stronger preference for permanent contracts/easements as well as shorter term contract lengths. This makes sense—people who buy credits would want more security and permanence; sellers (private landowner suppliers) would want less permanent commitments. Similarly, while landowners preferred fixed program certainty equivalents, demand responses indicated that guaranteeing such fixed government requirements for long periods would be difficult in California, and maybe other states.

These interacting and sometimes conflicting demand and supply factors would then need to be sorted out by the market where varying prices for establishing longleaf systems could be set, and buyers would see if they attracted sufficient sellers. So far, moderate federal and state longleaf incentives have been successful and well subscribed, but more funds and perhaps higher payment levels are needed to increase the supply. The modest regulatory demand and still nascent voluntary demand for longleaf ecosystems will probably continue to prompt a slow expansion in longleaf pine establishment and restoration in North Carolina rather than a quantum leap that might be prompted by a program such as the federal No Net Loss of Wetlands policy that was mandated in 1990.

Model Ecosystem Credit Program

Several conservation programs exist to offset impacts to natural resources, such as wetland mitigation banks, water quality certainty programs, and habitat exchanges. In landscapes that are dominated by smaller acreage private landholdings, like what is found in eastern North Carolina, a strong aggregator network can be critical. Aggregating credits greatly increases the successful involvement of the credit demand entities with large purchasing power.

Several different types of conservation benefits programs across the nation were evaluated related to species recovery, water quality improvements, and agricultural sustainability. Evaluations included online research and interviews with selected programs; a set of case studies and a summary chart of programs is provided.

A program's organizational structure was defined as the following; Advisory Committee, Resource Managers, Administrator, Credit Developers and Aggregators, Credit Buyers, Technical Support Providers, and Credit Verifiers. Each groups' roles were defined and North Carolina partners that can serve in those roles were recommended. The Crediting Process was defined including; credits, debits, and associated process steps. Additional assurance processes were also discussed. Overarching programmatic costs were evaluated based on similar historic program delivery costs. Costs were considered for the first year and year five, when costs would start to drop as the program moves from the active to monitoring phases.

NC Soil and Water Conservation Districts (Districts) were evaluated for their suitability as serving as Aggregators. Presentations were made at District board meetings and District boards completed a survey gauging interest. It was determined that Districts have a lack of understanding for how credit trading programs and subsequent opportunities for expand

ecosystem services could be delivered. Districts are willing to sponsor workshops and focus groups and are comfortable serving as a Verifier. Districts are currently only minimally interested in assuming an active role in threatened and endangered species management.

Model Ecosystem Credit Program Policy Review

This project proposed to advance 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. The project was designed to develop innovative data, information, methods, and partnerships to increase the longleaf pine ecosystem in North Carolina. Several factors come 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) ongoing 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. Project partners feel that an ecosystem crediting program is possible within the existing regulatory framework. The following guiding principles are recommended:

All programs should be created through a stakeholder driven consensus building process with representative organizations that support habitat conservation, control existing habitat, or benefit from functioning ecosystems. Locally led conservation actions have a long tradition of effectively bringing together a community, state, or region to establish proactive environmental solutions to natural resource degradation.

Framework future programs similar to the Working Lands for Wildlife Program where voluntary incentives are utilized, habitat practices benefit multiple species, and regulatory agencies allow habitat improvements to count towards delisting or preclude listing of species of concern.

Regulatory certainty is key to private landowner participation in an ecosystem crediting program. The Certainty Program framework is a viable model to adopt, leading to certified program participation in a streamlined manner. Standardized practices will ensure that habitat improvements will be obtained. Program enrollment transparency allows for both private landowners and regulators to know that obligations are being met in a uniformed manner.

Project partners support consideration of Present Use Value taxation and Voluntary Agriculture Districts enrollment for ecosystem credit program supply participants. Both tools provide an added layer of enforcement by providing enrollees additional benefits while also applying penalties for program noncompliance.

Project partners support adaptive management processes to be incorporated into an ecosystem crediting program. As technologies advance and better science is established, a process allowing for future programmatic changes needs to be in place for the program to succeed.