

An aerial photograph of a dense, lush green forest. The trees are tightly packed, creating a textured canopy of various shades of green. A large, solid red rectangular box is positioned in the upper-middle section of the image, containing white text. At the bottom center, there is a smaller red rectangular box containing the text 'NC STATE' in white, with the word 'EXTENSION' in white text directly below it.

Establishing a Partnership for Sentinel Landscapes: The North Carolina Experience

A Dissemination Guide for Other States

NC STATE

EXTENSION

Establishing a Partnership for Sentinel Landscapes: The North Carolina Experience

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Executive Summary

The NC Sentinel Landscapes Partnership (NCSLP) is an innovative partnership that demonstrates how collaboration and coordination among private landowners, conservationists, military installations, and others can provide mutual benefits. Those benefits include safeguarding agriculture (farming and forestry) and national defense while protecting the state's natural resources. From a broad perspective, the partnership provides a landscape-scale model for confronting the complex and often conflicting demands of population growth, economic development, rural vitality, military readiness, and natural resource protection—issues that will continue to challenge other states as they do North Carolina.

Purpose

Establishing a Partnership for Sentinel Landscapes: The North Carolina Experience is a guide for states where military installations, agriculture, other compatible economic development, and natural resources drive the economy. This guide introduces the NCSLP and offers recommendations for developing and establishing such a partnership based on the lessons learned in North Carolina.

Introduction

The NC Sentinel Landscapes Partnership (NCSLP) is an innovative partnership that demonstrates how collaboration and coordination among private landowners, conservationists, military installations, and other groups can provide mutual benefits to the partners and safeguard the state's two largest economic sectors—agriculture (farming and forestry) and defense—while protecting the state's natural resources. This unique collaboration strives to address North Carolina's land-use challenges in ways that provide mutual and multiple benefits to all partners and communities. The partnership achieves its goals by identifying opportunities for mutual gain, effectively addressing the varying needs and interests of the individual partners and stakeholders, and developing solutions to complex challenges.

The partnership, administered by NC State University (NC State), is focused on sustaining the state's farmland, forests, and natural resources, as well as the military installations, ranges, associated airspace, and off-base training areas of eastern North Carolina. Many military training and testing areas, once remote, are now encroached upon by competing demands that can result in habitat fragmentation, such as urban sprawl and energy infrastructure siting. When combined with the military's requirements to conserve threatened and endangered species and defense requirements for military preparedness, these encroached-upon training areas can present operational challenges for current military installations.

North Carolina's total land area of 31.2 million acres includes 27 million acres of forests and farmland containing vast acreages of the state's natural resources. Almost 90 percent of that forestland and farmland is privately owned. Through their voluntary participation in the partnership, private landowners are recognized for the unique value of their lands and land management practices. Those practices include the "green readiness" that helps to support national defense by providing off-base training areas and lands for threatened and endangered species. Through collaboration among local military installations and key stakeholders at the local, state, regional, and federal levels, the partnership develops creative strategies and incentives to protect vast landscapes where the interests of conservation, rural economic vitality, and national defense converge to form a "Sentinel Landscape."

The NCSLP demonstrates how a multifaceted approach can link discrete agencies and organizations to produce mutual benefits on a broad landscape scale. The project simultaneously advances working lands, natural resource conservation, and military readiness, while fostering the long-term sustainability of ecosystem services (including clean air, clean water, and productive soils). From a national perspective, the partnership can provide an organizational framework for confronting, on a landscape scale, the complex and often conflicting issues of population growth, incompatible economic development, military readiness, and natural resource management and protection—issues that will continue to challenge North Carolina and other states across the United States.

Innovative Endeavors to Support Partnership Goals

Strategic implementation of multiple projects has promoted ongoing military readiness and training capacity, while also sustaining the viability of working lands and conserving natural resources. To assist in implementing these projects, Marines Corps Installations East (MCIEAST) outlined a military mission footprint that allowed the partners to effectively leverage resources in high priority areas—resulting in optimal impact. Examples of these projects follow:

1. Implementation of the Market Based Conservation Initiative (MBCI) pilot project. The MBCI pilot team used a reverse-auction process to determine the socioeconomic drivers and costs of term-limited performance-based conservation contracts. These contracts are made with private landowners to keep their lands in uses compatible with military flight training areas. A reverse-auction process allowed landowners to define the monetary value they were willing to accept to enter into contracts placing limited restrictions on their land. The market drivers determined the lowest bid that was generally acceptable to landowners. This kind of information can give conservation partners the flexibility to achieve cost-effective natural resource conservation while protecting the military training mission. Lessons learned from the pilot are being used to shape the structure of future program opportunities. sentinellandscapes.wordpress.ncsu.edu/partnership-initiatives/innovative-conservation-strategies
2. Establishment of a Working Lands Trust (WLT) that provides an economically viable way for landowners to maintain their working land through conservation agreements.
3. Development and implementation of a landowner educational program on working lands conservation. This initiative resulted in a comprehensive, accessible resource, in a flexible format, that NCSLP stakeholders can use to promote communication, understanding, and education of landowners about the value of land conservation in a Sentinel Landscapes area. sentinellandscapes.wordpress.ncsu.edu/partnership-initiatives/working-lands-conservation
4. Development and implementation of strategies and support plans that encourage agriculture and forestry development and forest and farmland preservation on lands of critical interest to the military. These efforts include the creation of county-wide farmland preservation plans, Voluntary Agricultural Districts (VADs), and Enhanced VADs to foster county-level support for the agriculture community. By using these tools, the partnership is identifying rural areas to preserve that are integral to agribusiness while providing private landowners with limited assurances for agricultural production. These tools have promoted enrollment into the state's Present-Use Value Program and educated local conservation districts on opportunities. Additionally, via this initiative, the NCSLP has focused efforts on providing matching funds for easements of value to the military with an emphasis on agricultural working lands, including the provision of bonus points for landowners applying for grants in a dual emphasis area. sentinellandscapes.wordpress.ncsu.edu/partnership-initiatives/agricultural-development-and-farmland-preservation
5. Development of strategies and plans to support Food and Fuel for the Forces (FF4F). The NCSLP developed FF4F to add value to North Carolina's agricultural production by better integrating the military's food and fuels markets through local sourcing and by increasing regional growers' ability to provide these products. sentinellandscapes.wordpress.ncsu.edu/partnership-initiatives/local-foods-fuels
6. Assessment of regional capabilities to meet the military's demand for biofuels. Extension Forestry at NC State assessed the current state of North Carolina's woody biomass supply (on a spatial, volume, and type basis) and its ability to meet the MCIEAST biofuels needs. The assessment was completed in the first year of the partnership and remains a resource for future planning around renewable energy. sentinellandscapes.wordpress.ncsu.edu/partnership-initiatives/wood-fiber-supply-assessment

The North Carolina Coalition

The NCSLP is a coalition of partners who have conservation interests in landscapes associated with a military presence. The coalition consists of collaborative partners and a steering committee. Together they develop and sustain innovative strategies for maintaining significant landscapes. NC State, along with the steering committee, promoted a coordinated approach focused on enhancing the network and linkages among key stakeholders. Figure 1 illustrates the dynamics between the groups.



Figure 1. Diagram of NCSLP steering committee and collaborative partners.

The NCSLP has adopted a model that allows partners with diverse sets of interests to integrate their goals through synchronous participation in the coalition. The model relies on a steering committee structure to streamline the coalition's work and connect to the overall needs served by the landscape. Texas A&M University (TAMU) represents the only out-of-state collaborator working with the partnership. This institution has a longstanding relationship with NC State, and the two created a cooperative (the University Cooperative for Readiness and Conservation) to share resources and promote military readiness and conservation in their respective states. Through constructive and open dialogue, the broader cooperative identified primary stakeholder groups to invite into the partnership, to ensure that compatible action is taken across each state. Broadly, the collaborative partners include:

- Private landowners
- Academia
- Agricultural, forestry, and natural resource agencies and organizations
- Conservation districts
- Commodity groups

- Economic development agencies and organizations
- Legislative bodies
- Military leaders
- Nongovernmental organizations (NGOs)

The North Carolina Experience

Historical Overview

North Carolina is the ninth most populous state with a rapidly expanding population and associated urban and coastal development footprints that affect several military installations and ranges in the state: Marine Corps Base (MCB) Camp Lejeune, Marine Corps Air Stations Cherry Point and New River, Seymour Johnson Air Force Base (AFB), Ft. Bragg (U.S. Army installation), and Camp Mackall (U.S. Army training facility). These military bases were established before or during World War II in very rural areas to enable and foster development of military preparedness. With the subsequent population growth and development across the region, encroachment of incompatible land uses has been identified as a critical issue that affects the sustainability and long-term viability of the training mission of North Carolina's military installations (NCDENR, 2012).

The same factors threatening military readiness are contributing to the rapid decline in the state's working land area—and the loss and deterioration of natural resources (NCDENR, 2012). Sustained population growth in the state and increased competition for resources has resulted in military training restrictions and the loss of working lands and natural habitat. North Carolina ranks high nationally in the rate of farmland loss. Between 2002 and 2007, the state lost "more than 6,000 farms and 300,000 acres of farmland" (NCDENR, 2012, p. 10). The state's forestlands are also being lost to nonforest uses at a staggering pace, with 1.6 million acres lost since 1990 (Timberlands Unlimited, 2015). As a result of these factors and others, the U.S. Marine Corps has lost approximately 85 percent of its flight training airspace in eastern North Carolina over the past 60 years (Elwood, 2008; NCDENR, 2012).

As North Carolina's population continues to increase, more land will come out of agriculture and forestry production, and the military's ability to carry out its mission will be greatly compromised (Fowler, Hardy, Madding et al., 2015). Given a growing state and a steadily changing landscape, the NC Farm Bureau convened several exploratory meetings starting in

2005. The meetings included military and state leaders, representatives from private landowner groups, researchers, and nongovernmental leaders to explore the distinctive encroachment threats to military readiness, the vitality of the agricultural and forestry sectors, and natural resource conservation. Individual landowners and representatives of various organizations, including commodity and conservation groups, convened to brainstorm strategies and efforts to address these challenges.

This early partnership recognized the importance of initial buy-in from the senior leadership of key stakeholder organizations. The work of four *program champions* proved to be vital to the partnership's overall progress and success. These leaders came from an NGO, a university, state government, and the military. The commitment to the partnership of this core group of senior leaders produced the following critical success factors:

- Funding for partnership coordination, project development, and implementation
- Establishment of beneficial policies and financial vehicles to promote multiple-benefit projects
- Breadth of expertise leveraged for partnership process development and refinement
- Advocacy of the partnership among North Carolina's private landowners

Recurring Engagement to Build Working Relationships and Trust

The partnership identified the importance of both formal and informal engagement among the partners to build effective working relationships and trust. All partners cited the growth of these relationships as a contributing factor to the continued success of the partnership and its future endeavors. These personal relationships and friendships among the group resulted in a true team approach and universal trust that promoted creative thinking and open discussion.

This early leadership group also recognized the importance of consistent communication and regular meetings, explaining that "once you lose communication, you cannot build trust." The partnership developed a robust engagement structure that included recurring scheduled face-to-face meetings, conference calls, and email exchanges. While the partnership felt that conference calls and emails were important, "being able to meet face-to-face was critical." Facilitated face-to-

face group discussions resulted in effective and creative exploration of the links between the program elements and existing programs outside of the partnership and how those links could be leveraged for mutual gain.

Determining Viable Projects

As the discussions continued, champions arose who formed a partnership around the nexus of agriculture and forestry, natural resources, and the military mission. MCIEAST provided seed funding for the partnership that allowed multiple projects to be developed. The partnership developed economically-driven solutions to enhance compatible natural resource uses in support of military readiness while also enhancing working lands through a voluntary market-driven initiative. By 2011, a project team was established to determine viable projects for the newly formed partnership. The initial projects were referred to as "elements" that included a partnership coordination component (Element 1) as well as four program projects.

- Element 1: Enhancing the network and linkages among military, conservation, and community interests
- Element 2: Agricultural Development and Farmland Preservation (ADFP) Trust Fund Collaboration
- Element 3: Working Lands Conservation Initiative
- Element 4: Food and Fuel 4 the Forces
- Element 5: Market Based Conservation Initiative

Implementation of the four initial projects required upfront and ongoing communication. This communication allowed the characteristics of the land, the needs of the military, the desires of individual landowners, and partnership objectives to determine and define each initiative's contributors, outcomes, and duration.

Overall Accomplishments of Partnership Initiatives

By the end of 2015, the NCSLP achieved key accomplishments for the original elements, as well as for the overall partnership. The overarching accomplishment was the creation of a partnership trusted by landowners. This partnership was also able to leverage funding and compatible opportunities in support of military training:

- \$3.62 million from MCIEAST
- \$1.45 million in unrecoverable indirect cost from NC State
- \$2 million in Office of the Secretary of Defense funding

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- \$2.3 million in USDA Regional Conservation Partnership Program (RCPP) funds
- \$3.27 million in ADFP Trust Fund money
- \$16.8 million of funds leveraged for a 2-to-1 Readiness and Environmental Protection Integration (REPI) match
- \$2 million of recurring legislative appropriations along with a \$2 million one-time appropriation
- \$30 million-plus of in-kind and cash funds from state and NGO partners
- \$100 million-plus annually in local property tax for voluntary deferred use of privately owned lands

Due to the awareness raised by the partnership, cost-share programs give priority to landowners under the military footprint and use of state lands for the benefit of military training has increased.

The NCSLP established new programs and concepts using collaborative efforts. The partners developed an all-service military mission footprint map, allowing for the effective communication of training priorities and targeted resource allocation. The partners also tested and validated innovative conservation concepts to achieve their goals at a lower cost. These concepts included the use of term-limited performance-based contracts and reverse-auction bidding (see Element 5, MBCI). Through this process, the partners have streamlined a military agreement process so that it can be accomplished quicker and at a lower cost than previously. In addition to streamlining the process, the NCSLP developed a state renewable energy permitting process that allows the military to weigh in on the siting of new energy facilities, which will help to ensure the development of compatible renewable energy infrastructure.

Finally, the partnership was able to successfully coordinate state and local programs to provide benefits to military readiness. This coordination includes the leveraging of programs such as Present-Use Valuation (PUV), Farmland/Forestland Protection Plans, VADs, and Enhanced VADs. By coordinating these types of programs for benefit to the military, the NCSLP increased awareness of resource dollars available. Additional accomplishments are designated below within each corresponding partnership element.



Agricultural Development and Farmland Preservation

The partners successfully preserved a 436-acre family farm (the Leonard Farm) under a 25-year term easement. This property was considered an important piece of the landscape because of its compatibility with military training as well as its ability to provide irreplaceable ecosystem services. Establishing the term agreement allowed the property owners to attain additional income that has contributed to their farm's continued economic feasibility. The partners were also successful in collaborating with the Lois G. Britt Agribusiness Center at the University of Mount Olive in North Carolina. These collaborations included a cost-benefit analysis identifying value-added opportunities for soybean farmers and additional work on the cost of community services for various land uses. Other farmland preservation work included the following:

1. Completed a *Cost of Community Services Analysis and Report* for Craven and Pamlico counties.
2. Conducted a market analysis study on the relationship and importance of value-added soybean processing to the stability of the local farm income. This study can be used to reduce the transition of compatible farmland to uses that are incompatible with military training.
 - a. The value-added soybean study used Mule City Specialty Feeds sale and customer data for the analysis.
 - b. A follow-up matching grant was provided by the NC Department of Agriculture & Consumer Services (NCDA&CS) ADFP Trust Fund to continue the study for an additional year.



Working Lands Conservation

Via its Working Lands Conservation initiative, the partnership achieved several successes. The team developed a working lands conservation white paper, a Working Lands Trust, a landowner outreach program, and a working lands conservation professional development curriculum. In the "New Approaches to Conserving Working Lands in North Carolina" white paper, the team outlined the land-use issues facing North Carolina and suggested innovative solutions for maintaining and enhancing the state's working lands.

The paper was followed by the development of a trust focused on attaining and managing easements for working lands conservation—something that traditional conservation easement holders have not typically embraced. In addition, the educational components of this initiative brought together agency and organizational professionals and private landowners to develop the necessary relationships and knowledge to effectively sustain farming, forestry, and healthy ecosystems. The training manual and landowner handbook created for these events have been useful in partnership activities and have also been used to educate a broad group of stakeholders on strategies to conserve working lands.



Food and Fuel 4 the Forces (FF4F)

Working with the strong support of the NCDA&CS and military food vendors, the partnership made some far-reaching strides toward developing and strengthening a local food and fuels infrastructure in eastern

North Carolina via its FF4F project. The project team developed a mess hall marketing campaign to promote local fresh fruits and vegetables—along with healthy eating—for military personnel. The FF4F team also developed a biofuels business plan for new local refineries and is now embarking on a food hub feasibility study and business plan. Additionally, the FF4F team achieved commitment from the Defense Logistics Agency for a compatible policy change—via a Department of Defense (DoD) updated Subsistence Total Order and Electronic Receipt System (STORES) catalogue—to show the origin of food served in mess halls. The STORES catalogue is used department wide. Sodexo and Foster Caviness, two of the largest regional food supply organizations, have established a local-first policy for all U.S. Marines Corps bases in North Carolina. The FF4F project has contributed to \$8.3 million in NC-based commissary fresh fruit and vegetable purchases and to the establishment of farmers' markets on all DoD installations—both big wins for NC farmers. The FF4F project was highlighted in UNC-TV's "[Flavors of NC](#)" episode about military food supplies (November 27, 2014). The episode focused on the project's ability to support local farmers and forestland owners while also providing the men and women of the military with healthier food options.



Market Based Conservation Initiative (MBCI)

The MBCI pilot project demonstrated the potential for term-limited performance-based conservation contracts as effective tools for ensuring the operational integrity of

military training routes while maintaining lands for farming, forestry, and conservation. Eighteen percent of landowners were willing to engage in and accept voluntary property restrictions at a fraction of the cost of placing permanent easements on the same parcels of land.

The key success of the MBCI pilot was establishing an effective federal and nonfederal partnership for regional conservation efforts. By involving a variety of stakeholders—including representatives of academia, state and local government, nonprofits, and private landowner groups—the partners achieved a widespread collective effort. Within two years, the partners were able to mobilize a program kindling interest from 4,000-plus landowners across more than 500,000 acres. The project achieved a high degree of program engagement via landowner attendance at local workshops and parcels offered for enrollment.



Wood Fiber Supply Assessment

A wood fiber supply assessment for MCIEAST was completed by the Fiber Analytics group within NC State Extension Forestry in May 2012. The group delivered digital copies to MCIEAST as well as an in-person summary

presentation. Three scenarios were evaluated for producing an additional 25 megawatts (MW) of woody-biomass-based electricity on or near Camp Lejeune: (1) increasing the capacity of Craven County Wood Energy in New Bern by 25 MW, (2) supplying a potential new 25 MW power plant on Lejeune, and (3) increasing capacity at Coastal Carolina Clean Power at Kenansville by 25 MW. The study group concluded that all three scenarios could be successfully supplied with biomass resources within 60 miles of each facility. As a result of the study, Duke Energy has increased their utilization of forest-based resources for energy production near Camp Lejeune.

Future Directions and Trends

The NCSLP has developed a refined understanding of what is necessary to manage and sustain complex, collaborative efforts that address the interests of groups concerned about working lands, conservation, and national defense. Based on the experiences of key program leaders, we have outlined below future program directions and upcoming trends for North Carolina.

Sentinel Landscapes Efforts

Designation of an NC Sentinel Landscape by Federal Partnership

The NCSLP, in conjunction with an expanded group of collaborators, developed a proposal for a REPI Program challenge grant to help fund future collaborative projects. This proposal development brought together individuals from the public and private sectors to leverage financial resources in the hopes of moving forward with multiple projects that would meet the group's diverse interests. The outcome was the designation of 33 counties in eastern North Carolina as a fully realized "Sentinel Landscape" by the federal Sentinel Landscapes Partnership.

Future Projects Based on Groundwork with REPI Challenge

The NC Sentinel Landscape (NCSL) Project, led by NCDA&CS and in concert with the U.S. Marine Corps and U.S. Air Force, has put together an innovative, collaborative, integrated, coordinated, landscape-scale, four-part project that would identify an NCSL, funnel resources into that landscape, and address the top incompatible development and habitat preservation priorities of the anchor installations. The projects involve and affect the 33 NCSL counties.

1. *Seymour Johnson AFB, 13 Parcels/Dare County Range.* The U.S. Air Force (USAF), working from its Installation Complex Encroachment Management Action Plan, defined a Priority Area/Mission Critical zone. Within the zone, the USAF identified the top 13 parcels (12,065 acres) that are crucial to protecting the Dare County Range against incompatible development. The owners of these 13 parcels as well as several other key tracts have expressed interest in participating in the Eastern North Carolina Sentinel Landscapes Project. For each of the 13 parcels, the USAF and project partners will pursue a 30-Year PUV Land Management Agreement for Private Property.
2. *Bear Garden/Stone's Creek RASP Partnership Project.* The Bear Garden/Stone's Creek Recovery and Sustainment Program (RASP) Partnership Project will contribute to relieving current and future

training restrictions on MCB Camp Lejeune as well as contribute to a vibrant, persistent red-cockaded woodpecker subpopulation on 16,660 acres of NC game lands.

3. *NCSL Private Landowner Incentive Program.* The partners have designed and are ready to operate the NCSL Private Landowner Incentive Program, which will assist participating private landowners in both USAF and USMC current and future phase projects, and will maintain a minimum 2-to-1 ratio of NCSL partner expenditures to REPI expenditures. The program will encourage private landowners in the NCSL Project to keep their lands in active forestry, crop production, wildlife, or other uses compatible with military training for a designated number of years. The program objectives are as follows:

Purpose:

- a. To encourage private landowners to keep their lands in compatible uses for military training, agriculture production, forestry, and wildlife habitat.
- b. To encourage landowners to seek and implement conservation practices to protect the land and water resources.
- c. To encourage landowners to seek assistance and services of private and public conservation organizations to maintain or enhance the natural resources on privately owned lands.
- d. To encourage economic development that is compatible with military training and agricultural use of the land.

Eligibility:

- a. Land must be privately owned with ownership in agreement to participate.
- b. Land must be in PUV land use classification as defined in NC General Statute 105-277.
- c. Land must be in a designated "Sentinel" recognized area of military importance.
- d. A land parcel must be reviewed, approved, and on file at NCDA&CS to be eligible.
- e. Only whole land parcels as defined by the county tax office are eligible. No subdivision allowed.
- f. Minimal term of land parcel enrollment is 10 years.

Term-Limited Performance-Based Conservation

Contracts as Tools for Managing Encroachment on

Mission Critical Away Space: As a result of the MBCI pilot, the partnership and the military realized that using a term-limited performance-based conservation contract as an encroachment protection tool offers important benefits that permanent easement programs do not. Those benefits include cost-effectiveness, increased landowner willingness, fiscal efficiency, and operational flexibility, all while serving as an effective gateway to longer term protection if desired by the landowner. The lessons learned from the pilot helped inform the development of the NCSL Private Landowner Incentive Program previously mentioned. If combined with DoD's authority under the Sikes Act (16 U.S. Code § 670a—Cooperative plan for conservation and rehabilitation: see "Policies and Policy Tools", page 23) and a delivery system that is familiar with such tools (such as the Soil and Water Conservation District partnerships), term-limited performance-based conservation contracts offer the potential to be processed efficiently and promptly. For any program to operate smoothly and effectively, the contracting mechanics must be a good fit with the program's legal authority and with the program elements being delivered. As a result, new program guidelines, outreach materials, workshops, and contracting methods were developed to engage landowners in the targeted reverse-auction bidding process.

For more information, visit www.ncsoilwater.org.

Veterans to Agriculture Program: The conversion of farmland to incompatible development presents a significant threat to the Sentinel Landscapes concept. One specific threat to farming in North Carolina is the aging out of farmers. Most farms of moderate or small size rely on income from other sources in addition to farm income. Separating military veterans are relatively young and potentially have an alternate income stream via either retirement or reserve pay. Thus, veterans represent a potential pool of future farmers.

In addition, FF4F is working with the NCDA&CS and the National Farmer-Veteran Coalition (NFVC) to bring NFVC offices to North Carolina. Veteran farmers can be certified by the NFVC to market the "Home Grown by Heroes" (HGBH) brand, which is seen as a way to entice main-stream distributors to include more local food in their supply chains. Working with HGBH will have the added benefit of these distributors creating processes for working with smaller farms.

To build on these existing national programs, the NCSL partners are facilitating a pilot project that will leverage state-specific resources by offering the NC Farmer Veteran Mentoring Program. The pilot project will create a diverse population of veteran farmers and mentors collaborating to strengthen the state's agricultural industry by connecting hardworking veterans and experienced farmers. The pilot project team will develop a framework for the mentoring relationship, a plan of engagement for interactions between mentors and mentees, and provide lessons learned for sustainment of a long-term program.

Forest Opportunities for Resource Conservation and

Environmental Security (FORCES): This is a U.S.

Forest Service-funded initiative to voluntarily conserve private forestland within areas of potential land use encroachment that may be incompatible with military training and readiness. Brigadier General Robert Castellvi (former Commanding General, MCIEAST, MCB Camp Lejeune) observed that FORCES represents a "coalition of the willing" to work together to identify locations where conservation, working lands, and national defense interests converge—places that are indeed "Sentinel Landscapes." The FORCES partnership in North Carolina includes the NC Forest Service, NC Wildlife Resources Commission, Fort Bragg, and Camp Lejeune. Currently, Florida is the only other state to have such a program. FORCES partners seek to recognize the conservation efforts of forestland owners in support of military readiness and provide incentives to keep land uses compatible. The NCSLP realizes the value of this initiative and intends to promote ongoing collaboration with the FORCES partners. This collaboration between FORCES and the NCSLP has leveraged resources, including funding for forest management planning associated with FORCES projects.

Leveraging the Regional Conservation Partnership

Program (RCPP): The RCPP promotes coordination between the Natural Resources Conservation Service (NRCS) and its partners to deliver conservation assistance to producers and landowners. RCPP mobilizes partners to multiply investments and reach common conservation goals. NRCS provides assistance to producers by using partnership agreements to facilitate the delivery of program contracts or easement agreements. Through the RCPP, more partners are able to bring innovation, new ideas, resources, and local expertise to the table to solve common problems. These partnerships typically include agricultural or silvicultural producer associations, farmer cooperatives or other

producer groups, state or local governments, American Indian tribes, municipal water treatment entities, water and irrigation districts, conservation-driven NGOs, and institutions of higher education.

The NCSLP views the RCPP as an effective way to provide private landowners with incentives for maintaining their lands in farming, forestry, and conservation, thus maintaining land uses compatible with the military training mission. Through RCPP, the partnership was awarded funding in a three-state partnership to address environmental needs for military training landscapes associated with five military installations. The three-state partnership, known as the At-Risk Species Conservation and Management Program, includes the states of Mississippi, Georgia, and North Carolina. Table 1 lists the five military installations associated with the program.

The three-state partnership is coordinated by the U.S. Endowment for Forestry and Communities. Representatives of partnering organizations within the three states propose projects that will address conservation, restoration, and sustainable use of working lands in a manner that benefits soil, water, wildlife, and other natural resources. Important working lands will be conserved and restored, benefitting natural resources, local economies, and national defense.

To accelerate project implementation and to demonstrate the scalability, the partners have proposed voluntary conservation programs at five sites in Mississippi, Georgia, and North Carolina. In each state, local partners identified primary resource concerns relevant to their state and region. Although geographically separated, these locations all reside within the historic longleaf pine range, which is home to several at-risk species. Each location has potential for private lands protection, targeted management, and restoration practices to promote a resilient longleaf pine ecosystem.

Protecting working lands and increasing viable populations of at-risk species through ecosystem management at each site will benefit military training

and preparation. Increasing viable populations of these species may reduce regulatory burdens on private landowners in these regions. The proposed habitat activities will demonstrate the compatibility of responsible, sustainable working lands management with at-risk species conservation.

Legislative Appropriations to Mitigate Encroachment around Military Installations: In 2014, the NC General Assembly designated \$1 million as a state match with any federal funding to protect agriculture and forestlands with military training importance. These funds were designated to the NCDA&CS ADFP Trust Fund to administer.

The \$1 million—leveraged with an additional \$1 million of federal funds—were used to place 2,221 acres of land with military training importance under contract to receive multiple ADFP and military perpetual easements.

The 2015 NC General Assembly has, in addition, appropriated \$1 million for each of the 2015–16 and 2016–17 fiscal years to the ADFP Trust Fund for continuation of efforts to acquire easements around military bases and training areas. A similar \$1 million has also been allocated to the NC Clean Water Management Trust Fund for both years. A newly established NC Department of Military and Veterans Affairs received an additional \$2 million of funding for compatible land use.

Compatible Efforts
Sentinel Landscapes Partnership: At a national level, a Sentinel Landscapes Partnership began in 2013. The federal partnership focused on establishing a mutually beneficial partnership among the U.S. Departments of Agriculture, Defense, and Interior to deliver a federal program that would optimize the benefits of federal assistance to landowners whose working and natural lands also support the military mission. The federal partnership established a Sentinel Landscapes Coordinating Committee to facilitate interaction among senior level officials representing each of the departments. One main objective of the coordinating committee is to jointly designate lands as “Sentinel

Table 1. At-Risk Species Conservation and Management Program military partners

Mississippi	Camp Shelby Joint Forces Training Center—Perry and Forrest counties
Georgia	Ft. Benning—Chattahoochee County, Georgia, and Russell County, Alabama Ft. Stewart—Liberty, Bryan, Evans, Long, and Tattnall counties, Georgia
North Carolina	Seymour Johnson AFB—Wayne County MCB Camp Lejeune—Onslow County

Landscapes.” Another objective is to facilitate actions that demonstrate the advantages and efficiencies of the departments working together for the mutual benefit of conservation, working lands, and national defense. To date the coordinating committee has designated three Sentinel Landscapes:

- Joint Base Lewis-McChord (JBLM): This base is the third largest installation in the Army, home to 43,000 soldiers and airmen. The base supports artillery and maneuver training, land-warrior system testing, and operational airlift missions, while also hosting the majority of the dwindling prairie habitat remaining in the South Puget Sound. Once covering more than 150,000 acres, this rare ecological asset now covers only 23,000 acres, with nearly 90 percent of it found on JBLM. JBLM’s prairies also support most of the remaining South Sound populations of three species recently listed under the Endangered Species Act: the Taylor’s checkerspot butterfly, streaked horned lark, and Mazama pocket gopher.
- Fort Huachuca: This military post contains the premier restricted military airspace for unmanned aircraft system training in the western United States and also supports training for personnel from the USAF, Marine Corps, and U.S. Border Patrol. The remote, arid, and unique landscape surrounding the post near the Sonoran Desert is perfect for the post’s electronic test mission, creating an electromagnetically quiet area for the Buffalo Soldier Electronic Test Range.
- Naval Air Station Patuxent River—Atlantic Test Ranges: This is the U.S. Navy’s premier aircraft research, development, test, and evaluation location. The Atlantic Test Ranges cover 2,360 square miles of restricted airspace, spanning parts of the Chesapeake Bay, Maryland, Delaware, and Virginia—a landscape that is home to a variety of

special status plants and animals, rich in cultural and historical resources, and a recreational playground for millions.

In each instance, a diverse group of stakeholders formed a partnership to align resources and implement a comprehensive, multiple-tool approach to promoting and sustaining compatible land uses in a manner that protects nearby military test and training needs while benefiting all partners and landowners.

Southeast Regional Partnership for Planning and Sustainability (SERPPAS): The NCSLP understands the value of leveraging multistate regional efforts to increase the partnership’s available social (connections) and financial capital. In North Carolina, the multistate regional effort was that of the SERPPAS, which was formed in 2005 to promote better collaboration in resource-use decision-making. SERPPAS focuses on interdependent resource sustainability and protection of ecosystems across boundaries. The region covered by SERPPAS includes the states of North Carolina, South Carolina, Georgia, Alabama, Mississippi, and Florida.

SERPPAS hopes to play a key role in supporting the development and implementation of Sentinel Landscape initiatives in the Southeast. SERPPAS is uniquely positioned to encourage collaboration between federal, state, and local partners due to its ability to plan holistically and make resource-use decisions for natural resources, working lands, and national defense. The NCSLP views SERPPAS as an effective way to funnel information from the state to the regional level. In addition, SERPPAS provides a means for institutionalizing the Sentinel Landscapes model via an already established network. The SERPPAS network allows partnerships across the Southeast to transfer lessons learned and, in turn, provide the building blocks for these types of efforts across the region.

Table 2. Cooperative projects between the U.S. military and ADFP Trust Fund, 2015

Request for Proposal	Easement Type	Acres	ADFP Funds	Federal Funds	Other Funds	Total Cost
Hawkes Farm Easement— The Nature Conservancy (U.S. Army)	Perpetual	42	\$97,950	\$101,450	\$1,000	\$200,400
Weyerhaeuser Parker Easement— The Nature Conservancy (Seymour Johnson Air Force Base)	Perpetual	2,070	\$817,550	\$817,550	\$0	\$1,635,100
McDonald Farm Easement—The Nature Conservancy (U.S. Army)	Perpetual	109	\$84,500	\$86,900	\$1,000	\$172,400
TOTALS		2,221	\$1,000,000	\$1,005,900	\$2,000	\$2,007,900

University Cooperative for Readiness and Conservation (UCRC): This partnership between TAMU and NC State promotes the interests of Sentinel Landscapes. The UCRC has come together to create and implement forward-looking, innovative solutions to sustaining military readiness and conserving our nation's natural resources in the face of unplanned development and encroachment of incompatible land uses around our military bases. The UCRC brings together the resources of these two land-grant universities to deliver research, teaching, and outreach to military services in support of conservation, working lands, and national defense. By partnering, the universities are able to bring together multiple leading scientists, policy innovators, and Extension professionals to provide a consolidated resource with the interdisciplinary support that military installations need.

How to Establish a Sentinel Landscapes Partnership

The NC effort provides an unparalleled opportunity for understanding what is needed to form and develop a cross-sector, regional partnership for landscape-scale conservation. We conducted an extensive evaluation of the NC efforts that identified lessons learned and best management practices for regional partnerships focused on the conservation of working lands, natural resources, and military readiness. Based on the results of our evaluation, we present several recommendations for consideration in developing a Sentinel Landscapes Partnership.

- 1. Hold a pre-partnership conversation.** During an early convening of the group, determine why it is important to come to the table together. *Is there a unified commitment to move forward together? What are the goals and needs of each participant? What strategies will assist the group in moving forward together?* A structure that facilitates success includes having partners who value working together for synergistic achievement. The NCSLP conducted brainstorming meetings with more than 30 agencies and organizations to develop a shared understanding of how the diverse stakeholder groups could work together for mutual gain.
- 2. Select the "right" partners.** In North Carolina, leadership understood the importance of selecting the right partners to represent the breadth of interests that existed across the landscape.

Representatives from such groups as agriculture, forestry, the military, natural resource conservation, commodity groups, economic development organizations, landowner groups, and academia were brought together to participate in a collaborative partnership. The inclusion of this wide variety of key stakeholder groups was important because the partnership was able to integrate the groups' expectations for mutual gain solutions while empowering each group to take action. Additionally, certain partners were selected because of their positive reputation with NC landowners. These partners included:

- Soil and Water Conservation Districts
- NCDA&CS
- NC Farm Bureau Federation
- NC State
- NC Cooperative Extension
- NC Forestry Association
- NC Forest Service

These organizations served as trusted links to landowners and local communities based on pre-existing relationships and a relative level of familiarity. These partners served as voices for landowners during partnership discussions and helped to connect landowners with the appropriate programs to meet their land management goals as well as those of the partnership. It is important to consider all of the aforementioned factors when selecting partners because the lack of doing so will compromise the effectiveness of associated efforts.

- 3. Evoke partnership building processes.** The Sentinel Landscapes approach requires strategic planning from the outset to ensure collaborative synergy and collective gain. An immediate recommendation upon beginning to form a partnership is to establish a steering committee with representatives from a broad range of groups interested in Sentinel Landscapes. Using this structure, a stakeholder-focused, consensus-seeking approach can aid development of these necessary tools:
 - Cooperative agreement
 - Strategic plan
 - Program evaluation and monitoring strategy
 - Communications plan

4. Build programs based on resources leveraged from all partners. True partnerships can pool and leverage resources (such as funding, time, and expertise) from all partners. The NCSLP emphasized the specific importance of leveraging funds. An effective partnership needs funding from multiple partners, disseminated through multiple channels. Sentinel Landscapes Partnerships are unlikely to survive solely from DoD funds. Leveraging funds from multiple partners promotes the development of multiple-benefit projects based on the diversity of sources and deepens partner commitment. Also, to ensure administrative flexibility, multiple avenues for disseminating project funds would be appropriate for such a program.

5. Develop a communications plan using the social marketing framework. For the success of this type of effort, communications and marketing must occur at multiple levels and occur continuously. The NCSLP knew that to achieve their long-term goals, they would need to promote compatible action among a broad range of stakeholder groups. The novelty of the program required constant communication with a variety of stakeholders to develop a mutual understanding of the partnership's purpose and direction. In addition, continual changeover in leadership across various organizations and agencies required communication efforts to consistently orient the new stakeholders to the partnership and its value towards their mission. When developing a communication plan, consider these factors:

- Diversity of priority groups
- Behaviors needed from each group
- Physical place where stakeholder can be "met"
- Obstacles for participation
- Communication channel preferences and promotional messages

6. Focus on leveraging and developing long-standing working relationships. The NCSLP quickly understood that working relationships are critical to progress. The relationships helped the partners manage and overcome potential conflict due to an increased level of trust among the group. It is important to leverage preexisting relationships and develop an engagement structure that maintains open communication. These engagement opportunities promote free discussion and constructive dialogue to ensure meaningful participation for those involved. It is also important

for key stakeholders to spend time informally getting to know each other outside of the professional arena. Developing this level of comfort among the partners allows for the free exchange of ideas and promotes creativity in a nonjudgmental environment.

These partnerships should also focus on leveraging and developing relationships across all the military services in a state. In many cases, multiple services utilize the same training grounds and airspace, increasing the need for collaboration for the conservation of such areas. Unfortunately the various services often work in isolation to protect a military training footprint, which on a landscape scale will compromise the overall ability to safeguard military training operations outside the fence lines. It is important that all services are at the table and able to develop effective working relationships to ensure that the partnership has the capacity necessary to simultaneously address the issues facing all of the services.

7. Keep the landowner in mind. For a Sentinel Landscapes Partnership to be effective, the landowner's needs must remain at the forefront of program decision-making. The NCSLP understood that achieving its goals required that landowners engage in conservation planning, cost-share, technical assistance programs, and conservation agreements to maintain compatible resource uses. It is critical to develop projects and programs that revolve around the needs of landowners. Doing so ensures that landowners can and will take the necessary action. Bring landowners or landowner advocacy groups to the table—both to stay in tune with landowner needs and to tailor projects appropriately.

8. Find champions. Program champions are partners who support and promote the Sentinel Landscapes concept. They play an important role in the progress and success of the partnership. The NCSLP lauded their champions' contributions to opening doors for collaboration among a wide range of groups and ensuring the partnership's efforts remained on everyone's radar. These champions were also notable for their impact on developing compatible policies, providing necessary funding, and developing effective collaborative processes. It is important that partners undertake similar efforts to spend time finding these champions, who are leaders within their respective organizations and can serve as advocates to promote the interests

of the partnership. Having these champions on board contributes significantly to the partnership's ability to develop and leverage favorable policies and attain funding for partnership development and project implementation. Champions also contribute to coordination of collaborative efforts that promote collective action.

Funding Sustains a Sentinel Landscapes Partnership

Obviously, a crucial variable for the success of a Sentinel Landscapes Partnership is funding. It is important to develop a strategy to attain funding for three stages of work:

- Partnership development and coordination
- Project development
- Implementation and landowner assistance

Additionally, the partnership needs to identify an effective way to channel funds to the various partners and associated projects. The partners should also seek to understand what opportunities exist to increase resources through federal and state programs. Below we outline those programs we see as the most compatible for the Sentinel Landscapes mission. Other options exist and should be considered.

Federal Programs

Readiness and Environmental Protection Integration

(REPI): The DoD has designed this essential tool for combating encroachment that threatens to limit or restrict military training, testing, and operations. The REPI Program protects military missions by helping remove or avoid land-use conflicts near installations and by addressing regulatory restrictions that inhibit military activities. Administered by the Office of the Secretary of Defense, the REPI Program relies on partnerships that share the cost of easement acquisition or other land interests from willing sellers and partnerships that support cross-boundary solutions and link military readiness, conservation, and communities with federal and state partners. The REPI Program has helped fund cost-sharing partnerships among the military services (Army, Navy, Marine Corps, and Air Force), private conservation organizations, and state and local governments to prevent incompatible development —while preserving habitat through buffer projects, supportive education, engagement, and regional planning.

Army Corps of Engineers Cooperative Ecosystem

Studies Unit (CESU): The CESU Network is a national consortium of public and private parties. Its purpose is to provide research, technical assistance, and training to federal land management, environmental, and research agencies and their partners. The network's scope includes the biological, physical, social, and cultural sciences needed to address natural and cultural resource management issues at multiple scales and in an ecosystem context. Each CESU is comprised of three key partners: federal agencies, a host university, and partner institutions (with a requirement of at least one minority institution in each region). Agreements allow each participating federal agency to efficiently transfer funds and duty station employees to university partners and other participating organizations while maintaining responsibility for agency-sponsored activities within each CESU. The CESU Network is coordinated by the National CESU Council composed of representatives from each federal agency that signed the CESU Memorandum of Understanding.

The NCSLP used this mechanism as the primary means to channel funds from the sponsor (MCIEAST) to NC State for dissemination to the partners. This is not the sole means available for moving funds as the state departments of government (such as the NCDA&CS) can also provide vehicles for moving funds from a federal to a state entity. Consider what is available in your state and what will work best for your partnership's needs.

U.S. Department of Agriculture (USDA) Natural

Resources Conservation Service (NRCS) Regional Conservation Partnership Program (RCPP): The RCPP promotes coordination between NRCS and its partners to deliver conservation assistance to producers and landowners. NRCS provides financial assistance to qualifying producers through partnering agreements and through program contracts or easement agreements. This program has been cited for promoting the creation of regional partnerships to address conservation issues that transcend state lines.

USDA Assistance Programs: The USDA Farm Service

Agency (FSA) and the USDA NRCS work with partners to leverage additional conservation assistance for agricultural producers and landowners in priority conservation areas. NRCS and FSA offer voluntary USDA Farm Bill conservation programs

as well as other related cost-share and technical assistance programs that benefit both agricultural and forestry producers and the environment. In addition, the agencies offer easement programs to eligible landowners to conserve working agricultural lands, wetlands, grasslands, and forestlands.

U.S. Department of Interior Cooperative Conservation

Initiative: The Department of the Interior is expanding the tools in its conservation “toolbox” for private landowners and federal land managers to enhance and achieve conservation. These tools include grant programs that emphasize local input and cooperative decision-making in accomplishing natural resource goals. The goal of the Cooperative Conservation Initiative is to empower federal land managers to form partnerships within local communities to better care for the land and its wildlife. By promoting these partnerships, the initiative not only leverages federal conservation dollars with private funds but also taps into the ingenuity and local knowledge of the people who live and work on the land.

State Programs

NC Agricultural Development and Farmland Preservation

(ADFP) Trust Fund: The ADFP Trust Fund works with multiple partners to promote landscape-scale conservation efforts to protect agricultural and forestry working lands that are in important military testing and training areas. The Trust Fund has worked extensively to promote the creation of county-wide farmland and forestland preservation plans, VADs and Enhanced VADs, promote enrollment into the PUV system, and educate and train local conservation resource professionals on these and other opportunities.

NC Clean Water Management Trust Fund (CWMTF):

The CWMTF provides grant assistance to conservation nonprofits, local governments, and state agencies for the protection of surface waters in North Carolina. The CWMTF funds projects that (1) enhance or restore degraded waters; (2) protect unpolluted waters; and/or (3) contribute toward a network of riparian buffers and greenways for environmental, educational, and recreational benefits; (4) provide buffers around military bases to protect the military mission; (5) acquire land that represents the ecological diversity of North Carolina; and (6) acquire land that contributes to the development of a balanced state program of historic properties.

NCDA&CS Conservation Reserve Enhancement

Program (CREP): This voluntary program uses federal and state resources to achieve long-term protection of environmentally sensitive cropland and marginal pastureland. These voluntary protection measures are accomplished through 10-, 15-, and 30-year contracts as well as permanent conservation easements. In North Carolina, CREP is a federal, state, and local partnership that combines existing federal Conservation Reserve Program funds with funding from the Clean Water Management Trust Fund, the Agriculture Cost Share Program, and the NC Ecosystem Enhancement Program to protect river buffers and upland pollution sources.

Green Growth Toolbox: Developed by the NC Wildlife Resources Commission (NCWRC), the Green Growth Toolbox is a nonregulatory technical assistance tool designed to help communities conserve high quality wildlife habitats alongside new land development initiatives, such as the building of new homes, workplaces, and shopping centers. Currently, the NCWRC focuses on providing technical and financial assistance to promote and implement the Green Growth Toolbox program across North Carolina. This support includes grant funds to assist counties and municipalities in conducting conservation-based planning that directly complements efforts compatible with Sentinel Landscapes. As the project Partners for Green Growth is implemented, an opportunity exists to address specific encroachment threats identified within the NC military mission footprint.

Forest Development Program (FDP): The NC Forest Service (NCFS) runs this reforestation, afforestation, and forest stand improvement cost-sharing program. Program goals include timber production and the creation of the benefits associated with active forest management.

Forest Stewardship Program: Hosted by the NCFS, this program is a cooperative effort to help owners realize the objective of managing their forests for the benefits they desire. The program is voluntary, and participants receive recognition for achievements in promoting total forest resource management. Landowners receive technical assistance in developing a stewardship management plan that is based on the landowner’s objectives, and activities are scheduled to enhance the forest for wildlife, soil and water quality, timber production, recreational opportunities, and natural beauty.

Policies and Policy Tools: State and National Examples

Multiple policies and policy tools are available to Sentinel Landscapes Partnerships to promote their goals and objectives. Policy tools take on many forms and evoke various methods of implementation, including information, education, legislation, regulation, and guidelines, to name a few. Below we outline some examples of the most compatible policies and policy tools used by the NCSLP. We also provide insights into the appropriate tools for similar efforts across the country.

10 U.S. Code § 2684a: Title 10 of the U.S. Code § 2684a is a law that provides authority to the Secretary of Defense or the Secretary of a military department to enter into an agreement with an eligible entity or entities to address the use or development of real estate property in the vicinity of, or ecologically related to, a military installation or military airspace for purposes of limiting encroachment and other constraints on military training, testing, and operations. This is the primary authorization authority for expending REPI Program dollars for land-use compatibility programs and projects.

Sikes Act: Title 16 of the U.S. Code (USC) §670, is commonly referred to as the “Sikes Act.” This law requires the DoD to develop and implement integrated natural resources management plans, when appropriate, for military installations across the United States. The Sikes Act promotes effectual planning, development, maintenance, and coordination of wildlife, fish, and game conservation and rehabilitation in military reservations. It authorizes the Secretary of Defense to carry out a program that provides for the conservation and rehabilitation of natural resources (lands, waters, airspace, and coastal resources) on and around military installations while allowing the military lands to continue to meet the needs of military operations.

Present-use Value (PUV): Agricultural land, horticultural land, and forestland have been specially assessed for the purpose of county property taxes. The property tax is assessed by multiplying the value of the property by the tax rate. Land falling into these classes is qualified to be taxed at its “present-use value” rather than its “highest and best-use value” (that is, the value of farmland is taxed for its value

as a farm rather than its potential value as residential or commercial property). This classification has a practical effect: The property is valued at a lower rate, and therefore the owner’s land is taxed at a lower rate. Present-use value assessment preserves farmland and forestland by allowing farmers to continue farming while property values rise due to urban growth. It also serves as a deterrent to development because a landowner who has been claiming PUV status on a property must reimburse the tax savings if that land is removed from the PUV program.

Right-to-Farm Statute: It is North Carolina’s declared policy to conserve, protect and encourage the development and improvement of its agricultural land and forestland for the production of food, fiber, and other products. When other land uses extend into agricultural and forest areas, agricultural and forestry operations often become the subject of nuisance suits. As a result, agricultural and forestry operations are sometimes forced to cease and others are discouraged from making investments in farm and forest improvements. The purpose of this statute is to reduce the loss of the state’s agricultural and forestry resources by limiting the circumstances under which an agricultural or forestry operation may be deemed to be a nuisance.

Agricultural District Program: The purpose of the Agricultural District Program is to encourage the preservation and protection of farmland from nonfarm development. By creating this program, NC legislators recognized the importance of agriculture to the state’s economic and social well-being. In Chapter 106, Article 61, of the NC General Statutes, the NC General Assembly authorized counties to undertake a series of programs to encourage the preservation of farmland. As a result, counties throughout North Carolina have begun to adopt VAD ordinances and Enhanced VAD ordinances. The ordinances provide for the creation of an Agricultural Advisory Board to administer these programs. Each board reviews and approves applications for qualifying farmland as well as establishes an agricultural district. The program allows each county to have multiple districts based on the county’s specific needs.

Market-based Conservation: Market-based solutions to natural resource challenges are emerging as new tools for public and private entities who seek improvements in air, soil, and water quality. Related benefits—such as open space preservation, ecological services,

wildlife habitat enhancement, wise land use, and recreational opportunities—also motivate these solutions. In addition to providing new tools for achieving conservation goals, market-based strategies have the potential to highlight and assign economic value to the ecological services society derives from wise stewardship of natural resources.

Conservation Agreements: Conservation agreements are used to preserve undeveloped property and provide benefits to the public by conserving open lands, forests, wildlife habitat, scenic vistas, farmland, stream banks, and other significant natural resources. A conservation agreement is a document that describes the relationship between a landowner and a qualified conservation organization or public agency:

- The landowner promises to keep his or her land in its natural or production condition without extensive disturbance.
- The conservation organization or public agency has the right to monitor the property and enforce the terms of the agreement.

A conservation agreement is similar to a set of restrictive covenants in a subdivision in that it restricts various land uses. Each conservation agreement is voluntary and tailored to meet the landowner's needs while protecting the property's natural resources. Different types of conservation agreements exist with various names. For example, a conservation agreement may also be referred to as a conservation easement, a grant of development rights, a historic preservation agreement, a farmland agreement, a facade easement, a working forest easement, a water quality easement, or an agricultural easement.

Under North Carolina's property law, a conservation agreement may be created for a term of years or it may be perpetual. Term easements provide a great tool for a Sentinel Landscapes partnership under these circumstances:

- The need of the military is not perpetual.
- The landowner does not wish to perpetually protect the land.
- There is not enough funding in hand.
- The partnership needs to buy time.

If the landowner, however, wishes to claim federal and state income tax deductions, the agreement must be granted in perpetuity. The landowner always has the option and flexibility to convert a term easement to a perpetual easement, which demonstrates the value of engaging landowners in such an agreement. An easement may apply to only a portion of the property, and need not require public access. Landowners have found that conservation easements offer great flexibility, yet provide a permanent guarantee that the land will not be subject to urban development

South Atlantic Landscape Conservation Cooperative (SALCC): The SALCC, part of the Landscape Conservation Cooperatives (LCC) network, provides a forum in which to engage with peers—across agency, state, and traditional management unit boundaries—who have a common goal: to move forward with landscape-scale conservation that will address continued pressures on and emerging threats to cultural and natural resources. The SALCC fulfills a coordination role to leverage existing work and develop new science-based projects and communication efforts that support landscape-scale conservation.

USDA Southeast Regional Climate Hub: The USDA has established regional Climate Hubs to deliver science-based knowledge and practical information on climate change to farmers, ranchers, and forestland managers. The Hubs strive to help maintain and strengthen agricultural production, natural resource management, and rural economic development under increasing climate variability. The Hubs work with the USDA and Cooperative Extension to deliver information and guidance on technologies and risk management practices at regional and local scales that will help landowners and managers with everyday decisions on their farms, fields, and forests.

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Appendices

Appendix A. Contact List for Project Information

Innovative Conservation Strategies (MBCI)

Point of Contact: Michelle Lovejoy, Executive Director of the NC Foundation for Soil and Water Conservation
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5171 Glenwood Avenue, Suite 330, Raleigh NC 27612

Agricultural Development and Farmland Preservation (ADFP)

Program Director: Dewitt Hardee
Phone: 919.707.3071
Email: dewitt.hardee@ncagr.gov
General email: ncadfp@ncagr.gov

North Carolina Agricultural Development and Farmland Preservation Trust Fund

2 West Edenton Street, Raleigh, NC 27601

Food and Fuel 4 the Forces

Point of Contact: George Miller, Program Manager
Email: miller@nceast.org

Working Lands Conservation Professional Development and Landowner Outreach Program

Point of Contact: Dr. Susan Moore, Director of the NC State University Forestry and Environmental Outreach Program
Telephone: 919.515.3184
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Working Lands Trust (WLT), NC Forestry Association

Point of Contact: Pryor Gibson, Executive Vice President
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Appendix B. NCSLP Strategic Plan

Vision

A convergence of military readiness, working lands and water resources, and conservation providing prosperity, health, and security of all.

Mission

Through collaboration and innovation, the NCSLP will maintain and enhance working lands and water resources, conservation, and military readiness for today and tomorrow.

Challenges

Unplanned development and the encroachment of incompatible land uses are threatening the health of working lands and natural systems with the same force that these factors threaten the viability of the military training network in eastern North Carolina.

Philosophy

- Employ a strategic approach that considers science, economics, and policy to advance working lands, conservation, and national defense.
- Make site-based conservation efforts in the context of sustainable landscapes and the partnership's objectives.
- Use cross-sector partnerships and collaboration to meet the partnership's mission.

Key Stakeholder Groups

- Private landowners
- Academia
- Agricultural, forestry, and natural resource agencies and organizations
- Conservation districts
- Economic development agencies and organizations
- Legislature
- Military
- NGOs

Goals and Objectives

Immediate (April 1, 2014 – September 29, 2015)

Increase awareness, understanding, and problem-solving ability among stakeholders (including landowners, military, state natural resource and agricultural agencies, funding agencies and entities, and NGOs).

1. Demonstrate the value of Sentinel Landscapes and the NCSLP to others.
 - a. Increase communication and engagement by educating individuals on how Sentinel Landscapes programs deliver benefits to both rural and urban citizens (including white papers, articles, websites, meetings, and other activities).
 - At least 75% of key stakeholders will be able to identify program functions and comprehend program value by June 30, 2015, as measured by a survey.
 - At least 75% of landowners participating in the outreach events will indicate their knowledge of working lands conservation is "improved" or "very improved" after each outreach event.
 - At least 90% of training attendees will be able to describe three or more working lands conservation strategies after each training workshop.

2. Maintain and increase perceptions of the long-term viability of Sentinel Landscapes and the NCSLP among stakeholders.
 - Over 75% of participants/stakeholders will perceive that the program aligns with their long-term objectives (or those of their agency, organization, or leaders) and will express interest in Sentinel Landscapes initiatives by June 30, 2015, as measured by a survey.

Middle Term (September 30, 2015 – September 29, 2018)

1. Increase behavioral changes favorable to Sentinel Landscapes and the NCSLP.
 - a. Enable working landowners to maintain their lands.
 - The NC Forestry Association (NCFA) Working Land Trust is available to hold working land trusts and contracts by January 1, 2015.
 - The new entity will hold working land trusts and/or contracts representing at least 1,000 acres by September 29, 2018.
 - At least 75% of Train-the-Trainer workshop attendees will use portions of the curriculum within the first year of completing the workshop.
 - b. Increase enrollment in Sentinel Landscapes initiatives.
 - Participants will increase by 10% each year as measured by new applications and contracts within Sentinel Landscapes initiatives (such as ADFP and Working Forests) each year from September 29, 2015, to September 29, 2018.
 - The number of counties developing conservation and preservation plans will increase by at least one per year.
 - The number of private lands enrolled in Present-Use Value classifications, Voluntary Agriculture Districts (VADs), or Enhanced VADs will increase by 5% each year.
 - c. Increase contract length within the Sentinel Landscapes initiatives.
 - 75% of new landowner agreements that support NC Sentinel Landscapes efforts will have contract durations of 20 or more years by September 29, 2018.
 - d. Maintain a low default rate on contracts and conservation easements held in eastern North Carolina.
 - Existing contracts will have a default rate of less than 7% by September 29, 2018.
2. Stakeholders will agree that the program meets their mutual objectives and promote the partnership's mission.
 - a. Champion policies and regulations that support working lands, conservation, and military readiness.
 - At least two policies, laws, or regulations will be developed and championed that support working lands, conservation, and military readiness at the state level by the end of federal fiscal year (FY) 2018.
 - b. Increase collective vision and recognition among agencies, organizations, and others in Sentinel Landscapes compatible land uses.
 - Sentinel Landscapes has representation from each branch of the key stakeholder categories in 75% of Sentinel Landscapes quarterly meetings as measured by sign-in sheets.
 - c. Increase and develop robust interest in continued funding for the program through governmental programs, private organizations, and individual donors.

Establishing a Partnership for Sentinel Landscapes: The North Carolina Experience

- Sentinel Landscapes efforts receive at least \$1 million in funds annually starting at the end of calendar year 2015.

Long Term (September 30, 2018 – September 29, 2021)

Preserve compatible resource (land, water, air, and spectrum) uses for economic, social, and environmental benefits.

1. Institutionalize regional cooperation for compatible resource use that promotes Sentinel Landscapes.
 - At least two other states will initiate Sentinel Landscapes efforts as a result of the efforts of the NC partners by FY 2021.
2. Enhance the value of working lands and living shorelines through increased conservation, crop opportunities, or both.
 - At least eight new opportunities will be created (such as farmers' markets on installations, ecosystem services, and renewable fuels) by September 29, 2018.
3. Sustain Sentinel Landscapes for military training, conservation, and working lands.
 - Increase acres of compatible resource use to decrease the rate of loss by 5% under the military footprint from FY 2014 numbers by FY 2021.

Appendix C. NCSLP Communications Plan

Vision

A convergence of military readiness, working lands and waters, and conservation providing prosperity, health, and security of all.

Mission

Through collaboration and innovation, the NCSLP will maintain and enhance working lands and waters, conservation, and military readiness for today and tomorrow

Philosophy

- Employ a strategic approach that considers science, economics, and policy to advance working lands, conservation, and national defense.
- Make site-based conservation efforts in the context of sustainable landscapes and the Partnership's objectives.
- Use cross-sector partnerships and collaboration to meet the Partnership's mission.

Challenge

Unplanned development and the encroachment of incompatible land uses threaten the health of working lands and natural systems with the same force that these factors threaten the health of the military training network in eastern North Carolina—not only the bases but also the ranges, test areas, and airspace the network uses.

Priority Groups

Communications will be addressed to these audiences:

- Private landowners
- Academia
- Agricultural, forestry, and natural resource agencies and organizations
- Conservation districts
- Economic development agencies and organizations
- Legislature
- Military
- NGOs

Perceived Values or Benefits

By working together beyond agency and organizational boundaries to link lands and missions, the partners can improve the economics around private lands and local markets so that land is maintained in forests and farms rather than converted to incompatible land uses—thus benefiting working lands, conservation, and national defense. The Partnership focuses on cooperation to develop projects that achieve multiple benefits by leveraging funds and stacking incentives at the local, regional, and state levels.

Communications and Marketing Strategy

Determine the marketing mix strategy for eight priority audiences for the NC Sentinel Landscapes Partnership.

Table C-1. Communicating with private landowners

Key Message: We want private landowners in North Carolina to view maintaining their private lands for future generations as more important and valuable to them than selling their land for urban development.			
Product	Price	Place	Promotion
<i>Behaviors</i> Provide a way for landowners to maintain their current working and conservation lands so that the lands can be passed down to future generations	<i>Perceived barriers</i> <ul style="list-style-type: none"> ▪ Finding the right programs to manage land profitably ▪ Having options that do not restrict development permanently ▪ Understanding military procurement processes ▪ Finding multiple markets for agricultural products ▪ Understanding application enrollment and bidding processes 	<i>Message channels</i> <ul style="list-style-type: none"> ▪ Program website ▪ Farm and military tours ▪ Extension efforts (e.g., workshops and meetings) ▪ Other already developed programming that interfaces with priority group ▪ Media outreach 	<i>Message and format</i> Multiple options exist for landowners to maintain their lands including new partnerships with the military. <ul style="list-style-type: none"> ▪ White paper ▪ Articles ▪ Newsletters ▪ Social media (e.g., educational videos and webinars) ▪ Factsheets ▪ Point-of-purchase displays

Table C-2. Communicating with academia

Key Message: We want university faculty and staff to understand the role of Cooperative Extension for bringing together diverse stakeholder groups to promote the sustainability of rural landscapes.			
Product	Price	Place	Promotion
<i>Behaviors</i> Provide a way for academic institutions to institutionalize regional cooperation for the sustainability of working lands, conservation, and national defense	<i>Perceived barriers</i> <ul style="list-style-type: none"> ▪ Lack of resources and expertise ▪ Complexity of partnership and related coordination processes ▪ Lack of replicable model for planning and implementation 	<i>Message channels</i> <ul style="list-style-type: none"> ▪ Program website ▪ Academic conferences ▪ Workgroups and workshops ▪ Media outreach 	<i>Message and format</i> The Sentinel Landscapes model provides an overarching organizational infrastructure and mechanisms to encourage and enable communication and cooperation among all relevant agencies and organizations in each state. <ul style="list-style-type: none"> ▪ White paper ▪ Academic articles ▪ Partnership newsletters ▪ Social media (e.g., educational videos and webinars) ▪ Conference presentations

Table C-3. Communicating with agricultural, forestry, and natural resource agencies and organizations

Key Message: We want NC agricultural groups to see partnering as a means of providing additional benefits to their “customers” and as more important and valuable to them than working solely within their own organization.			
Product	Price	Place	Promotion
<i>Behaviors</i> Connect private landowners with Sentinel Landscapes to provide added benefits for working lands	<i>Perceived barriers</i> <ul style="list-style-type: none"> ▪Competitive interests ▪Lack of sustainable funding ▪Perception of partnership ▪Inability to capture impact of program ▪Long-term leadership, working arrangement, and commitment 	<i>Message channels</i> <ul style="list-style-type: none"> ▪Email listserv ▪Existing groups through meetings and workshops Existing groups may include: (1) NC Working Lands Group, (2) NC Farm Bureau, (3) NC State Grange, and/or (4) NC Forestry Association, (5) NC Conservation Districts ▪Program website ▪Media outreach ▪Conferences 	<i>Message and format</i> NC Sentinel Landscapes is a way to develop, maintain, and enhance economically prosperous rural communities. <ul style="list-style-type: none"> ▪Fact sheets ▪YouTube videos, LinkedIn forums, webinars, and other Web content ▪Program website components (calendar of events, contact info, discussion forum) ▪White papers ▪Presentations ▪Articles (journal, magazine, newspaper) ▪Newsletters ▪Strategic meetings with key decision-makers

Table C-4: Communicating with conservation districts

Key Message: We want soil and water conservation districts, the state conservationist, and other NRCS representatives in North Carolina to view initiating, delivering, and promoting programs that are not currently broadly available, as well as encouraging land uses that fulfill the Sentinel Landscapes mission, as sustainable strategies that advance their mission of natural resource conservation as more important and valuable to them than promoting any single mission.			
Product	Price	Place	Promotion
<i>Behaviors</i> Provide private landowners in eastern North Carolina with options for conservation	<i>Perceived barriers</i> <ul style="list-style-type: none"> ▪Local politics ▪Lack of resources (time and cost constraints, competition) ▪Prioritization of staff ▪Sustainability of Sentinel Landscapes ▪Access to local landowners ▪Lack of leadership and trust 	<i>Message channels</i> <ul style="list-style-type: none"> ▪Email listserv ▪Media outreach ▪Extension efforts (e.g., workshops and meetings) ▪Training ▪Program website ▪Other already developed programming that interfaces with priority group ▪Conferences 	<i>Message and format</i> The NCSLP has the ability to contribute over the long-term toward the natural resources conservation mission by complimenting already existing conservation efforts. <ul style="list-style-type: none"> ▪Informational presentations ▪Program website components (calendar of events, contact info, discussion forum) ▪Resources and tools for marketing/engagement ▪Marketing pamphlets ▪Fact sheets ▪Newsletters ▪White papers ▪Educational programming (i.e., webinars, classes, nonformal)

Table C-5: Communicating with economic development agencies and organizations

Key Message: We want economic development agencies and organizations to view collaborating with the NCSLP to conserve Sentinel Landscapes as a high priority for ensuring the state's economic prosperity and as more important and valuable than promoting urbanization and other incompatible land uses.			
Product	Price	Place	Promotion
<i>Behaviors</i> Provide support to projects that encourage the preservation of qualifying agricultural, horticultural, and forestry lands to foster the growth, development, and sustainability of working and conservation lands	<i>Perceived barriers</i> <ul style="list-style-type: none"> ▪Lack of economic profitability of working lands ▪Limited job creation ▪Minimal interest in maintaining working lands that provide commodities ▪Securing government policy changes at all levels that will allow working lands to compete economically 	<i>Message channels</i> <ul style="list-style-type: none"> ▪Email listserv ▪Media outreach ▪Extension efforts (e.g., workshops and meetings) ▪Training ▪Program website ▪Conferences and symposiums ▪Trade shows 	<i>Message and format</i> Economic development agencies and organizations can contribute over the long-term toward both natural resources and a strong economy by joining Sentinel Landscapes efforts. <ul style="list-style-type: none"> ▪Informational presentations ▪Newsletters ▪Fact sheets ▪Marketing materials ▪Journal articles ▪Newspaper articles ▪Press releases ▪Facebook posts ▪Twitter news related tweets ▪Business cards

Table C-6. Communicating with nongovernmental organizations (NGOs)

Key Message: We want NGOs to see collaborating with partnerships that maintain Sentinel Landscapes as a high priority because doing so maintains economically viable working lands and natural resources. NGOs view these benefits as more important and valuable to them than achieving single objectives.			
Product	Price	Place	Promotion
<i>Behaviors</i> Provide support to projects that encourage the preservation of qualifying agricultural, horticultural, and forestry lands to foster the growth, development, and sustainability of working and conservation lands	<i>Perceived barriers</i> <ul style="list-style-type: none"> ▪Population increase resulting in increased land use transition away from agriculture, forestry, and military training capabilities ▪Securing government policy changes at all levels that will allow working lands to compete economically ▪Convincing entities that the NC Forestry Association Working Lands Trust is a good investment in the future of our natural resources across the country ▪Getting the full support of the forest and farm products industry 	<i>Message channels</i> <ul style="list-style-type: none"> ▪Email listserv ▪Media outreach ▪Extension efforts (e.g., workshops and meetings) ▪Training ▪Program website ▪Other already developed programs (such as NC East Alliance, NC Agricultural Development and Farmland Preservation Trust Fund, NC Foundation for Soil and Water Conservation, Environmental Defense Fund (which interfaces with priority group) ▪Conferences and Symposiums 	<i>Message and format</i> <ul style="list-style-type: none"> ▪NGOs have the ability to contribute over the long-term toward both natural resources and economics by joining Sentinel Landscapes efforts. ▪Informational presentations ▪Newsletters ▪Fact sheets ▪Marketing materials ▪Journal articles ▪Newspaper articles ▪Press releases ▪Facebook posts ▪Twitter news related tweets ▪You Tube marketing/educational videos ▪Linked-in discussion forum ▪Business cards

Table C-7: Communicating with legislators and local governments

Key Message: We want NC legislators and local governments to view developing policies, laws, and regulations that enhance the Sentinel Landscapes mission as a way to enhance the prosperity, health, and security of North Carolina—and as more important and valuable to them than promoting the urban agenda without a connection to the rural agenda.

Priority Group	Product	Price	Place	Promotion
<i>Legislative representatives</i> Priority segments: General assembly Legislative entities Local elected officials	<i>Behaviors</i> Provide a solution for urban and rural communities to revitalize and maintain state and local economies and resources	<i>Perceived barriers</i> <ul style="list-style-type: none"> ▪Public perception ▪Desired land use change ▪Local policies ▪Politics ▪Competitive interests 	<i>Message channels</i> <ul style="list-style-type: none"> ▪Local newspapers ▪Local public forums ▪Program website ▪Other already developed groups ▪Media outreach 	<i>Message and format</i> We want legislative representatives to understand that Sentinel Landscapes deliver benefits to both rural and urban citizens so that these representatives will develop laws and regulations to support working lands, conservation, and military readiness. We also want these representatives to develop a framework for institutionalizing incentives for sustaining Sentinel Landscape efforts. <ul style="list-style-type: none"> ▪Informational presentations ▪Newsletters ▪Fact sheets ▪Program website components (calendar of events, contact info, discussion forum) ▪Marketing materials ▪Journal articles ▪Newspaper articles ▪Press releases ▪Business cards

Table C-8. Communicating with the military

Priority Group	Product	Price	Place	Promotion
<p><i>Military</i></p> <p>Priority Segments:</p> <ol style="list-style-type: none"> 1. Political leadership 2. Office of the Secretary of Defense leadership 3. Base leadership 4. Council of mayors 	<p><i>Behaviors</i></p> <p>Provide a concerned group of partners working together who provide necessary continuity to achieve mission sustainment, quality of life, and community relations</p>	<p><i>Perceived barriers</i></p> <ul style="list-style-type: none"> ▪Change in leadership among all services ▪Each branch works differently ▪Incompatible institutional policies ▪Difficulty in working through new channels efficiently 	<p><i>Message channels</i></p> <ul style="list-style-type: none"> ▪Face to face meetings ▪Workshops ▪Conferences ▪Webinars ▪Media outreach (including newspapers, journals, social media, online media) 	<p><i>Message and format</i></p> <p>The military must see the value of partnering with organizations, agencies, and landowners in eastern North Carolina to maintain their military footprint. Military leaders must understand how natural resource conservation and working lands are compatible with military training and the value of providing resources to promote such activities. The military must also understand the value of developing policies that maximize economic interaction with local landowners to create a sustainable food and fuel infrastructure. It is important that the military understand the costs of certain practices to landowners in order to develop agreements that provide incentives for participation.</p> <ul style="list-style-type: none"> ▪Presentations ▪Newsletters (such as "Natural Selections") ▪Fact sheets ▪Webinars ▪Program website components (including calendar of events, contact info, discussion forum) ▪Journal articles ▪Newspaper articles ▪Formal conversations

Communications Strategy Implementation Procedure

1. Identify each audience's perceived benefits and barriers to participating in the NCSLP. Are there functions a group would like that are not present? This step clarifies motivations for participation (or lack thereof) and provides a baseline for measuring communication campaign efforts.
2. Design messages and products to highlight benefits and offer ways to overcome barriers. For example, if a farmer is having difficulty learning how to provide products to a nearby military installation, create a YouTube video that describes how to do it.
3. Identify the social networks each group uses to transmit information. For example, a landowner speaks with a county NRCS representative regarding available incentives.
4. Identify modes of communication most used within the social network by each target audience. What are the best ways to disseminate information among the target audience (such as word of mouth, email, conferences, publications, and social media applications)?
5. Develop a campaign that includes appropriate messages and products (identified in steps 1 and 2), delivered by appropriate social networks (step 3), through appropriate modes of communication (step 4).
6. Identify evaluation methods to measure objectives and outcomes (such as surveys and number of hits on webpages).
7. Run campaign.
8. Evaluate campaign and compare results to the baseline data gathered in step 1.

Model Replication

The NCSLP is a coalition of groups representing conservation, natural resources, and economic interests to address preservation on a landscape scale in association with military readiness. While the communications plan applies to eastern North Carolina organizations, partnerships, and geography, it is the partners' intent to provide a replicable model for engagement and to inform the actions of other services and stakeholders across the country.

The communications plan identifies key stakeholder groups (priority groups) who can help transfer the collaborative partnership model to other services and states. The plan supports the program's continuity with procedures for implementing a marketing campaign, and it creates a structure for an ongoing process to inform and educate audiences about Sentinel Landscapes. By doing so, the plan promotes the Sentinel Landscapes concept as a way to seek and acquire needed resources. The communications framework is a key resource because it gives partners a way to make common goals part of each group's institutional culture. Those goals include enhancement of compatible natural resource uses in support of military readiness while enhancing the maintenance and improvement of natural resources, including agriculture and forestry lands (working lands).

Appendix D. NCSLP Program Evaluation Plan

Program Description

Unplanned development and the encroachment of incompatible land uses threaten the health of working lands and natural systems with the same force that these factors threaten the viability of the military training network in eastern North Carolina. Through collaboration and innovation, The NCSLP is focused on the maintenance and enhancement of working lands and water resources, conservation, and military readiness for now and the future. The partnership carries out its mission through five elements:

- Element 1: Enhancing the network and linkages
- Element 2: Agricultural Development and Farmland Preservation Trust Fund
- Element 3: Working Lands Conservation Initiative
- Element 4: Food and Fuel 4 the Forces
- Element 5: Market Based Conservation Initiative

The partnership believes that increasing awareness, understanding, and problem-solving abilities among its stakeholders will increase actions in favor of Sentinel Landscapes because stakeholders will agree that the partnership meets their mutual objectives. The partners also believe that increasing the collective vision among agencies, organizations, and others involved in resource uses compatible with Sentinel Landscapes will increase the frequency and length of participation in initiatives that promote the partnership's mission. And increasing the collective vision will also achieve robust interest in continued funding for the partnership through governmental programs, private organizations, and individual donors.

The partnership intends to achieve the preservation of compatible resource (land, water, and air) uses for economic, social, and environmental benefits by:

- Institutionalizing regional cooperation for compatible resource use that promotes Sentinel Landscapes
- Enhancing the value of working lands and living shorelines through increased conservation and crop opportunities
- Sustaining Sentinel Landscapes for military training, conservation, and working lands

The partners envision that through their efforts, and the efforts of compatible programs, they will achieve the convergence of military readiness, ample working lands and water resources, and conservation—providing prosperity, health, and security for all.

Evaluation Criteria

Each of the partnership's initiatives will be evaluated by a qualified evaluation specialist to promote a quality process and increase credibility among its intended users. To develop synergistic efforts, key stakeholders will be required to participate in formal agreements that explicitly outline the expectations for involvement among related stakeholders. These agreements will provide clarity for what is to be done, how, by whom, and when. A stakeholder-driven process will be evoked for negotiating agreements—to identify what is fair and tenable for all parties and ultimately increasing evaluation buy-in. The agreements will focus on considering the needs, expectations, and cultural contexts of clients and other stakeholders. Key stakeholders will inform the process by identifying their specific needs for the program and evaluation. This approach is necessary to devote attention to the full range of individuals and groups involved in the program and affected by the evaluation. The overall purpose of program evaluation will be identified and continually negotiated based on the needs of stakeholders. Table D-1 outlines the information needs of each stakeholder group to produce an evaluation that meets the desired expectations of all parties involved.

Table D-1. Key stakeholders and their information needs

Key Stakeholders	Information Needs	Description of Needs
Private landowners (target audience)	<ul style="list-style-type: none"> ■ Changes in landowner knowledge and skills as a result of program activities (such as workshops, enrollment periods, and outreach events) ■ Outcomes: Actions and opportunities (policies, entities holding contracts and easements, new crop and conservation opportunities, enrollment in cost-share and technical assistance programs) that enable landowners to maintain their working lands 	Landowners need this information to understand if the program is effective in meeting their learning needs and addressing the issues that impede their ability to maintain their lands in agriculture, forestry, or ecosystem conservation. To participate, landowners also need to know when and where program activities will be held.
Military (main beneficiaries)	<ul style="list-style-type: none"> ■ Program outcomes data: Examples include acres held in compatible land use, length of easements and contracts, cost-effectiveness, improved markets through product use at installations, follow-on funding obtained to continue elements of the pilot project and/or to begin institutionalization 	The military will be interested in program outcomes data to see the value of partnering with organizations, agencies, and landowners in eastern North Carolina to maintain their military footprint. The military will also be interested in information about lessons learned and best management practices following the pilot to understand how natural resource conservation and working lands are compatible with military training and the value of providing resources to promote such activities. The military will be able to gain an understanding of the value of developing policies that encourage maximizing economic interaction with local landowners to create a sustainable food and fuel infrastructure.
Program partners and staff (managers/owners of the program)	<ul style="list-style-type: none"> ■ Program goals and objectives ■ Changes in participant knowledge, skills, behaviors, and conditions ■ Program inputs, outputs, and outcomes ■ Cost-effectiveness ■ Timeline and duration of project 	Program partners and staff need this information to understand whether program objectives are achieved. They also gain insight into what works and what doesn't work, as well as what can be done to improve cost-effectiveness.
Academia	<ul style="list-style-type: none"> ■ Program outcomes ■ Lessons learned and best management practices ■ Cost-effectiveness 	Fellow academic and Extension professionals are always interested in knowledge of effective programming to understand what does and does not work under which condition. They can also gain insight into what can be done to improve the cost-effectiveness of related programs.
Agricultural, forestry, and natural resource agencies and organizations	<ul style="list-style-type: none"> ■ Program outcomes: Examples include number of VADs, easements, cost-share contracts, entities holding working land contracts and easements, new crop opportunities and program participation and contract length ■ Cost-effectiveness 	These agencies and organizations need this information to identify program functionality and value and to make judgments about program alignment with each agency's or organization's long-term goals. They also need to know how cost-effective the program is at attaining mutual objectives in comparison to competitive or complementary efforts.

Table D-1. Key stakeholders and their information needs

Key Stakeholders	Information Needs	Description of Needs
Conservation districts	<ul style="list-style-type: none"> ▪Program outcomes: enrollment statistics, new conservation opportunities, contract lengths, default rate ▪Lessons learned and associated best management practices ▪Cost-effectiveness 	Conservation districts need this information to understand how to initiate, deliver, and/or promote programs that are not currently broadly available. Information on program impact will allow district staff to perceive land uses that meet the Sentinel Landscapes mission as effective ways to advancing their mission of natural resource conservation.
Economic development agencies and organizations	<ul style="list-style-type: none"> ▪Program outcomes: Examples include new agribusiness opportunities, maintaining the ability for the military to continue to train in the state, participation in Sentinel Landscapes initiatives, and program funding (potential additional funding related to job-creation) ▪Cost-effectiveness 	Economic development agencies and organizations are interested in data that shows increased revenue generation (i.e., revenue generated based on continued military training) and job creation opportunities as a result of the program. This information is needed for these groups to view collaborating with the partnership as a high priority for ensuring the state's economic prosperity and as more important and valuable than promoting urbanization and other incompatible land uses. These groups must also gain an understanding of what program activities are available so they can effectively collaborate on activities that achieve a mutual objective.
Governing bodies (national, state, and local)	<ul style="list-style-type: none"> ▪Program outcomes: Examples include policies championed, new crop and conservation opportunities, landowner attitudes and aspirations, rate of losses of Sentinel Landscapes acreage, enhancement of military training in the state ▪Cost-effectiveness 	NC legislators and local governments want information on how the program serves as a cost-effective way to enhance the economic prosperity, health, and security of NC citizens. Governing leaders will be interested in gaining information based on lessons learned and best management practices used to see value in developing policies, laws, and regulations that enhance the Sentinel Landscapes mission.
NGOs: Commodity groups, farming and forestry advocacy groups, and local foods and fuels nonprofits	<p>Program outcomes: Examples include new agribusiness and conservation opportunities, acres under contract, extended contract length, and entities available to hold working lands contracts and easements</p> <p>Cost-effectiveness</p>	NGOs are interested in this information to understand how the partnership's efforts have achieved the maintenance of economically viable working lands and natural resources. NGOs will also be interested in understanding program functionality to identify viable opportunities for collaboration.

For purposes of accountability and program improvement, evaluation results will focus on the needs of the key stakeholders to achieve maximum credibility and acceptance. Each evaluation will be required to go through institutional review to guarantee that the evaluation is be designed and conducted to protect human and legal rights and maintain the dignity of participants and other stakeholders.

Evaluation Approach and Model

The NCSLP will utilize a goal-based evaluation approach designed for the measurement of planned outcomes. The program model is tasked with increasing awareness, understanding, and problem-solving abilities among key stakeholders as they make choices about how to achieve mutual objectives in regards to the spectrum of resource uses. To evaluate the program's ability to achieve these desired outcomes or conditions, Rockwell and Bennett's (2004) Targeting Outcomes of Programs (TOP) Model will be used (Figure D-1) to ensure impacts are captured efficiently and effectively.

The program performance and evaluation begins on the right side of the model by looking at the resources used to present the activities that ensure each target audience's participation and positive reactions. The evaluation will compare the actual program attendance to the desired target identified during program planning and design. Cost-effectiveness ratios will be calculated to compare program outputs (activities and participation) and outcomes (short-, middle-, and long-term) with program costs. These ratios will be measured at the activity level and be used to demonstrate the relative value of the program based on resource availability and allocation. These ratios will also provide measures of evaluation for various program processes and their effectiveness in achieving program outcomes. The analyses will produce a benefit-cost ratio that is calculated as follows:

$$\text{Cost-Effectiveness} = \frac{\text{The Value of Program Costs}}{\text{Number of Outcome/Output Units}}$$

Cost-effectiveness ratios will also serve as measures to compare the Sentinel Landscapes elements with other programs and inform compatible efforts that may be interested in transferring program concepts or adopting the Sentinel Landscapes model for their own efforts. Rather than evoking a traditional sign-in sheet, participants will be asked to complete a short demographics survey to provide insight to NCSLP staff of the effectiveness of program marketing efforts. A demographics survey will provide data on the number of participants along with the following:

- Name, affiliation, level of involvement, and familiarity with partnership (Appendix D-1)

This demographic survey data will provide insight into the program's ability to reach its target audience and help staff to understand key factors of familiarity and engagement among attendees. To ensure that the program is meeting the expectations of those attending quarterly meetings, thus creating a positive reaction among its participants, a participant satisfaction survey (Appendix D-2) will be administered at intervals agreed upon by the steering committee (but at least once a year). This participant satisfaction data will help staff to measure satisfaction with the process and possibly measure satisfaction metrics among participants that remain engaged in the program.

The philosophy underlying this model is that these positive reactions help program participants gain desired knowledge, attitudes, skills, and aspirations (KASA). When participants apply gained KASA, the desired behavioral changes will occur for achieving compatible resource uses for the maintenance and enhancement of military training, working land and water resources, and conservation. The evaluation will gather information systematically to determine whether the target resources were mobilized, activities were presented, target audiences participated, the audiences were satisfied, changed their KASA, changed their practices, and achieved the desired conditions.

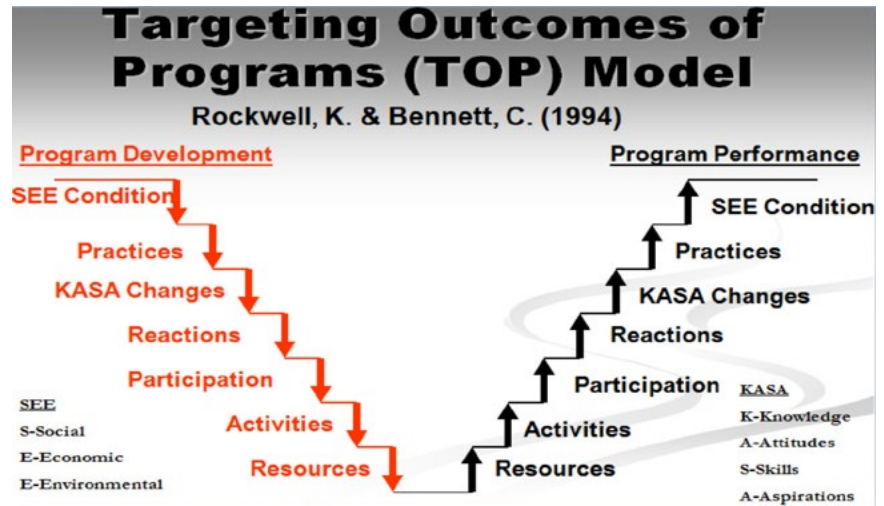


Figure D-1. Program evaluation model.

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The development of data collection instruments for other program-related activities will be conducted on an as-needed basis to ensure the evaluation is closely tied to both the program activity and the partnership's strategic plan. The development of the activity-specific evaluation will be led by the program evaluation specialist along with the leader(s) of the activity in question. Data collection instruments must be approved by the larger steering committee before the process of verifying instrument reliability and validity can be evoked.

Evaluation Reliability and Validity

To ensure evaluation is accurate and consistent, measures will be taken to ensure instrument reliability and validity. A test-retest method will be used to make sure that the evaluation instruments produce consistent results. The instruments will be administered to a sample of subjects on two occasions, and correlation analysis will be run on the paired scores to measure and establish reliability. Evaluation validity will be addressed by evoking an extensive expert review process of all instruments. Experts in evaluation, extension and outreach, organizational development, and training will be used to evaluate the extent to which each instrument measures what it intends to measure. Instruments will not be implemented until a consensus is reached among all experts.

Program Monitoring: Tracking Outcomes

To ensure that the evaluation procedures are practical and responsive to the way the program operates, a logic model will be used to develop the program monitoring framework. The logic model provides a holistic view of the program through the cause-and-effect relationships between inputs, outputs, outcomes, and impacts. The model will help focus the evaluation on the program's key elements, identify evaluation questions, and determine data collection points for systematic collection and review. Appendix D-3 includes the logic model for this program that represents what is needed for overall success.

Program Monitoring Impact Indicators

Program impact indicators were developed using consensus-building processes among the NCSLP steering committee. The impact indicators have been agreed upon, and objectives have been developed accordingly. Short-term program indicators will focus on key stakeholder needs related to changes in KASA. Program monitoring will capture data measuring these changes immediately after the program-related events. In the medium-term, the impact indicators will focus on key stakeholders' adoption or changes in behavior (actions taken) that are promoted by the KASA gained from the program. These indicators will focus on behaviors that are observed within a few years of engaging with program-related activities and will look at the adoption of behaviors such as working land easements enabling landowners to maintain their land, enrollment in Sentinel Landscapes initiatives, increased contract length in compatible land use, and robust funding. Finally the long-term indicators will focus on the NCSLP's ultimate goals, which are to preserve compatible resource uses with military training, working lands, water resources, and conservation. These indicators will help NCSLP managers understand the changes in specific conditions created as a result of this partnership. Table D-2 outlines the comprehensive list of indicators that this program will use to capture meaningful program data for the purposes of program improvement and accountability.

Table D-2. Program impact indicators

Short-term indicators	<ul style="list-style-type: none"> ▪ % of key stakeholders who are able to identify program functionality and comprehend program value ▪ % of participants at outreach events who indicate their knowledge of working lands conservation is improved ▪ % of training attendees who can describe working lands conservation strategies ▪ % of participants/stakeholders who perceive the program aligns with the long-term objectives of their agencies, organizations, and leaders
Medium-term indicators	<ul style="list-style-type: none"> ▪ No. of entities available to hold working land trusts and contracts ▪ No. of acres held in working land trust contracts and/or easements ▪ No. of participants in Sentinel Landscapes initiatives ▪ No. of counties developing farmland and working land preservation plans ▪ No. of acres of private lands enrolled in PUV, VADs, or Enhanced VADs ▪ % of new landowner agreements with durations of 20 years or more within Sentinel Landscapes initiatives ▪ No. of policies, laws, and/or regulations developed and championed that support mission ▪ No. of key stakeholders represented at program meetings ▪ No. of dollars received for program sustainment
Long-term indicators	<ul style="list-style-type: none"> ▪ No. of other states initiating Sentinel Landscapes efforts (based on NCSLP efforts) ▪ No. of conservation and crop opportunities (as a measure of increased economic opportunities present that promote conservation, farming, forestry) ▪ No. of acres being maintained in compatible resource uses

Based on the aforementioned indicators, objectives have been developed and agreed upon with the NCSLP steering committee. The indicators are structured to produce sound, measurable, attainable, realistic, time-bound objectives to ensure effective utilization for program accountability and improvement. Table D-3 outlines the short-, middle- and long-term objectives for the partnership.

Table D-3. SMART* program objectives

Short-Term	
1.	At least 75% of key stakeholders will be able to identify program functionality and comprehend program value by June 30, 2015, as measured by a survey.
2.	At least 75% of landowners participating in the outreach events will indicate their knowledge of working lands conservation is “improved” or “very improved” after each outreach event.
3.	At least 90% of training attendees will be able to describe three or more working lands conservation strategies after each training workshop.
4.	Over 75% of participants/stakeholders will perceive that the program aligns with their agency/organization/leaders’ long-term objectives and express interest in Sentinel Landscapes initiatives by June 30, 2015, as measured by a survey.
Medium-Term	
1.	The Working Lands Trust (WLT) is available to hold working land agreements and contracts by January 1, 2015.
2.	The WLT will hold working land trusts and/or contracts representing at least 1,000 acres by September 29, 2018.
3.	At least 75% of Train-the-Trainer workshop attendees will use portions of the curriculum within the first year of completing the workshop.
4.	Participants will increase by 10% each year as measured by new applications and contracts within Sentinel Landscapes initiatives (that is, ADFP and Working Forests) each year from September 29, 2015, to September 29, 2018.
5.	The number of counties developing farmland and working land preservation plans will increase by at least one per year.
6.	The number of private lands enrolled in PUV, VADs, or Enhanced VADs will increase by 5% each year from January 1, 2015, to September 29, 2018.
7.	At least 75% of new landowner agreements that support Sentinel Landscapes efforts in North Carolina will have durations of 20 or more years by September 29, 2018.
8.	Existing contracts will have a default rate of less than 7% by September 29, 2018.
9.	At least two policies, laws, or regulations will be developed and championed that support working lands, conservation, and military readiness at the state level by the end of FY 2018.
10.	The NCSLP has representation from each branch of the key stakeholder groups in 75% of Sentinel Landscapes quarterly meetings as measured by sign-in sheets.
11.	Sentinel Landscapes efforts receive at least \$1 million in funds annually starting at the end of calendar year 2015.
Long-Term	
1.	At least two other states will initiate Sentinel Landscapes efforts by FY 2021 as a result of NCSLP efforts.
2.	At least eight new opportunities will be created (such as farmers’ markets on military installations, ecosystem services, renewable fuels) that align with the NCSLP mission by September 29, 2018.
3.	Increasing acres of compatible resource use as to decrease the rate of loss by 5% under the military footprint from FY 2014 numbers by FY 2021 as reported by the USDA Census of Agriculture data.
*Specific, measurable, attainable, relevant, time-bound	

Program Monitoring: Tracking Processes and Outputs

Consensus-building processes were also evoked to promote collaborative discussion among NCSLP steering committee members for the development and refinement of process and output metrics. These metrics were developed based on the core set of essential program functions. Each program element and associated element lead has different responsibilities under the umbrella of the partnership, which is reflected within each list of performance metrics. Table D-4 outlines these metrics for the overall program as well as for each element.

Table D-4. Program action plan with objectives	
Overall Program	
<ul style="list-style-type: none"> ▪ A minimum of two programs will be supported by the NCSLP each year that promote the Sentinel Landscapes mission. ▪ A minimum of two Sentinel Landscapes projects will be initiated or delivered each year. 	
Element 1: Coordination	
<ul style="list-style-type: none"> ▪ The steering committee led by NC State will coordinate the identification of tasks and annual funding needs for all Sentinel Landscapes elements once a year, no later than April 15. ▪ The steering committee led by NC State and TAMU will communicate the value of Sentinel Landscapes by meeting and discussing opportunities for collaboration and perpetuation at the state and federal levels no later than six months following the finalization of the communication plan with: <ul style="list-style-type: none"> » Office of the Secretary of Defense (Acting Deputy Under Secretary of Defense—Installations & Environment, Director—Training Readiness and Strategy Program, Director—REPI Program) » Executive branch agencies and programs (U.S. Secretary of Agriculture, Secretary of Commerce, and Secretary of the Treasury; U.S. Department of Interior, Assistant Secretary for Fish and Wildlife and Parks) » Military Service Commands » U.S. Congress: Senate » USDA State Directors <ul style="list-style-type: none"> ▸ NRCS ▸ Rural Development ▸ Farm Service Agency ▸ Risk Management Agency » NC Department of Commerce, Division of Rural Development (Assistant Secretary) » NC Military Operational Leaders (Air Force, Army, Marines/Navy, Coast Guard, and National Guard) » NC Commanders' Council » NC Military Affairs Commission » NC Governor's Military Advisor » NC General Assembly and legislative entities » NCDA&CS (Commissioner) » NC Department of Environmental Quality (Secretary) » NC Department of Transportation (Deputy Secretary) » NC Department of Natural and Cultural Resources » Local elected officials and decision-makers (city/town councils and mayors) ▪ NC State and element leads will develop and implement a communications plan no later than November 30, 2014. <ul style="list-style-type: none"> » Publish a general readership article in at least two outlets including <i>Agricultural Review</i>, Farm Bureau outlets, Land Trust Alliance outlets, NC Magazine, NC Electric Co-op, NC State Grange, and/or REPI newsletter no later than May 31, 2015. <ul style="list-style-type: none"> ▸ NC State and TAMU will improve understanding of Sentinel Landscapes by presenting at no less than one regional meeting/conference on Sentinel Landscapes by June 30, 2015. » NC State will coordinate 10 monthly conference calls per year with at least 75% attendance from the NCSLP steering committee members per call. 	

Table D-4. Program action plan with objectives
<ul style="list-style-type: none"> » NC State will coordinate at least two in-person meetings per year and achieve representation from each key stakeholder group in 75% of Sentinel Landscapes quarterly meetings as measured by sign-in sheets. » NC State will maintain the website by providing quarterly updates (or as needed) of site content.
<ul style="list-style-type: none"> ▪ NC State will complete the development of the program evaluation and monitoring framework by no later than May 31, 2015.
Element 2: Agricultural Development and Farmland Preservation Trust Fund
<ul style="list-style-type: none"> ▪ ADFP Trust Fund representatives will develop a plan and place under a 20-year term easement contract 435 acres of farmland for compatible land use for military training by September 29, 2015. ▪ ADFP Trust Fund representatives, in collaboration with NCDA&CS and USDA–NRCS, will conduct six workshops pertaining to working lands preservation by November 30, 2014. ▪ ADFP Trust Fund will develop a report of acres and location of protected compatible use lands no later than September 29, 2015.
Element 3: Working Forests
<ul style="list-style-type: none"> ▪ Working Forests representatives (NCFA and NC State) will improve understanding of Sentinel Landscapes by presenting at no less than one regional meeting/conference by June 30, 2015. ▪ NCFA will develop a white paper identifying gaps and barriers in regulations and policies impeding the conservation of working lands by September 29, 2015. ▪ NC State will develop a training curriculum to educate landowners about preserving working lands no later than April 30, 2015. ▪ NC State will conduct a train-the-trainer workshop no later than May 31, 2015. ▪ NC State will conduct at least four county level outreach events by September 29, 2015.
Element 4: Food and Fuel 4 the Forces (FF4F)
<ul style="list-style-type: none"> ▪ FF4F staff will improve understanding of Sentinel Landscapes by presenting at no less than one regional meeting/conference by June 30, 2015. ▪ Promote the use of local food in <u>all</u> military base venues to include mess halls, commissaries, and Marine Corps Community Services activities by initiating the following activities no later than September 29, 2015. <ul style="list-style-type: none"> » Local food event focused on landowners » Marketing events such as highlighting of local foods in commissary, guest chef events, and “Flavors of NC” television episode » Farmers’ market on an additional military installation » Change from canned and frozen foods at base venues to fresh, local foods
Element 5: Market Based Conservation Initiative (MBCI)
<ul style="list-style-type: none"> ▪ MBCI will identify the average contract cost per acre of land offered for enrollment as bid by landowners no later than December 31, 2015. ▪ MBCI will describe lessons learned from the pilot project no later than August 1, 2015. ▪ MBCI will begin monitoring any signed contracts no later than August 1, 2015. ▪ MBCI will calculate monitoring cost per acre no later than August 1, 2017.

Regular updates will be provided by each element lead regarding progress on the objectives outlined above. These updates will be presented to the group during monthly NCSLP steering committee conference calls as well as in-person quarterly meetings. These objectives will continually be updated and negotiated among the group to ensure attainment of desired program outcomes.

Evaluating the Program Context

Once every five years, program element leads and key stakeholders will be asked to participate in qualitative interviews to help NCSLP staff and the steering committee understand lessons learned and best management practices gained from the work of the collaborative partnership. The qualitative interviews are structured based on the theories of collaboration to identify the variables that impact the interagency partnership. Variables of interest include the following:

- Social and political climate
- Communication and decision-making processes
- Social capital
- Governing policies
- Availability of resources

The interview protocol (Appendix D-3) was created to understand the influence of the aforementioned variables on the partnership's success. The protocol aligns with these overarching research questions:

1. How did the social and political climate of the community influence the collaboration?
2. How did element leads and key stakeholders select communication and problem-solving processes? Were the processes agreed upon?
3. Why were some communication and problem-solving processes considered to be priorities by people in leadership positions?
4. What roles did individuals at various levels in each organization play in the collaboration?
5. Which governing policies of each respondent's organization affected the development and implementation of the collaboration?
6. Did the availability of resources impact the collaboration? If so, how?

To carry out the interview protocol with the intended audience, the NCSLP must receive Institutional Review Board approval at NC State due to the nature of the questions and the potential implications related to the employment of the partners and key stakeholders. And to maintain a high level of data integrity, quality measures that ensure confidentiality must be incorporated.

Utilization Plan

To effectively communicate the evaluation design, data collection, results, conclusions, and recommendations about the program to the broad range of stakeholders, the NCSLP will develop and disseminate an evaluation report. Evaluation conclusions that contribute to program decisions will be explicitly justified in the contexts where those conclusions have consequences. The results of this evaluation will help partners to construct activities, descriptions, and judgments in a manner that will encourage participants to rediscover, reinterpret, or revise their understandings and behaviors. Evaluation findings will be presented based on the needs of multiple audiences while explicitly identifying and addressing conflicts of interest that may compromise the evaluation results. Table D-5 outlines the program evaluation timeline and sequence for utilizing evaluation results.

This timeline is predicated on the ability to have a full-time employee carrying out the program evaluation efforts. If a full-time employee is not available, the timeline is meant to serve as a reference for adaptation based on the human resources available to the partnership for evaluation. The tasks and general structure of the timeline must be considered when making appropriate adaptations.

Table D-5. Sample evaluation timeline, January 2015 – September 2015

TASK TO BE COMPLETED	January	February	March	April	May	June	July	August	September
Initiate discussion with program element leads	X								
Finalize specific information needs	X								
Develop impact indicators and key questions		X							
Decide evaluation designs and develop data collection tools		X	X						
Collect data				X	X	X			
Analyze data							X		
Write report							X	X	
Communicate results with stakeholders									X

Program Accountability

To support accountability, the evaluation team will focus results on justifying the resources invested in the program. The evaluation report will summarize the program results to key stakeholders and funding sources to provide insights into the cost-effectiveness of the program, target audience participation, client satisfaction, and program impact. The program team will disseminate this information in a timely manner following the completion of the evaluation to give key stakeholders insight into program value and build awareness for continued program funding.

Partnership element leads will provide timely updates of program progress based on collaboratively outlined goals and objectives via an online dashboard structure. The dashboard will be available to element leads as well as the NCSLP steering committee to ensure collective recognition of program effectiveness. The information provided will serve to demonstrate program value related to actual actions taken by participants and any emerging needs that may require additional resource allocations. Program outputs and outcomes will be included in cost-effectiveness ratios that will serve as a summary of program value to government agencies and funding entities as justification to receive continued funding. This information will also provide fellow professionals with best management practices and lessons learned for effective programming that achieves the conservation of compatible resource uses that maintain and enhance working lands, conservation, and national defense.

The final phase of accountability information in the evaluation report will focus on the rate of losses of land and water resources within designated Sentinel Landscapes in eastern North Carolina. The evaluation report will reference reliable sources (such as the REPI Annual Report) that report on these trends on a seven-year cycle. The NCSLP will use this information to update the strategic plan and provide key stakeholders with program results in the context of state policies and initiatives. Because program alignment is important for achieving statewide goals, the NCSLP will make sure that it stays in tune with the needs of the state as a whole as well as the needs of eastern North Carolina residents.

Marketing

The partnership has developed a marketing and communications plan that will guide the dissemination of evaluation results and program activities. The plan was developed from the framework of social marketing that is tasked in promoting favorable behavioral change. Marketing efforts will focus on outcome results that demonstrate the value of the NCSLP. The goals of these efforts are to increase awareness, understanding, and problem-solving abilities among key stakeholders in order to increase behavioral changes that promote Sentinel Landscapes.

Marketing will also use engaged stakeholders to raise awareness among potential participants for future programs. These programs will also be marketed to potential funding entities to ensure adequate resources for the NCSLP and the entire catalogue of compatible programs. This marketing opportunity also provides a chance to market the broad concept of Sentinel Landscapes. As much as we focus this plan on a particular program, it is important to take full advantage of the evaluation plan to market working lands, conservation, and national defense. These marketing efforts will focus on providing a positive spin on relevant activities and programs in general, demonstrating that the Sentinel Landscapes concept can create promising social, economic, and environmental conditions.

The marketing plan will employ a multimedia approach to take advantage of information dissemination in the 21st century. Various media, such as television, radio, internet content, and newspapers, will be leveraged to disseminate information. The partnership will take a strategic approach of tailored messaging based on the audience of each particular medium. The program will also develop and disseminate materials (including newsletters, flyers, and online postings) to keep participants, funders, and a broad range of stakeholders informed.

Program Improvement

This program evokes the theories of adaptive management, allowing evaluation results to continuously inform the program process. Figure D-2 shows the program's adaptive cycle and provides an outline demonstrating the role of evaluation.

Program improvement will begin by using the process evaluation results. Implementation data about inputs, outputs, and client participation will be compared with the targets developed by the program leaders. Cost-effectiveness ratios will include outputs and client participation at a program, element, and activity level to understand the full scope of processes. This approach will allow the program team to develop a holistic understanding of the program's strengths and its challenges. Based on the process evaluation results, the team will make recommendations for program improvements focused on reaching program targets.

The team will be proactive in its implementation of remedial actions, so improvements will not wait until the final evaluation report is created and disseminated. Program improvement will be a continuous process and based on the expectations of key stakeholders and partners. The existing structure for coordinating the program will be evoked for such discussions—monthly steering committee conference calls and quarterly meetings. The purpose of these meetings is to allow program staff to discuss their impressions of the program while evaluating results from initial data analysis.

The results of the recurring contextual evaluation (Appendix D-3) will be used to ensure that the collaborative dynamics of the partnership are effective and meet the expectations of both key stakeholders and program leaders. It will provide an opportunity to identify the internal strengths and weaknesses of the partnership as well as the external opportunities and threats that the partnership should address to maintain successful collaborative efforts. These results will inform the actions taken by the partnership to ensure the program is responsive to its environment.

Discussions regarding planned actions will depend on milestones based on behavioral objectives and agreed upon among the NCSLP's element leads and steering committee (Table D-6). The team will focus these discussions on providing insight into key stakeholder actions, participant challenges, emerging needs, and other participant insights that may affect the strategies presented, the methods for presenting strategies, and the emphasis of certain topic areas.

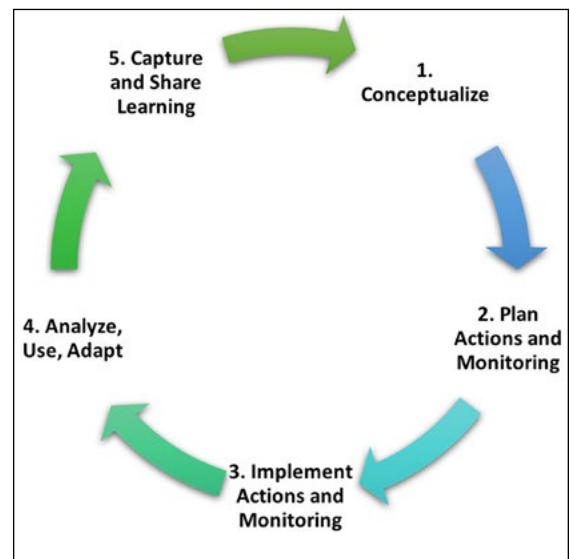


Figure D-2. Program adaptive management cycle for program improvement.

Table D-6. Medium-term objectives* and their milestones for program improvement

Objective Number*	Milestone 1	Milestone 2	Milestone 3	Milestone 4	Milestone 5	Milestone 6	Milestone 7	Milestone 8
2	4/2015: 125 acres	9/2015: 250 acres	4/2016: 375 acres	9/2016: 500 acres	4/2017: 625 acres	9/2017: 750 acres	4/2018: 875 acres	9/2018: 1000 acres
4	4/2016: 0%	9/2016: 1.5%	12/2016: 3.75%	4/2017: 5.0%	9/2017: 6.25%	12/2017: 7.5%	4/2018: 8.75%	9/2018: 10.0%
7	4/2015: 53.125%	9/2015: 56.25%	4/2016: 59.375%	9/2016: 62.5%	4/2017: 65.625%	9/2017: 68.75%	4/2018: 71.875	9/2018: 75.0%
9	4/2015: 0	9/2015: 0	4/2016: 1	9/2016: 1	4/2017: 1	9/2017: 2	4/2018: 2	9/2018: 2

*See Table D-3. SMART objectives, medium-term ordered list.

The team will use cost-effectiveness ratios to evaluate the program processes in relation to achieving desired outcomes based on resource availability and allocation. This data will provide program partners and key stakeholders with a rich description of the overall experience and perception following participant engagement with the program and how the program was able to provide the necessary KASA to effectively navigate stakeholders through the path of compatible behavioral change. The measurement of program impact will identify potential areas of improvement based on the external factors identified by program participants that may compromise ultimate program success. Program personnel, representatives of the target audience, government officials, other Extension professionals, and funding entities will be invited to attend program discussions to ensure a stakeholder-driven process for program improvement.

In the final stage of evaluation, the team will focus on long-term partnership goals following the final stage of data collection: retrieving data from records and archives. These discussions will take conversations to a policy level but will remain centered around identifying areas for program improvements. Meeting participants will evaluate the program's contribution to overarching statewide policies and initiatives. Invited policymakers and government officials can provide insight for clearer funding paths and additional resources that may improve program delivery based on mission and goal alignment. These areas of improvement will provide the most benefit for continuous marketing efforts that target social change among various stakeholder groups. While these meetings are meant to serve as opportunities to improve the program, the meetings will also serve to increase buy-in—especially among potential political sponsors.

The program improvement team will also look at improving the evaluation process. Once the evaluation is complete, meta-evaluation will provide a critical review of the evaluation procedures. The evaluator will conduct a critical review of his/her evaluation to identify problems and weaknesses to improve upon before conducting the next program evaluation.

Appendix D-1. Quarterly Meeting Sign-in Sheet with Demographics

Name	Affiliation	Level of Involvement	Familiarity with Program (Circle one)
		1: Never 2: Occasionally 3: Fairly often 4: Often 5: Always	1: Very familiar 2: Somewhat familiar 3: Somewhat unfamiliar 4: Very unfamiliar

Appendix D-2. Sentinel Landscapes Quarterly Meeting Survey

1. What do you find most useful at this *Sentinel Landscapes quarterly meeting*? (Please provide a written explanation.)

2. What was least useful at this *Sentinel Landscapes quarterly meeting*? (Please provide a written explanation.)

Please circle the appropriate number for your level of response.

How satisfied are you with:	Not Satisfied	Somewhat Satisfied	Satisfied	Very Satisfied
The relevance of information to your needs?	1	2	3	4
Presentation quality?	1	2	3	4
Subject matter knowledge of presenter(s)?	1	2	3	4
Meeting facilities?	1	2	3	4
The overall quality of the quarterly meeting?	1	2	3	4

3. How could the *Sentinel Landscapes quarterly meetings* be further improved upon to be of more value to you/your organization? (Please provide a written explanation.)

4. Would you recommend the *Sentinel Landscapes quarterly meetings* to others who are not currently attending? (Circle your response and explain.)

a. Yes. To whom, and what organizations?

b. No. Why not.

Appendix D-3. Sentinel Landscapes Program Logic Model

SITUATION

Unplanned development and the encroachment of incompatible land uses threaten the health of working lands and natural systems with the same force that these factors threaten the viability of the military training network in eastern North Carolina.

PRIORITIES

Stacking and leveraging benefits
Enhancing networks and linkages
Enhancing economic opportunities
Education and outreach

INPUTS AND OUTPUTS

INPUTS	OUTPUTS		OUTCOMES		
	Activities	Participants	Short-term	Medium-term	Long-term
Staff Materials Partners Funds	Partnership coordination Coordination to identify tasks and annual funding needs ADFP grant proposal review Innovative conservation strategies Working lands conservation Train-the-Trainer events Working lands conservation outreach events Promoting the use of local foods in military base venues MBCI application and contract monitoring MBCI reverse auction research	Private landowners Academia Agriculture, forestry, and natural resource agencies Military Conservation districts NGOs (commodity groups, farming and forestry advocacy groups, and local foods nonprofits) Economic development agencies and organizations Governing bodies Economic development agencies and organizations	Increase awareness, understanding, and problem-solving ability among stakeholders Maintaining and Increasing perceptions of long-term viability of Sentinel Landscapes among stakeholders Increase collective vision and recognition among agencies, organizations, and others regarding compatible land uses.	Increased enrollment in Sentinel Landscapes initiatives Increased contract length within Sentinel Landscapes initiatives Contracts and conservation easements held in eastern North Carolina Championing policies that support working lands, conservation, and national defense Increased and robust interest in program sustainment funding	Institutionalization of regional cooperation for compatible resources uses for Sentinel Landscapes Enhanced value of Working lands and living shorelines through increased conservation and crop opportunities Sustaining Sentinel Landscapes military training, conservation, and working lands

ASSUMPTIONS	EXTERNAL FACTORS
<div>1. You must demonstrate the value of Sentinel Landscapes in order to promote compatible actions.</div> <div>2. Working lands must become more profitable in order to prevent encroachment of incompatible land uses.</div> <div>3. The key is focusing on economic development that maintains the land resources in a compatible state of use for military training, forestry, and crops. Infrastructure development (water and sewer) encourages increased housing development and land use change. But providing resources for further value-added development of crops, timber, and livestock being produced in the area increases the likelihood that the land will be maintained in compatible uses (versus incompatible uses) for military, forestry, and agriculture.</div>	<div>1. Urban growth influences policy development, which may negatively affect the ability to maintain a Sentinel Landscape.</div> <div>2. The extent of a Sentinel Landscape provides a complex challenge for achieving mutual gain based on the number of relevant stakeholders.</div>

Appendix D-4. Qualitative Evaluation Interview Protocol for Program Leaders

1. How would you describe your experience with the NC Sentinel Landscapes Partnership?
 - a. (Probe) What worked well?
 - b. (Probe) What didn't?
2. What were the key factors that influenced the program outcomes?
 - a. (Probe): [For each key factor identified] How did [it] impact the program outcome?
 - b. (Probe): Why should future collaborative partnerships consider the aforementioned factors when developing their own Sentinel Landscapes program?
3. Did policies or guidelines (or both) of an agency or organization influence decision-making in your organization?
 - a. If so, how?
4. How did state mandates help or hinder the collaboration?
5. How did federal mandates help or hinder the collaboration?
6. How did funding structures help or hinder the collaboration?
7. How did board (steering committee) policies help or hinder the collaboration?
8. How would you describe the partnership's leadership?
 - a. Strengths?
 - b. Weaknesses?
9. How did the partnership establish goals and objectives?
 - a. (Probe) How did the partnership agree on roles?
 - c. (Probe) How did the partnership make decisions?
 - d. (Probe) How did the partnership resolve conflicts?
10. Which of the problem-solving processes were most important to you?
 - a. (Probe): Why?
11. Which of the communication processes were most important to you?
 - a. (Probe): Why?
12. Describe your relationship with leaders of the other agencies/organizations in the partnership.
 - a. (Probe) What impact did personal relationships have on the collaboration?

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13. Were there any shifts in perspectives or relationships among key stakeholders that affected program outcomes?
 - a. (Probe): If so, what were they?
 - b. (Probe): How did these shifts impact the partnership outcome(s)?
14. How would you describe the human resources available to your organization?
15. How would you describe the financial resources available to your organization?
 - a. (Probe) What other resources were available to you?
 - b. (Probe) What resources did your organization have that could be exchanged in the collaboration?
16. Describe the general feelings, attitudes, beliefs, and/or opinions of the stakeholders in eastern North Carolina toward the social issues affecting their communities?
17. Describe the general feelings, attitudes, beliefs, and/or opinions of the stakeholders in eastern North Carolina toward the political issues affecting their communities?
18. What impact did the aforementioned social and political climate have on the [creation, development, and implementation of] the partnership?
19. What would you tell the leadership of future endeavors to ensure the success of respective programs?
20. What would you or your organization do differently based on your experience with the partnership?
21. What additional observations would you offer?

Appendix E. Acronyms and Their Definitions

CESU	Cooperative Ecosystem Studies Unit, Army Corps of Engineers
CREP	Conservation Reserve Enhancement Program
DoD	U.S. Department of Defense
FF4F	Food and Fuel for the Forces
FORCES	Forest Opportunities for Resource Conservation and Environmental Security
JBLM	Joint Base Lewis McChord
KASA	Knowledge, attitudes, skills, aspirations
LCC	Landscape Conservation Cooperative
MBCI	Market Based Conservation Initiative
MCB	Marine Corps Base
MCIEAST	Marine Corps Installations East
NC State	NC State University (not NCSU)
NCDA&CS	NC Department of Agriculture & Consumer Services
NCFA	NC Forestry Association
NCFS	NC Forest Service
NCSLP	NC Sentinel Landscapes Partnership
NCWRC	NC Wildlife Resources Commission
NFVC	National Farmer-Veteran Coalition
NGOs	Nongovernmental organizations
NRCS	Natural Resources Conservation Service
PUV	Present-use Value
RCPP	Regional Conservation Partnership Program
REPI	Readiness and Environmental Protection Integration
SALCC	South Atlantic Landscape Conservation Cooperative
SERPPAS	Southeast Regional Partnership for Planning and Sustainability
SMART	Specific, measurable, attainable, relevant, time-bound
TAMU	Texas A&M University
UCRC	University Cooperative for Readiness and Conservation
USAF	U.S. Air Force
USDA	U.S. Department of Agriculture
VADs	Voluntary Agricultural Districts
WLT	Working Lands Trust

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