Chapter 5. Goals, Objectives, and Strategies

5.a.

Introduction

The Goals, Objectives, and Strategies (GOS) are based on issues and needs identified in the *Statewide Forest Resource Assessment's* key findings and priority maps. Seven broad goals have been identified, and each contains objectives that define what is to be accomplished. Strategies identify how to accomplish the objectives. The GOS document helps to provide a 5-year roadmap for NCDFR and its partners.

Each goal statement includes a narrative paragraph summarizing its intent. Each strategy includes a matrix that organizes the strategy into logical and consistent components. Each matrix summarizes key details as follows:

Objective statement—What will be accomplished to meet the associated goal. Included in the statement is a list of the *Statewide Forest Resource Assessment's* chapter sections where key findings are listed and addressed by the associated strategies. USDA Forest Service national objectives are also listed to indicate those that are supported by the associated strategies.

Strategy statement—How the objectives will be accomplished. Components needed to achieve the strategy are identified in columns as follows:

> **Priority Area(s)**—Identifies maps and priority areas that focus a strategy. The strategies will complement and be integrated into existing and newly created NCDFR and forestry stakeholder programs and responsibilities.

DFR Program Areas—NCDFR programs and units that will be directly involved or provide support to accomplish the strategy.

Key Stakeholders and Partners—Agencies, organizations, and groups from which leadership or collaboration will be needed to implement the strategy.

Resources Needed—Programs and resources needed to implement the strategy.

Measures of Success—Performance measures that could potentially be used to monitor strategy accomplishments.

An attempt was made to reduce unnecessary repetition within the GOS document. For example, a strategy or issue was not highlighted in one Goal if that strategy or issue was addressed in detail in another Goal. Specific activities to meet each strategy will be furthered developed in an annual action plan. NCDFR and its partners will incorporate the activities outlined in the annual action plan into existing or newly created programs. When appropriate, there will be an emphasis on the *Statewide Forest Resource Assessment's* priority areas.

The support and collaboration of partners and stakeholders is important to the successful implementation of the GOS. Therefore, partnership involvement and collaboration is integrated within most strategies. Funding, implementation and oversight of some strategies may be the responsibility of other organizations besides NCDFR. Examples of inter-organizational

a. Introduction

collaborative efforts (within North Carolina and also with other states) that already exist or are planned are included in the *Statewide Forest Resource Assessment*. The activities outlined in the annual action plan will require even more inter-organizational planning and cooperation by North Carolina's forest and natural resource stakeholders.

It was realized early on that an education and outreach program is an integral part of many of the strategies. Information and education efforts, as well as research needs, have been integrated as a component within many strategies.

5.b.

Goals, Objectives, and Strategies Summary

b. Goals, Objectives, and Strategies Summary

b. Goals, Objectives, and Strategies Summary

b. Goals, Objectives, and Strategies Summary

5.c.

Abbreviations and Acronyms

Some of the acronyms used in the Goals, Objectives, and Strategies matrix differ from those used throughout the other sections of the *Statewide Forest Resources Assessment*. NC is omitted from state agency acronyms and other organizational acronyms to simplify the matrix.

Where confusion could occur between a state, local, federal, or national entity, NC is included in the acronym that applies to a state-level entity. NC is also included for certain commissions, foundations, and trusts.

NC Division of Forest Resources Programs, DENR

Air   Aviation Branch
BMP/NPS   Best Management Practices/Nonpoint Source Branch
BRIDGE   Young Offenders Conservation Program *Building, Rehabilitating, Instructing, Developing, Growing, Employing*
CWPP   Community Wildfire Protection Plan
ESF/SF   Educational State Forest/State Forest System
FCPB   Fire Control and Prevention Branch
FDP   Forest Development Program
FEB   Fire Environment Branch
FEPP   Federal Excess Personal Property Program
FFP   Firefighter Program
FHM   Forest Health Monitoring Program
FireWise   FireWise Program
FM   Forest Management Branch
FM&FD   Forest Management and Forest Development Section
Forest Protection   Forest Protection Section
Forest Stewardship   Forest Stewardship Program
FPG/WQ   Forest Practice Guidelines/Water Quality staff
FSPP   Forest Stewardship Plan Program
GSB   Geospatial Services Branch
I&E   Information and Education Branch
LE   Law Enforcement Branch
N&TI   Nursery and Tree Improvement Branch
Pest Control   Pest Control Branch
SP&A   Safety, Planning and Analysis Section
SPBPP   Southern Pine Beetle Prevention Program
TAR   Total Accomplishments Report
TD&P   Technical Development and Planning Branch

U&CF   Urban and Community Forestry Branch

Other Abbreviations and Acronyms

ADFPTF   N.C. Agricultural Development and Farmland Preservation Trust Fund
AF&PA   American Forest & Paper Association
APHIS   Animal and Plant Health Inspection Service, USDA
APNEP   Albemarle-Pamlico National Estuary Program, DENR
ARRA   American Recovery and Reinvestment Act
Assessment   *Statewide Forest Resources Assessment* document
BMP   Best Management Practice
CCAP   Community Conservation Assistance Program, DSWC
CCX   Chicago Climate Exchange
CGIA   NC Center for Geographic Information and Analysis
COG   Council of Government
CNR   NC State University College of Natural Resources
CPT   NC Conservation Planning Tool, DENR
CRP   Conservation Reserve Program, DSWC and NRCS
CREP   Conservation Reserve Enhancement Program, DSWC and NRCS
CWMTF   NC Clean Water Management Trust Fund
DACS   NC Department of Agriculture and Consumer Services
DAQ   NC Division of Air Quality, DENR
DCA   NC Division of Community Assistance, DOC
DCM   NC Division of Coastal Management, DENR
DEM   NC Division of Emergency Management, DENR
DENR   NC Department of Environment and Natural Resources
DFR   NC Division of Forest Resources, DENR
DLR   NC Division of Land Resources, DENR
DMF   NC Division of Marine Fisheries, DENR
DOC/CE   NC Department of Correction/Correction Enterprises
DOC   NC Department of Commerce
DOI   NC Department of Insurance
DOR   NC Department of Revenue
DOT   NC Department of Transportation
DPI   NC Department of Public Instruction
DPR   NC Division of Parks & Recreation/NC Parks, DENR
DSWC   NC Division of Soil & Water Conservation, DENR
DU   Ducks Unlimited
DWQ   NC Division of Water Quality, DENR
DWR   NC Division of Water Resources, DENR
EEP   NC Ecosystem Enhancement Program, DENR
EFETAC   Eastern Forest Environmental Threat Assessment Center, USFS
EPA   United States Environmental Protection Agency
EQIP   Environmental Quality Incentives Program, NRCS
FEPP   Federal Excess Personal Property
FEOP   Forestry & Environmental Outreach Program, NC State University

5. Goals, Objectives, and Strategies

FERC	Federal Energy Regulatory Commission
FFP	Forest Fire Protection
FHTET	Forest Health Technology Enterprise Team, USFS
FIA	Forest Inventory and Analysis Program, USFS and DFR
FPG	NC Forest Practices Guidelines Related to Water Quality
FSA	Farm Service Agency, USDA
FSC	Forest Stewardship Council
HOA	home owners association
ISA	International Society of Arboriculture
LID	low-impact development
LEED	Leadership in Energy and Environmental Design
LLA	The Longleaf Alliance
NASF	National Association of State Foresters
NCCC	NC Community College System
NCACC	NC Association of County Commissioners
NCACF	NC Chapter of the Association of Consulting Foresters
NCAFC	NC Association of Fire Chiefs
NCAPA	NC Chapter of the American Planning Association
NCAPL	NC Association of Professional Loggers
NCCES	NC Cooperative Extension Service
NCDT	NC Division of Tourism, DOC
NCFA	NC Forestry Association
NCCGIA	NC Center for Geographical Information and Analysis
NCHBA	NC Home Builders Association
NCLM	NC League of Municipalities
NCMNS	NC Museum of Natural Sciences, DENR
NCNLA	NC Nursery & Landscape Association
NCPFC	NC Prescribed Fire Council
NCSFA	NC State Firemen's Association
NCSWCD	NC Soil & Water Conservation Districts
NCSU	NC State University
NCTFS	NC Tree Farm System (chapter of American Tree Farm System)
NCUFC	NC Urban Forest Council
NCWRC	NC Wildlife Resources Commission
NGO	nongovernmental organization
NHP	NC Natural Heritage Program, DENR
NHTF	NC Natural Heritage Trust Fund
NIPF(L)	non-industrial private forest (landowner)
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NPSP	nonpoint source pollution
NPV	net present value
NRCS	Natural Resources Conservation Service, USDA
NWCG	National Wildfire Coordinating Group
NWS	National Weather Service
NWTF	National Wild Turkey Federation

OEE	NC Office of Environmental Education, DENR
OSFM	NC Office of State Fire Marshal, DOI
PLT	Project Learning Tree
PPE	personal protective equipment
PSA	public service announcement
QU	Quail Unlimited
RC&D	Resource Conservation and Development District
R(E)PS	Renewable (Energy) Portfolio Standard for North Carolina
Riverkeepers	Various river basin and county foundations that focus on river conservation
SAF	Society of American Foresters
SCO-NC	State Climate Office of North Carolina
SFI	Sustainable Forestry Initiative
SGSF	Southern Group of State Foresters
SMA	Society of Municipal Arborists
SPB	southern pine beetle
STS	Slow the Spread of Gypsy Moth Program, USDA
SWAP	State Wildlife Action Plan (*NC Wildlife Action Plan* document)
SWRA	Southern Wildfire Risk Assessment
TCF	The Conservation Fund
TIMO	timberland investment management organization
TNC	The Nature Conservancy
UFORE	Urban Forest Effects Model
UNC	University of North Carolina
USACE	U.S. Army Corps of Engineers
USBIA	U.S. Bureau of Indian Affairs
USDA	U.S. Department of Agriculture
USDOD	U.S. Department of Defense
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Department of Agriculture–Forest Service
USFS-NF	U.S. Department of Agriculture–Forest Service, National Forests
USFS-SGCP	U.S. Department of Agriculture–Forest Service, Southern Global Change Program
USFS-SPF	U.S. Department of Agriculture–Forest Service, State and Private Forestry
USFS-SRS	U.S. Department of Agriculture–Forest Service, Southern Research Station
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USNPS	U.S. National Park Service
VAD	Voluntary Agriculture Districst
WRP	Wetlands Reserve Program
WUI	wildland-urban interface

5.d.

Goals, Objectives, and Strategies Matrix

Goal 1.—Increase the sustainable management and conservation of forests.

Effectively sustaining and conserving North Carolina's forestlands will require natural resource professionals and organizations to reach out to private landowners in new ways. Urban and urban-rural interface forests will continue to play an expanding role in delivering the many diverse benefits derived from woodlands. Inter-organizational cooperation will be needed to accomplish far-reaching tasks, such as identifying and conserving high-priority forestlands and reaching non-traditional and underserved landowners. Forestry organizations will need to adapt to an ever-urbanizing population in order to understand and help forestland owners and users meet their multi-dimensional management objectives. Simultaneously, these organizations must remain grounded in the science of silviculture and be able to provide guidance on actively managing forestlands in order to produce desired ecological, social and economic benefits.

Objective 1.1.—Conserve high-priority forest ecosystems and landscapes.
(Addresses key Assessment findings in sections 2b, 3a, 3b, 4g, 4j, and USDA Forest Service national objectives 1.1, 1.2, 2.2, 3.1, 3.2, 3.4, 3.5, 3.6, 3.7.)

Strategy 1.1.1.—Collaborate with other natural resource organizations to identify high-priority forest ecosystems and landscapes.

Priority Area(s)	DFR Program Areas	Key Stakeholders and Partners	Resources Needed	Measures of Success
Rural Forest Priority Landscape Map Conserving Working Forestlands Map Urban Forest Priority Landscape Map Forest Legacy "Areas of Need" Priority Ecosystems (State Wildlife Action Plan) Significant Natural Heritage Areas (Natural Heritage Program)	Forest Legacy Forest Stewardship FM GSB	DENR—NHP NCWRC NRCS Land trusts ADFPTF CWMTF NHT	Increased funding for GIS mapping capability Identification of lead individual and/or agency and formation of interagency team focusing on forestland conservation	Improved level of coordination among state agencies responsible for land acquisition and conservation Current and new partnerships that develop to assist with conservation efforts or to create new initiatives within high-priority ecosystems or landscapes Acres of forest permanently protected or conserved that are considered to be high-priority forest ecosystems or landscapes

		Strategy 1.1.2.—Assist land management professionals with the delivery of programs and services that conserve high-priority forest ecosystems and landscapes.		
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Conserving Working Forestlands Map Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map Priority Forest Watershed Map	FM Forest Legacy Forest Stewardship GSB BMP/NPS	NCWRC NRCS FSA DENR—DSWC, EEP CREP NCSWCD Land trusts NCCES USFWS	Increased funding for GIS mapping capability Training on conservation easements as well as forestry, wildlife, and conservation programs for financial and tax benefits Natural resource professional positions for technical assistance in priority areas	Acres of forest permanently protected or conserved in high-priority ecosystems and landscapes Current and new partnerships that develop to assist with the conservation efforts or to create new initiatives within the high-priority areas Number of technical assistance positions created or devoted to high-priority areas Forest conservation workshops delivered in high-priority areas

Objective 1.2.—Assist landowners with actively and sustainably managing forests for economic and social benefits. **(Addresses key Assessment findings in sections 2b, 2d, 2e, 2f, 3a, 3b, 3c, 4a, 4e, 4f, 4g, 4h, 4i, 4k and USDA Forest Service national objectives 1.1, 1.2, 2.2, 3.1, 3.2, 3.4, 3.5, 3.6, 3.7)**				
		Strategy 1.2.1.—Provide increased technical and professional assistance to forest landowners that results in more active and sustainable management of their forestland.		
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Conserving Working Forestlands Map Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map Priority Forest Watershed	FM Forest Stewardship U&CF TD&P BMP/NPS	NRCS FSA NCWRC NCACF USFS NCTFS	Funding for state and federal forest conservation cost-share programs Funding for state and federal initiatives and conservation programs Natural resource professionals to provide technical guidance, assistance, and implementation Funding to conduct research and transfer knowledge regarding forest management, wildlife, forest health, fire, and ecological issues Forestry, wildlife, and conservation programs for financial and tax benefits Funding to conduct social marketing and landowner outreach	Number of forest management, stewardship, wildlife habitat, and urban plans that benefits forests Number of acres where forestry management is accomplished or that are affected by management practices that benefit forests Number of technical assists to local communities and municipalities for forest management, forest health, and urban assistance

5. Goals, Objectives, and Strategies

Strategy 1.2.2.—Increase support and funding for state and federal cost-share programs that result in more active and sustainable management of forestland.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Rural Forest Priority Landscape Map Conserving Working Forestlands Map	FM Field staff	DOR NC Legislature Forest product companies FSC NCFA USFS NRCS USFWS	Funding for state and federal forest conservation cost-share programs Outreach and education programs	Levels of legislative and federal funding Continued funding of the USDA Farm Bill components Educational programs directed at funding and supporting forest conservation cost-share programs

Strategy 1.2.3.—Strengthen and support forest nursery and tree improvement programs to ensure a stable supply of seedlings.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
North Carolina forest nurseries and tree improvement programs	N&TI Forestation Unit Field staff	USFS NCSU Cooperative Tree Improvement Program	Increased funding and support for nursery, tree improvement, and genetic work in North Carolina	Capacity to meet the current and future reforestation and afforestation needs (including species in decline) Establishment and distribution of genetically-improved planting stock Number of research and/or technical projects participated in by the N&TI program Acres planted with genetically-improved seedlings

Strategy 1.2.4.— Increase landowners' understanding of, and participation in, forest certification.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Rural Priority Landscape Map Urban Priority Landscape Map Conserving Working Forests Map Forest Legacy "Areas of Need"	FM TD&P BMP/NPS Forest Stewardship	NCFA NCTFS FSC AF&PA SFI Green Tag Southern Center of Sustainable Forestry NCCES SGSF Southern Forests Network	Landowner surveys Funding for DFR personnel dedicated to working on forest certification and forest sustainability issues Funding for training and outreach programs for professionals and landowners	Number of acres certified under a forest certification system Supply of certified forest products available for market demands Number of third-party assessment organizations to certify and audit certified forests Number of forest certification workshops, training sessions, and outreach events for landowners and natural resource professionals Increased awareness, understanding, and willingness of landowners to participate in forest certification programs

Objective 1.3.—Assess and redefine services provided to forestland owners to efficiently and effectively meet their diverse management objectives.

(Addresses key Assessment findings in sections 2b, 2c, 2d, 2e, 2f, 3a, 3b, 3c, 4a, 4b, 4d, 4e, 4f, 4g, 4h, 4i, 4j, 4k and USDA Forest Service national objectives 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7)

Strategy 1.3.1.—Assess, evaluate, and develop services to effectively reach nontraditional, underserved, and traditional forest landowners.

Priority Area(s)	DFR Program Areas	Key Stakeholders and Partners	Resources Needed	Measures of Success
Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map	FM Forest Stewardship Forest Legacy U&CF TD&P FPG/WQ Forest Protection FEB Firewise I&E SP&A FIA	NRCS FSA NCWRC NCACF USFS FIA NCTFS NCCES Land trusts NCFA Landowners	Funding for landowner surveys Funding for state and federal initiatives and conservation programs Outreach and education programs for nontraditional and underserved forest landowners Natural resource professionals to provide technical services	Number of forest management, stewardship, wildlife habitat, and urban plans provided Number of nontraditional, underserved, and traditional forestland owners served Number of acres that have forest or wildlife management practices applied Number of technical assists to local communities and municipalities New initiatives and programs aimed at reaching an increased number of forestland owners

5. Goals, Objectives, and Strategies

Strategy 1.3.2.—Strengthen and develop outside partnerships with public and private entities at federal, state, and local levels to improve and coordinate services and service delivery.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map Forest Legacy "Areas of Need"	FM Forest Stewardship Forest Legacy FPG/WQ BMP/NPS U&CF TD&P Forest Protection FEB Firewise CWPP I&E ESF/SF Field staff GSB	NCTFS NCACF NCFA NCCES FEOP NC Woodlands Land trusts NRCS FSA USFS SGSF NCWRC USFWS TNC USDOD DENR—DEM NCPFC NCDOR Local tax offices NCSWCD NGOs COG and municipal leaders County planning boards	Development and implementation of interorganizational MOUs Identification of lead individuals and organizations and formation of teams focusing on program services Funding to support leadership development and program understanding USFS funding (ex. redesign grants)	Improved level of coordination (ex updated MOUs, joint partnerships) among organizations that affect forests and forestland owners Current and new partnerships that develop to assist with forest conservation efforts Number of interorganizational outreach programs delivered Creation and implementation of landscape-level forest conservation efforts Improved level of coordination among local governments and the forestry community resulting in regional/county green infrastructure plans

Objective 1.4.—Strengthen and support an urban-focused initiative that meets ownership objectives for urban-rural interface landowners and communities. (Addresses key Assessment findings in sections 2b, 2c, 2d, 2e, 2f, 3a, 3b, 3c, 4a, 4b, 4e, 4f, 4g, 4h, 4i, 4j, 4k and USDA Forest Service national objectives 1.2, 2.2, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6,)

Strategy 1.4.1.—Assess, evaluate and target services to effectively reach forestland owners in the urban-rural interface.

Priority Area(s)	DFR Program Areas	Key Stakeholders and Partners	Resources Needed	Measures of Success
Wildland-urban interface map (Figure 3b-6) Protecting the Wildland-Urban Interface Map Conserving Working Forests Map	FM FSSP U&CF Forest Protection FEB Firewise FIA	USFS NRCS FSA NCSWCD NCCES Land trusts	Funding for surveys and research directed at targeted landowners and communities Funding for state and federal initiatives and conservation programs Outreach and education programs targeted at wildland-urban interface landowners and communities Natural resource professionals to provide technical services	Development of new programs or services to meet management objectives for landowners within the urban-rural interface Increased number of management plans and acres under management by landowners within the urban-rural interface Number of NC FireWise communities

Strategy 1.4.2.—Increase support and funding for measures that result in the conservation of working forests within the urban-rural interface.

Priority Area(s)	DFR Program Areas	Key Stakeholders and Partners	Resources Needed	Measures of Success
Wildland-urban interface map (Figure 3b-6) Protecting the Wildland-Urban Interface Map Conserving Working Forests Map Forest Legacy "Areas of Need"	FM Forest Legacy Forest Stewardship U&CF	DENR NC Legislature Land trusts NRCS FSA USFS	Increased state and federal funding for land conservation measures within the urban-rural interface Funding for state and federal initiatives, cost-share programs, and conservation programs Natural resource professionals to provide technical services Favorable tax policies that benefit forestry, wildlife, and conservation programs	Number of landowners that implement conservation practices and measures in the urban-rural interface Number of landowners in the urban-rural interface that enroll their land in conservation easement programs Awareness level of landowners and communities regarding the benefits of working forests within the urban-rural interface Number of technical service providers focusing efforts in the urban-rural interface Number of landowners participating in tax incentive programs relating to forestry, wildlife, and conservation programs

5. Goals, Objectives, and Strategies

Strategy 1.4.3.—Provide training to promote a better understanding and implementation of multidisciplinary management opportunities that are appropriate for urban-rural interface ownerships.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Wildland-urban interface map (Figure 3b-6) Protecting the Wildland-Urban Interface Map Conserving Working Forests Map	FM U&CF Forest Stewardship TD&P	NCCES USFS NRCS NCWRC NCTFS	Identification of lead individual and/or agency and formation of interagency team focusing on urban-rural interface management opportunities Funding for urban-rural interface professional training (ex. Changing Roles) Funding to deliver urban-rural landowner training (ex. Small Woodlot Management Program; FireWise)	Number of professionals who have completed the Changing Roles program Trainings on multi-disciplinary management techniques and opportunities (ex. Changing Roles) Development of new training programs to meet management objectives for landowners within the urban-rural interface (ex. Small Woodlot Management Program; FireWise) Increased number of management plans and acres under management by landowners within the urban-rural interface Number of NC FireWise communities
Strategy 1.4.4.—Assist land management professionals with the delivery of programs and services that target urban-rural interface ownerships.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Wildland-urban interface map (Figure 3b-6) Protecting the Wildland-Urban Interface Map Conserving Working Forests Map	FM Forest Legacy Forest Stewardship U&CF BMP/NPS Forest Protection FireWise FEB CWPP	DENR NCTFS NCACF NRCS FSA USFS Land trusts	Increased funding for GIS mapping capability Professional training on forestry, wildlife, and conservation programs that benefit the urban-rural interface Natural resource professional positions for technical assistance targeting the urban-rural interface	Number of landowners that implement conservation practices and measures Level of awareness of landowners regarding the benefits of working forests within the urban-rural interface Number of technical assists to local communities or landowners within the urban-rural interface Number of management plans and acres under management by landowners within the urban-rural interface Number of NC FireWise communities Number of technical assistance positions created or devoted to urban-rural interface areas Number of forest conservation programs delivered in urban-rural interface areas

> **Goal 2.—Reduce negative impacts from forest threats.**

Fires, insects, diseases, invasive weeds, climate changes, and catastrophic events were identified in the *Statewide Forest Resource Assessment* as potential threats to forests, causing impacts such as mortality, loss of productivity and diversity, and declines in forest health.

Objectives and strategies under Goal 2 are designed to reduce the potential for overwhelming harm in priority areas identified as facing high risks from each of these threats. Protecting forests and trees from the negative effects of wildfire, pest insects, and diseases has long been an objective of natural resource management programs within the state. Protecting property and human resources has become increasingly complex because of human population growth into previously wooded areas, lack of prescribed burning, and the introduction of non-native pests and weeds into North Carolina. In addition, sea-level rise, air pollution, and potential increases in the frequency and intensity of weather events provide additional challenges to growing healthy forests.

Improved cooperation needs to occur among a diverse base of (1) local, state, and federal agencies and programs; (2) nongovernment organizations; and (3) landowners and homeowners. Cooperation will be a key component of any strategy designed to successfully manage for, prepare for, and respond to these forest threats. Emphasis on information and education, prevention, mitigation, monitoring, and control will be employed along with management to improve overall forest health, resilience, and resistance to threats.

Objective 2.1.—Minimize the impacts of wildfire on forests, citizens, and communities. (Addresses key Assessment findings in sections 3a, 3b, 3c and USDA Forest Service national objectives 2.1, 2.2, 3.3)				
Strategy 2.1.1.—Increase resources and capacity to respond to and manage wildland fires.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Protecting Forests and Communities from Wildfire Risk Map Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map	FCPB FEPP FFP Fire Department Assistance FEB I&E	OSFM NCAFC NCSFA USFS USFWS NPS USBIA USDOD DENR—DEM, DPR NCWRC	Funding for wildland fire agencies' equipment, such as PPEs, engines, tractor-plow units, aircraft, weather stations, smoke monitors, etc. Funding for fire department wildland fire equipment, such as PPEs, brush trucks, engines, Class A foam equipment, etc. Funding for training Funding for PPE and safety equipment for fire departments	Number of wildland fire emergency responders trained Number of fire department members trained Trained wildland firefighters and incident management teams FEPP/FFP equipment screened and distributed Quantities of agency firefighting equipment obtained. Quantity of wildland PPE, equipment, and foam purchased by fire departments

5. Goals, Objectives, and Strategies

Strategy 2.1.2.—Educate the public, land management professionals, and government officials on wildland-urban interface fire risks, issues, and mitigation techniques.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Protecting Forests and Communities from Wildfire Risk Map Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map	FCPB FireWise Fire prevention and mitigation FEB CWPP U&CF FM I&E I&E SP&A	OSFM NCAFC NCFSA USFS USFWS USNPS/USBIA USDOD DENR—DEM NCCES UNC System NCCC NCPFC TNC	Funding for landowner and community surveys (ex. educational needs assessment) Funding to conduct public outreach, including materials (ex. billboards, television PSAs, workshops, and newspaper print ads) Funding for Fire Danger Adjective Rating signs	Number of FireWise communities Number of outreach efforts targeting wildland-urban interface landowners and communities (ex. number of attendees) Level of public awareness about the risks, issues, and mitigation techniques relating to wildland-urban interface fires Number of acres treated to reduce hazardous fuel loads
Strategy 2.1.3.— Encourage inter-organizational planning, policy-making, and collaboration that lead to the use of FireWise principles in construction and community planning.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Protecting Forests and Communities from Wildfire Risk Map Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map	FCPB FEB U&CF I&E FireWise Fire Prevention and Mitigation CWPP	OSFM NC Building Code Council NCAFC NCSFA NCHBA USFS USFWS USNPS BIA USDOD DENR—DEM NCCES UNC System NCACC DCA	Policy aimed at mitigating wildfire risk through state or local government regulations and policies (ex. building code changes) Development and implementation of interorganizational MOUs Identification of lead individuals and/or organization and formation of teams focusing on FireWise Funding to support leadership development and FireWise program understanding USFS funding (ex. redesign grants)	Reduced number of homes lost to wildfire Number of FireWise communities Changes to state and local government regulations or policies based on FireWise principles (ex. NC building code handbook) Improved level of coordination (ex. updated MOUs, joint partnerships) between organizations that leads to the use of FireWise principles in construction and community planning. Number of interorganizational outreach programs delivered

Strategy 2.1.4.—Increase decision support tools regarding fire danger, weather products, and fire response planning.				
Priority Area(s)	DFR Program Areas	Key Stakeholders and Partners	Resources Needed	Measures of Success
Protecting Forests and Communities from Wildfire Risk Map Urban Forest Priority Landscape Map Rural Forest Priority Landscape Map	FCPB FEB	NWS SCO–NC OSFM NCAFC NCFSA USFS USFWS USNPS BIA USDOD DENR—DEM	Funding for research and expansion of DFR FEB Funding for professional and landowner training on assessing burning conditions for wildfire protection or prescribed fire burning utilizing developed tools Funding to develop and support a NC Interagency Fire Environment Weather Observation network Funding for education and outreach Climatology research and data for planned and unplanned ignitions	Decision support tools developed Average acreage per wildland fire Improved wildfire control efficiency and effectiveness at field level Development of an NC Interagency Fire Danger Operating Plan and Weather Observation network Number of hazard reduction burned acres Number of structures threatened or destroyed Development of a Burn versus No-Burn Days Program Report on fire weather and fuel conditions that support large or extreme fire growth and successful planned ignitions
Strategy 2.1.5.—Encourage preparation and implementation of Community Wildfire Protection Plans.				
Priority Area(s)	DFR Program Areas	Key Stakeholders and Partners	Resources Needed	Measures of Success
Protecting Forests and Communities from Wildfire Risk Map Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map	FCPB FireWise Fire Prevention and Mitigation CWPP FEB U&CF FM I&E GSB	OSFM NCAFC NCFSA USFS USFWS USNPS BIA USDOD DENR—DEM NCCES UNC System	Funding for training professionals Funding for outreach program (ex. Fire Danger Adjective Rating materials) Increased funding for GIS capability	Number of completed CWPPs Acres of fuel mitigation accomplished Number of mitigation actions recommended in plans being implemented

5. Goals, Objectives, and Strategies

Strategy 2.1.6.—Develop fire prevention and response plans, as well as training, for areas with increased fuel loading.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Protecting Forests and Communities from Wildfire Risk Map Urban Forest Priority Landscape Map Rural Forest Priority Landscape Map	FCPB FireWise Fire Prevention and Mitigation CWPP Pest Control U&CF FEB I&E FHM	OSFM NC Building Code Council NCAFC NCSFA NCHBA USFS USFWS USNPS BIA USDOD DENR—DEM NCCES UNC System NCACC DCA	Funding for fuels and fire weather workshops to assess burning conditions and areas of concern Funding for semipermanent Fire Environment weather observation stations Funding for Fire Environment monitoring equipment	Number of fire prevention and response plans written Number of acres under fire prevention and response plans Number of response trainings completed Number of Annual Fire Season Assessment Forecast reports delivered Number of deployments for Fire Environment monitoring to areas of elevated risk

Objective 2.2.—Minimize negative impacts to forest health caused by major, locally significant, or imminent insects, diseases, and nonnative invasive plants. (Addresses key Assessment findings in sections 3a, 4j and USDA Forest Service national objectives 1.1, 1.2, 2.1, 2.2, 3.4, 3.5, 3.6, 3.7)				
Strategy 2.2.1.—Train natural resource professionals to better identify, understand, report, and respond to forest health threats.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Forest Health Priority map Urban Forest Priority Landscape Map Rural Forest Priority Landscape Map	Pest Control U&CF FM Field staff	NCDA—Plant Industry Division USFS—FHP, U&CF, NFNC, SRS DENR—DPR, NHP, NCMNS NCWRC NCCES NCSU (Entomology and Pathology Depts.) NCFA NCTFS TNC NCACF Certified arborists	Funding for training program and materials for professionals	Number of trainings Number of training aids developed Number of resource professionals trained

Strategy 2.2.2.—Develop diverse information and education materials for the public to address identification and management of forest insect, disease, and non-native invasive threats.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Major forest insect and disease threats map (Figure 3a-1) Urban Forest Priority Landscape Map Rural Forest Priority Landscape Map	Pest Control I&E U&CF Field staff	DENR—DPR, NHP, NCMNS USFS—FHP, U&CF, NFNC, FHM, FHTET, STS, EFETAC USDI—USPS, USFWS NCFA NCTFS NCACF ISA City governments NCUFC NCSU (Plant and Disease Clinic) NCCES TNC Landowners Homeowners State forestry agencies —GA, SC, TN, VA	Funding for I&E materials Funding for Internet server space and enhanced Web presence	Number of products developed (ex. podcasts, webpages, news articles, posters, brochures, and other media) Number of users accessing materials through the Internet
Strategy 2.2.3.—Promote the use of local firewood to prevent the spread of invasive pests.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Forest Health Priority map Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map	Pest Control I&E U&CF Field staff	DENR—DPR, NHP, NCMNS USFS—FHP, U&CF, NFNC, FHM, FHTET, STS, EFETAC Private organizations USDI—USNPS, USFWS NCFA TNC State forestry agencies —AL, AR, FL, GA, KY, LA, MS, OK, SC, TN, TX, VA	Funding for I&E materials Funding for Internet server space and enhanced Web presence	Number of products developed (ex. podcasts, webpages, news articles, posters, brochures and other media) Number of users accessing materials through the Internet Number of camping/park facilities utilizing the I&E materials

5. Goals, Objectives, and Strategies

Strategy 2.2.4.—Survey and monitor outbreaks and spread of major and locally significant forest insect and disease threats.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Major forest insect and disease threats map (Figure 3a-1) Southern pine beetle hazard map (Figure 3a-2)	Pest Control U&CF Field staff FEB GSB	NCDA—Plant Industry Division (Gypsy Moth and other programs) USFS—FHP, U&CF, NFNC, FHM, FHTET, SRS DENR—DPR, NHP, NCMNS and others NCCES NCSU (Entomology and Pathology Depts., Plant and Disease Clinic)	Funding for monitoring and trapping supplies/ equipment (ex. data recorders, digital aerial sketch mappers) Funding for increased GIS, database, and server capability	Number of insect and disease surveys completed Number of pest occurrences detected Number of outbreak locations included in Annual Fire Season Assessment Report
Strategy 2.2.5.—Monitor the spread and movement (early detection) of imminent non-native invasive species.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Imminent forest health threats map (Figure 3a-4) Major non-native invasive imminent threats map (Figure 3a-5)	Pest Control U&CF Field staff GSB	NCDA—Plant Industry Division USFS—FHP, U&CF, NFNC, FHM, FHTET, STS, EFETAC USDA–APHIS DENR—DPR, NHP, NCMNS and others NCCES NCSU (Entomology and Pathology Depts., Plant and Disease Clinic) TNC NCUFC NC Invasive Species Advisory Committee Southern App. Coop. Weed Mgmt. Partnership NC Nursery and Landscape Association State forestry agencies —GA, SC, TN, VA	Funding for monitoring equipment (ex, data recorders, digital aerial sketch mappers) Funding for increased GIS, database, and server capability	Number of monitoring surveys completed Number of notices released to forestry stakeholders Number of partnerships developed to assist with monitoring

Strategy 2.2.6.—Promote interorganizational policy-making, collaboration, and planning, including rapid response planning, to address introduction and containment of forest health threats.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Imminent forest health threats map (Figure 3a-4) Forest Health Priority map Urban Forest Priority Landscape Map Rural Forest Priority Landscape Map	Pest Control U&CF FM Field staff	NC Legislature NCDA–Plant Industry Division USFS USDA–APHIS DENR NCCES NCSU (Entomology and Pathology Depts.) USNPS USFWS TNC Native plant societies NCUFC NCFA, NCTFS, NCACF N.C. Invasive Species Advisory Committee Southern App. Coop. Weed Mgmt. Partnership N.C. Nursery and Landscape Association State forestry agencies—GA, SC, TN, VA	Identification of lead individuals and/or organization and formation of teams focusing on policy-making, collaboration, and planning, including rapid response planning Development and implementation of interorganizational MOUs Funding for rapid response planning, personnel, and equipment Funding to support leadership development and program understanding USFS funding (ex. Redesign grants)	Identification of primary contacts for various phases of invasion Development of communications plan Development of targeted strategic plans Number of strategic plans implemented Number of partnerships developed Number of collaborative projects Number of MOUs developed Changes to state and local government regulations or policies to deal with current and imminent threats

Strategy 2.2.7.—Use sound silviculture practices and urban forest-management practices to mitigate forest health risks and minimize damage from threats.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Forest Health Priority map Southern pine beetle hazard map (Figure 3a-2) Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map	FM Pest Control U&CF Forest Stewardship Field staff SPBPP CWPP	NCFA NCTFS USFS—FHP, U&CF, NFNC, SRS NCCES NCUFC NCACF TNC Land trusts	Natural resource professionals to provide technical services Funding to implement Integrated Pest Management and conduct outreach Increased availability of silvicultural equipment and operators	Number of management plans addressing forest health risks Number of innovative approaches developed to minimize forest health risks Number of silviculture practices implemented to minimize forest health risks Number of acres managed to prevent southern pine beetle outbreaks Number of acres thinned utilizing SPBPP Cost-share Program

5. Goals, Objectives, and Strategies

Objective 2.3.—Identify impacts and develop long-term approaches that minimize negative influences on forests caused by climate change, air quality, and weather events.
(Addresses key Assessment findings in sections 2c, 3c, 4d, 4j and USDA Forest Service national objectives 1.1, 1.2, 2.2, 3.2, 3.4, 3.5, 3.6, 3.7)

Strategy 2.3.1.—Promote research and knowledge sharing targeted towards better understanding of potential direct impacts to trees and forests from climate change and air quality.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map	FM&FD Stewardship U&CF Pest Control SP&A	DENR—DPR, NHP, NCMNS, Climate Change Work Group CNR UNC System USFS—EFETAC, FHTET, FHM, SRS TNC Native plant societies	Funding for increased GIS, database, and server capability Climatology research on impacts of climate change on NC forests, trees and ecosystems	Number of research projects Number of species/ecosystems identified by tolerance level to climate conditions Number of species/ecosystems identified as at-risk Number of collaborative efforts implemented to minimize impacts of climate change

Strategy 2.3.2.—Develop and promote forest-management practices specifically for areas most likely to be affected by sea-level change and saltwater intrusion.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
NC coastal areas within 6 feet of sea level map (Figure 3c-1)	FM&FD Stewardship U&CF Pest Control	DENR—DPR, NHP, NCMNS, Climate Change Work Group CNR UNC System USFS—EFETAC, FHTET, FHM, SRS TNC Native plant societies NCFA NCACF State forestry agencies — SC, VA	Research and modeling related to saltwater intrusion Funding for natural resource professional training Funding for increased GIS, database, and server capability	Identification of priority management zones Number of forest -management practices implemented Number of acres managed for transition to future conditions Number of training events Number of professionals trained

Strategy 2.3.3 Increase tree planting and use of silviculture practices to expand carbon storage capacities.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Rural Forest Priority Landscape Map Urban Forest Priority	U&CF FM&FD I&E Forest Stewardship	NCUFC NCFA/NCTFS Native plant societies ISA	Funding for state and federal forest conservation cost-share programs (ex. FDP) Funding for state and	Number of trees planted Number of acres planted Number of silviculture practices implemented Number of acres under silviculture treatment

Landscape Map	N&TI	NCCES	federal initiatives and conservation programs	Tons of carbon stored
		NGO's (ex. TNC, LLA)	Forestry, wildlife, and conservation programs for financial and tax benefits	Number of landowners participating in carbon sequestration programs
		USDOD		Number of acres under carbon sequestration programs
		Utilities		
		NCACF	Natural resource professionals to provide technical guidance, assistance, and implementation	
		Forest industry		
		Carbon traders (ex. CCX)	Funding to conduct research and outreach regarding carbon storage	
		Green industry		
		Forest nurseries	Funding to conduct social marketing and landowner outreach	
			USFS funding (ex. Redesign grants, U&CF Grants)	

Strategy 2.3.4.— Promote interorganizational preplanning (to include response planning, policy-making, and collaboration) that leads to coordinated responses to manage forest resources affected by damaging weather events.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Tropical cyclone hazard areas map (Figure 3c-3) Ice storm hazard areas map (Figure 3c-4) Priority Urban Landscapes Priority Rural Landscapes	FM&FD U&CF I&E Pest Control BMP/NPS Field staff	NCFA NCUFC USFS—FHP, S&P DOT DENR—DEM Local governments NCTFS NCACF ISA State forestry agencies —GA, SC, TN, VA	Identification of lead individuals and/or organization and formation of teams focusing on policy-making, collaboration, and planning (ex. Storm Working Goup) Development and implementation of interorganizational MOUs Funding for personnel and equipment to develop strike teams Funding to conduct aerial survey Funding for storm-related I&E materials USFS funding (ex. Redesign grants)	Identification of primary contacts for various coordinated responses Changes to state and local government regulations or policies to deal with response to weather events and forest damage Number of prestorm organizational meetings Preparedness plans developed Number of Urban Storm Preparedness Kits developed and distributed Number of educational materials developed and distributed Number of strike teams trained, organized, and deployed Number of communities and landowners assisted Number of MOUs established Number of forest and urban tree storm damage assessments completed

5. Goals, Objectives, and Strategies

> **Goal Statement 3.—Increase the restoration, maintenance, and management of fire-adapted species and ecosystems.**

Many ecosystems in North Carolina were shaped by fire. Without regular burning, the health and numbers of fire-adapted plants and ecosystems have declined. Goal 3 is to restore and maintain fire-adapted ecosystems through the application of prescribed burning.

To meet this goal, we must increase our capacity to apply fire to the forest landscape as well as improve our understanding of the fire environment. Research in fire behavior, fuels, and air quality will allow the development of fire and ecological research tools, models, and techniques to better understand the fire environment. These tools, models, and techniques will allow more resource professionals to conduct safe and effective prescribed burns. We must also educate the public about the benefits of fire on forest ecosystems and forest health to promote greater public acceptance prescribed fire and increase its use.

Longleaf pine forests are of special interest for conservation and restoration efforts in North Carolina and across the Southeast. Many local partnerships have formed to promote the restoration of longleaf pine forests through the increased use of prescribed fire and reforestation incentives. The NC Division of Forest Resources is an important partner in leading these efforts and helping to develop conservation and management strategies. Similar efforts are needed to identify and assess the status and condition of other fire-adapted species, habitats, and ecosystems. Key components of the effort to restore fire-adapted ecosystems are (1) educating the public on the value of these ecosystems and (2) training natural resource professionals on how to better manage and conserve them.

Objective 3.1.—Promote a greater acceptance of prescribed fire and its increased use.
(Addresses key Assessment findings in sections 2e, 3a, 3b, 4g and USDA Forest Service national objectives 1.1, 1.2, 2.1, 2.2, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7)

Strategy 3.1.1.—Promote the application of prescribed fire as a management technique to benefit forest health, wildlife habitat, fuel reduction, and fire-adapted ecosystems.

Priority Area(s)	DFR Program Areas	Key Stakeholders and Partners	Resources Needed	Measures of Success
NC fire occurrences map (Figure 3b-2) NC communities at risk of wildfire map (Figure 3b-7) Wildland-urban interface map (Figure 3b-6) Protecting the Wildland-Urban Interface Map Priority Ecosystems (State Wildlife Action Plan) Conserving Working Forestlands Map Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map	FM&FD Forest Stewardship Protection FEB FHM CWPP FireWise Educational and state forests BRIDGE Field staff GSB SP&A FDP FM	DENR—DAQ USFWS USFS USDOD NCWRC Natural Heritage TNC NCPFC USBIA USNPS SCO–NC NRCS	Development and implementation of inter-organizational MOUs Funding for state and federal cost-share programs (ex. FDP, EQIP, WHIP) Funding for state and federal initiatives and conservation programs Forestry, wildlife, and conservation programs for financial and tax benefits Merging of the fire danger and agriculture networks to create a Fire Environment Observation Network. Funding for increased GIS capability and development of a smoke management database	Completion of an interorganizational "Fire Danger Operating Plan" Number of acres where prescribed burning occurs for silviculture benefits, wildlife habitat enhancement, and fuel reduction. Number of acres of fire-dependent habitats restored Number of cooperative projects with DFR participation and technical assistance. Number of prescribed burning outreach and educational activities and programs. Number of weather observation stations Number of burning days available to conduct prescribed burning activities

5. Goals, Objectives, and Strategies

Strategy 3.1.2.—Promote and conduct applied fire and ecological research to better understand and manage the fire environment.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
NC smoke sensitive areas map (Figure 3b-4) Wildland-urban interface map (Figure 3b-6) Protecting the Wildland-Urban Interface Map Protecting Forests and Communities from Wildfire Risk Map Conserving Working Forestlands Map Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map	FEB Forest Protection FM TD&P CWPP Firewise Field staff GSB	DENR—DAQ USFWS USFS–Fire Research Labs and Model Consortium USDOD NCWRC Natural Heritage TNC NCPFC NWCG NOAA SCO–NC USEPA	Identification of lead individuals and/or organization and formation of teams focusing on fire environment research Funding and personnel for applied fire, and ecological research, field application, validation, and implementation of fire environment products, projects, and activities Funding for increased GIS capability and development of models Funding to conduct professional training	Development of applied fire and ecological research tools and techniques to promote increased use of prescribed fire (ex. social behavior/marketing survey) Development of new models and techniques for practitioners (ex. fire behavior; fuels—aerial, surface, and ground); estimating smoldering potential of organic soils, root mat, or deep duffs; smoke and air quality models) Number of cooperative applied fire research projects with DFR and/or fire environment efforts Number of new initiatives identified for future research and development Number of outreach activities to share research findings and information
Strategy 3.1.3.—Increase the resource capacity of trained and qualified personnel to conduct prescribed burning on private land.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Wildland-urban interface map (Figure 3b-6) Protecting the Wildland-Urban Interface Map Conserving Working Forestlands Map Rural Forest Priority Landscape Map	Forest Protection Training officer FEB FM Field staff GSB	NCPFC NCACF USFWS USFS USDOD NCWRC NCCES TNC	Funding for natural resource professional training and outreach materials Funding for prescribed burning equipment and specialized tools Funding for development of and training on fuel and advanced smoke modeling programs Funding for increased GIS capability (ex. Real-time mapping of all planned and unplanned fires)	Number of training workshops Number of burning crews, Certified Burners and private contractors Amount of equipment and specialized tools to conduct prescribed burning (air quality and smoke monitoring stations, estimated smoldering potential sensor arrays for organic soils or deep duffs)

Strategy 3.1.4.—Publicize the importance, value, and benefits of prescribed fire and educate the public about these aspects.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
NC fire occurrences map (Figure 3b-2) NC communities at risk of wildfire map (Figure 3b-7) Wildland-urban interface map (Figure 3b-6) Protecting the Wildland-Urban Interface Map Protecting Forests and Communities from Wildfire Risk Map Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map	FM Forest Protection I&E Unit Forest Stewardship ESF/SF	DENR USFS USFWS NCWRC NCCES NCPFC NWCG TNC USBIA USNPS USDOD	Funding for education and outreach efforts (ex. websites, workshops, media releases) Funding to conduct social marketing survey on the use of prescribe fire	Development of a website and information clearinghouse for the public Number of information and outreach materials developed and distributed Number of workshops and other training activities to promote prescribed fire Number of acres of forestland where prescribed burning occurred
Strategy 3.1.5.—Support the efforts of prescribed burners to acquire adequate and affordable liability insurance.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Wildland-urban interface map (Figure 3b-6) Protecting the Wildland-Urban Interface Map Protecting Forests and Communities from Wildfire Risk Map Conserving Working Forestlands Map Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map	FEB Forest Protection FM Law Enforcement Field staff	DENR— DAQ DOI NC Legislature NCPFC NCFA NOAA SCO–NC USEPA	State policy addressing the acquisition of adequate and affordable liability insurance for prescribed burners Funding to conduct research on current status of liability issues and costs Funding to develop and maintain a certification system for prescribed burners Funding for outreach	Development of policy that appropriately limits liability for prescribed burners Number of prescribed burners and private contractors who can conduct controlled burns Number of acres where prescribed burning occurred Number of insurance underwriters for prescribed burners Development of certification system for prescribed burners Number of outreach activities and materials that promote insurance opportunities

5. Goals, Objectives, and Strategies

Objective 3.2.—Restore and conserve fire-adapted species, habitats, and forest ecosystems. (Addresses key Assessment findings in sections 2b, 2e, 2f, 3b, 4g and USDA Forest Service national objectives 1.1, 1.2, 2.1, 2.2, 3.2, 3.3, 3.5, 3.6, 3.7)				
Strategy 3.2.1.—Identify, evaluate, and support management and conservation opportunities for fire-adapted species, habitats, and forest ecosystems.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
NC fire occurrences map (Figure 3b-2) Conserving Working Forestlands Map Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map Priority Ecosystems (State Wildlife Action Plan)	FM Longleaf Initiative ARRA Longleaf Grant Forest Legacy TD&P Forest Stewardship GSB FIA	DENR—NHP USFWS USFS USDOD NCWRC NRCS FSA TNC NC Longleaf Coalition	Identification of lead individuals and/or organization to improve coordination and collaboration among key stakeholders and partners Funding for increased GIS, inventory, and database of specific tree species and forest ecosystems and their distribution and abundance	Development of a regional or statewide strategic conservation plan that identifies key tree species, habitats, and ecosystems to conserve, manage, or restore Number of new initiatives developed Number of priority conservation areas for fire-adapted species and/or ecosystems identified Number of MOUs established
Strategy 3.2.2.—Promote and publicize restoration efforts and the ecological importance of restoring fire to fire-dependent ecosystems, and educate the public about fire restoration efforts and importance.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
NC fire occurrences map (Figure 3b-2) Protecting Forests and Communities from Wildfire Risk Map Conserving Working Forestlands Map Priority Ecosystems (State Wildlife Action Plan)	FM&FD Forest Stewardship Longleaf Initiative ARRA Longleaf Grant Forest Protection I&E ESF/SF GSB	DENR USFS USFWS NCWRC NCCES NCPFC TNC Longleaf Alliance America's Longleaf NC Longleaf Coalition	Promotional materials, such as demonstration areas, newsletter articles, e-mails, billboards, and radio/television PSAs. Funding for increased GIS analysis and support	Number of information and outreach materials developed Number of information and outreach programs, workshops, and conferences that raise public awareness aboutdeclining tree species and forest ecosystems

Strategy 3.2.3.—Promote the increased application of fire and ecological research and techniques to restore and manage fire-adapted species, habitats, and ecosystems.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
NC fire occurrences map (Figure 3b-2) NC smoke sensitive areas map (Figure 3b-4) Protecting Forests and Communities from Wildfire Risk Map Conserving Working Forestlands Map	FEB Forest Protection FM TD&P FIA Field staff GSB Forest Stewardship	DENR—DAQ USFWS USFS – Fire Research Labs & Model Consortium USDOD NCWRC Natural Heritage TNC NCPFC NWCG NOAA SCO–NC USEPA	Identification of lead individuals and/or organization for improved coordination and collaboration among various state agencies, key stakeholders, and cooperative partners Funding for applied fire and ecological research Funding and personnel for applied fire and ecological research, field application, validation, and implementation of fire environment products, projects, and activities Funding for increased GIS capability and development of models Increased resource capacity and funding to support research efforts. Funding for professional training	Development of applied fire and ecological research tools and techniques to promote increased use of prescribed fire Development of new modeling tools and techniques for practitioners in the areas of fuels, fire behavior, smoke management, and air quality Number of cooperative applied fire research projects with DFR participation Number of acres (mgmt. units) of fire-adapted species habitat and ecosystems that are restored, conserved, and managed Number of activities that support the restoration, conservation, and management efforts for fire-adapted species, habitats, and ecosystems Number of burning days available to conduct prescribed burning activities Number of new initiatives identified for future research and development Number of workshops, advanced training sessions, and technical transfers of research findings and information

5. Goals, Objectives, and Strategies

Objective 3.3.—Restore and conserve longleaf pine forests. (Addresses key Assessment findings in sections 2b, 2e, 2f, 4g and USDA Forest Service national objectives 1.1, 1.2, 2.1, 2.2, 3.1, 3.3, 3.5, 3.6, 3.7)				
Strategy 3.3.1.—Identify, evaluate, and support management and conservation opportunities for longleaf pine forests in North Carolina.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
North Carolina longleaf pine forest distribution map (Figure 2b-1) Rural Forest Priority Landscape Map Priority Ecosystems (State Wildlife Action Plan)	FM Longleaf Initiative ARRA Longleaf Grant Forest Legacy TD&P Forest Stewardship GSB	DENR USFWS USFS USDOD NCWRC Natural Heritage NRCS FSA TNC Longleaf Alliance America's Longleaf NC Longleaf Coalition	Identification of lead individuals and/or organization to improve coordination and collaboration among key stakeholders and partners Funding for increased GIS, inventory, and database of longleaf pine distribution and extent	Development of a regional or statewide strategic conservation plan Number of initiatives developed Number of collaborative projects developed Identification of priority conservation areas Number of MOUs established
Strategy 3.3.2.—Increase restoration of longleaf pine by afforestation, reforestation, and natural regeneration techniques.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
North Carolina longleaf pine forest distribution map (Figure 2b-1) Rural Forest Priority Landscape Map Conserving Working Forestlands Map	FM TD&P Longleaf Initiative ARRA Longleaf Grant Field staff N&TI Forestation FEB Forest Stewardship	NRCS FSA NCACF USFWS USFS USDOD NCWRC NCCES Research Cooperatives NGOs (ex. TNC, Longleaf Alliance, America's Longleaf, NC Longleaf Coalition)	Funding for state and federal cost-share programs (ex. FDP) Funding for state and federal initiatives and conservation programs Funding for training, education, and outreach for professionals Funding for developing economic analysis tools and growth and yield models for longleaf pine Funding for professionals to provide service	Number of management plans that promote longleaf pine establishment Number of acres of longleaf pine restored. Number of activities or acres affected by practices that promote longleaf pine restoration Number of longleaf pine seedlings produced (nursery capacity) Number of pounds of improved longleaf seed produced Development of economic analysis tools and growth and yield models for Longleaf pine Number of professionals providing services related to restoration of longleaf pine

Strategy 3.3.3.—Increase the use of prescribed fire as a management tool to restore longleaf pine ecosystems.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
NC fire occurrences map (Figure 3b-2) Protecting Forests and Communities from Wildfire Risk Map Conserving Working Forestlands Map Priority Ecosystems (State Wildlife Action Plan)	FM Longleaf Initiative ARRA Longleaf Grant Forest Protection FEB Field staff GSB Forest Stewardship	NCPFC NCACF USFWS USFS USDOD NCWRC NCCES NRCS DENR—DAQ NGOs (ex. TNC, Longleaf Alliance, America's Longleaf, NC Longleaf Coalition)	Funding for state and federal cost-share programs (ex. FDP) Funding for state and federal initiatives and conservation programs Funding for training, education, and outreach for professionals Funding for developing fuel and atmospheric dispersion (smoke) models Development of a real-time Web-based GIS mapping of all fires (planned and unplanned ignitions)	Number of acres burned to benefit the restoration and maintenance of longleaf pine forests Number of burning days available to conduct prescribed burning activities Development of new modeling tools and techniques for practitioners in the areas of fuels and fire behavior, smoke management, and air quality Number of burning crews, certified burners, and private contractors Number of workshops and advanced training sessions that focus on the technical transfer of research findings and information

Strategy 3.3.4.—Publicize the benefits of restoring longleaf pine and educate landowners, resource professionals, and the public about these benefits.				
Priority Landscape Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
North Carolina longleaf pine forest distribution map (Figure 2b-1) Conserving Working Forestlands Map Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map	FM Longleaf Initiative ARRA Longleaf Grant Forest Protection I&E Forest Stewardship ESF/SF GSB	DENR USFS USFWS NCWRC NCCES NCPFC NGOs (ex. TNC, Longleaf Alliance, America's Longleaf, NC Longleaf Coalition)	Funding for education and outreach efforts (ex. website, workshops, media releases) Funding for developing GIS tools, economic analysis tools, and growth and yield models for longleaf pine	Number of products developed (ex. podcasts, webpages, news article, posters, brochures and other media) Number of users accessing materials through the Internet Development of economic analysis tools and growth and yield models for longleaf pine

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Goal 4.—Maintain or increase the viability and sustainability of existing and emerging markets.

This goal will focus our resources on working with new and existing partners and agencies to help maintain or increase the viability and sustainability of existing and emerging markets. North Carolina's forest products industry has undergone dramatic changes since 1990. Declines have occurred in the number of establishments and the types of products that are being produced by traditional forest enterprises. We need to promote traditional markets, strengthen traditional markets that are at-risk, develop new products for traditional markets, and promote emerging markets for ecosystem services and nontraditional forest resources.

Biomass will be an increasingly important market-sector at the urban-rural landscape level due to increasing demand for biomass as a feedstock for biopower and biofuels. Ecosystem services markets can also help meet the expected increase in demand placed upon our forest resources and the constituent components of clean water, clean air, wildlife habitat, and recreation. Many rural and urban landscape areas (as described in the Urban Forest Priority Landscape Map) may be suitable for ecosystem services for carbon management or conservation benefits. Localized niche markets developed around the growing, collecting and harvesting of non-timber products currently exist in North Carolina and may be further developed as interest in these products increases.

Any effort to establish, promote, and monetize forest-based markets should directly benefit forestland owners and the forest products industry, while indirectly benefiting the public. Implementing these specific strategies will result in (1) a more robust and economically strong forest products industry and (2) an increased number of market opportunities for landowners to increase supplemental income from their forestland. Landowners could use this income to sustainably manage their forestland for multiple benefits while contributing to a healthy environment and economy.

Objective 4.1.—Advocate forest sustainability and market viability (current and future) for consumers and producers. (Addresses key Assessment findings in sections 2b, 2c, 2e, 2f, 3c, 4a, 4d, 4e, 4g, 4h, 4i, 4j, 4k and USDA Forest Service national objectives 1.1, 1.2, 2.2, 3.3, 3.4, 3.5, 3.6)				
Strategy 4.1.1.—Advocate forest sustainability.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Softwood Market Strength Map Hardwood Market Strength Map Conserving Working Forestlands Map Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map	Field staff ESF/SF FM Forest Legacy Forest Stewardship GSB I&E Outreach State Forests TD&P U&CF BMP/NPS FPG/WQ	USFS NCACF NCFA Forest Industry NCCES FEOP AF&PA FSC NCTFS NCWRC NC Woodlands NCAPL NGOs Forest landowners SGSF	Funding for I&E materials Funding for Internet server space and enhanced Web presence USFS funding (ex. Redesign grants) Funding for training, education, and outreach for professionals	Number of products developed (ec. podcasts, webpages, news articles, posters, brochures, and other media) Number of users accessing materials through the Internet Number of landowner cooperatives Number of acres under sound forest management Number of workshops or training opportunities provided Number of professionals trained
Strategy 4.1.2.—Educate forestland owners and partnering agencies about current and future forest-market opportunities.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Softwood Market Strength Map Hardwood Market Strength Map Conserving Working Forestlands Map Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map	Field staff ESF/SF FM Forest Legacy Forest Stewardship Forest Protection GSB I&E TD&P U&CF BMP/NPS FPG/WQ FIA	USFS NCACF NCFA Forest Industry NCCES FEOP AF&PA FSC NCTFS NCWRC NC Woodlands NCAPL NGOs SGSF	Funding for I&E materials Funding for training, education, and outreach (ex. newsletter articles, e-mails, billboards and radio/television PSAs) USFS funding (ex. Redesign grants)	Number of products developed (ex. podcasts, webpages, news articles, posters, brochures, and other media) Number of users accessing materials through the Internet Number of workshops or training opportunities provided Number of landowners trained on forest markets

5. Goals, Objectives, and Strategies

Strategy 4.1.3.— Provide technical assistance, information, and outreach to forest-based industries regarding forest sustainability and market viability.

Priority Area(s)	DFR Program Areas	Key Stakeholders and Partners	Resources Needed	Measures of Success
Softwood Market Strength Map Hardwood Market Strength Map Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map	FM Forest Protection GSB I&E TD&P U&CF BMP/NPS FPG/WQ FIA	USFS NCACF NCFA NCCES FEOP UNC System NGOs NCDA – EXPORT NCAPL DOC SGSF	Identification of lead individuals and/or organization to develop partnerships among key partners and stakeholders focused on forest industry Funding for I&E materials Funding for Internet server space and enhanced Web presence Funding for training, education, and outreach (ex.newsletter articles, e-mails, billboards, and radio/television PSAs) Funding for developing GIS tools and market analysis USFS funding (ex. Redesign grants)	Number of products developed (ex. podcasts, webpages, news articles, posters, brochures, and other media) Number of users accessing materials through the Internet Number of workshops or training opportunities provided Number of people trained Number of MOUs established Number of clients served

Strategy 4.1.4.—Support and advocate for a favorable business environment for forest-based industries.

Priority Area(s)	DFR Program Areas	Key Stakeholders and Partners	Resources Needed	Measures of Success
Softwood Market Strength Map Hardwood Market Strength Map Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map	FM GSB I&E TD&P U&CF	Field offices ESF/SF FM Forest Legacy Forest Stewardship GSB I&E TD&P U&CF BMP/NPS FPG/WQ NCDA – EXPORT DOC Trade associations SGSF NCFA	Identification of lead individuals and/or organization and formation of partnerships focusing on business recruitment and retention Policies aimed at recruiting and retaining forest-based industries Development and implementation of inter-organizational MOUs Funding for training, education, and outreach (ex. newsletter articles, e-mails, billboards and radio/television PSAs) USFS funding (ex. Redesign grants)	Number of forest-based industries created Number of products manufactured by primary and secondary processors Number of jobs in forestry-related industries Amount of tax revenues from forestry-related industries Changes to state and local government regulations or policies that support and advocate for a favorable business environment for forest-based industries Number of products developed (ex. podcasts, webpages, news articles, posters, brochures, and other media) Number of users accessing materials through the Internet Number of workshops or training opportunities provided Number of people trained Number of MOUs established Number of clients served Number of grants awarded

Objective 4.2.—Advocate and promote domestic and export market opportunities for traditional forest products, including biomass and underutilized species. **(Addresses key Assessment findings in sections 2e, 3c, 4e, 4h, 4k and USDA Forest Service national objectives 1.1, 1.2, 2.2, 3.3, 3.4, 3.5, 3.6)**				
Strategy 4.2.1.—Identify and promote the retention and recruitment of domestic and export markets for biomass, underutilized species, and low-grade materials, and traditional forest products.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Softwood Market Strength Map Hardwood Market Strength Map Conserving Working Forestlands Map Protecting Forests and Communities from Wildfire Risk Map Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map	Field staff ESF/SF FM GSB I&E TD&P U&CF Forest Protection FIA	USFS NCACF NCFA Forest Industry NCCES FEOP AF&PA FSC NCTFS NCWRC NC Woodlands NCAPL NGOs NCCES DoC NCDA – EXPORT Trade associations APHIS	Policies aimed at retention and recruiting of domestic and export markets. Funding for I&E materials Funding for Internet server space and enhanced Web presence Funding for developing GIS tools and market analysis Identification of lead individuals and/or organization to develop partnerships among key partners and stakeholders related to market development, utilization, and education USFS funding (ex. Redesign grants)	Number of products manufactured by primary and secondary processors Number of jobs in forestry-related industries Amount of tax revenues from forestry-related industries Number of industries recruited or retained (ex. facilities capable of processing woody biomass, tree care businesses involved in urban biomass removal, utilities) Number of markets developed Number of market analyses completed Number of I&E products developed (ex. podcasts, webpages, news articles, posters, brochures, social media, and other media) Development of analytical GIS products for low-grade and underutilized forest products. Development of GIS database of buyers and sellers of forest products Number of tons of woody biomass materials diverted from local landfills Number of MOUs established Number of clients served Number of grants awarded Value added for low-grade materials

5. Goals, Objectives, and Strategies

Objective 4.3.—Advocate and promote markets for forest-derived ecosystem services, non-timber products, and ecotourism. (Addresses key Assessment findings in sections 2a, 2b, 2c, 2d, 3b, 3c, 4a, 4d, 4e, 4f, 4g, 4h, 4i, 4j and USDA Forest Service national objectives 1.1, 1.2, 2.2, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7)				
Strategy 4.3.1.—Identify and support entities involved in market retention, recruitment, and expansion of forest-derived ecosystem services, non-timber products, and ecotourism.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Wetland and stream mitigation site opportunities for private landowners Map (Figure 2f-1) Nutrient offset bank opportunities for private land owners (Figure 2f-2) Federally-listed species occurrences in North Carolina Map (Figure 2f-3) Forest carbon biomass in North Carolina Map (Figure 2f-4) Conserving Working Forestlands Map Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map	Field staff ESF/SF FM Forest Legacy Forest Stewardship GSB I&E ESF/SF TD&P U&CF BMP/NPS FPG/WQ	NCDA – EXPORT Trade Associations NCDT DENR—EEP Mitigation banks Conservation groups Land trusts Landowners FSC SFI ATFS Greentag USFS NRCS USEPA DOT DOC USFWS USDOD NCFA NCACF NCCES SGSF	Identification of lead individuals and/or organization to develop partnerships among key partners and stakeholders related to market development, expansion, and education Policies aimed at retaining and recruiting markets. Funding for Internet server space and enhanced Web presence Funding for developing GIS tools and market analysis USFS funding (ex. Redesign grants) Funding for market and product development for non-timber products and ecotourism	Number of MOUs established Changes to state and local government regulations or policies that support and advocate for a favorable business environment Number of business entities involved in forest-derived ecosystem services, non-timber products, and ecotourism markets Number of acres available for ecosystem services, non-timber products, and ecotourism Number of permits issued for plant collection Creation of analytical GIS products for non-timber products and eco-tourism Database of forest-derived ecosystem services, non-timber products, and ecotourism opportunities Spatial database of buyers and sellers of forest products, including non-timber products and ecotourism. Number of market analyses completed (ex. market analysis report of water treatment costs correlated with source of water from forested watersheds) Number of credits established and utilized (ex. water quality trading, carbon credits, nutrients) Number of jobs created Number of aggregators and traders recruited or retained Number of clients served Number of grants awarded

Strategy 4.3.2.—Create and disseminate information that explains the concept of ecosystem services, non-timber products, and ecotourism.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Wetland and stream mitigation site opportunities for private landowners map (Figure 2f-1) Nutrient offset bank opportunities for private land owners (Figure 2f-2) Federally-listed species occurrences in North Carolina map (Figure 2f-3) Forest carbon biomass in North Carolina Map (Figure 2f-4) Conserving Working Forestlands Map Urban Forest Priority Landscape Map	Field staff ESF/SF FM Forest Legacy Forest Stewardship GSB I&E ESF/SF TD&P U&CF BMP/NPS FPG/WQ	Landowners USEPA USFS DENR—DSWC NRCS Conservation groups Land trusts NCFA ESF/SF FM Forest Legacy Forest Stewardship GSB I&E TD&P U&CF BMP/NPS FPG/WQ NCDA – EXPORT DOC Trade associations NCACF NCCES NCDT SGSF	Funding for state and federal Initiatives and Programs Policies aimed at retaining and recruiting markets (ex. tax incentives) Funding for education and outreach (ex. websites, newsletter articles, e-mails, billboards, and radio/television PSAs) Funding for developing GIS tools and market analyses (ex. quantifying ecosystem services and market viability) USFS funding (ex. Redesign grants) Funding for market and product development for non-timber products and ecotourism	Number of products developed (ex. podcasts, webpages, news articles, posters, brochures, demonstration sites, social media sites, and other media) Number of users accessing materials through the Internet Number of workshops or training opportunities provided Number of people attending educational workshops and training events

5. Goals, Objectives, and Strategies

Strategy 4.3.3.—Educate forestland owners and partners about current and future market opportunities for forest-derived ecosystem services, non-timber products, and ecotourism.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Wetland and stream mitigation site opportunities for private landowners map (Figure 2f-1) Nutrient offset bank opportunities for private landowners (Figure 2f-2) Federally-listed species occurrences in North Carolina map (Figure 2f-3) Forest carbon biomass in North Carolina map (Figure 2f-4) Conserving Working Forestlands Map Urban Forest Priority Landscape Map	Field staff BMP/NPS U&CF Forest Stewardship N&TI TD&P I&E FEB FM ESF/SF Forest Legacy GSB FPG/WQ FIA	DENR—EEP, DSWC, DWQ, DAQ NRCS USACE DOT Mitigation banks Conservation groups Land trusts USFWS Landowners Forest certification programs NCFA NCACF NCCES NCDA – EXPORT DOC Trade associations NCDT SGSF	Identification of lead individuals and/or organization to develop partnerships among key partners and stakeholders focused on forest industries Funding for training natural resource professionals and landowners Funding for Internet server space and enhanced Web presence Funding for education and outreach (ex. newsletter articles, e-mails, billboards, and radio/television PSAs) Funding for developing GIS and databases (ex. partnership directory) USFS funding (ex. Redesign grants)	Number of products developed (ex. podcasts, webpages, news articles, posters, brochures, demonstration sites on ESF/SF, and other media) Number of users accessing materials through the Internet Number of workshops or training opportunities provided Number of landowners attending workshops and training events Number of landowners who participate in forest-derived ecosystem services, non-timber products, or ecotourism markets. Number of MOUs established Amount of funding for promotional materials Number of participants in collaborative projects and partnerships Creation of partnership directory and database Creation of analytical GIS products for non-timber products

Goal 5.—Increase and enhance forest fish and wildlife habitat.

The following objectives and strategies seek to increase and enhance fish and wildlife habitats across North Carolina's many diverse forests. With these objectives, we aim to conserve working forests as we seek to expand the public benefits that accrue from wildlife habitat sustainability. To prioritize this work, we look to forest ecosystems that are rare or declining, those that support rare and declining species, as well as those that support a diverse mix of wildlife species. Programs such as those available through the USDA Farm Bill are identified as tools currently available to increase fish and wildlife habitats. Funding resources to achieve management goals will come from various sources such as Farm Bill programs, competitive grants, Partners for Fish and Wildlife, and the Landowner Incentive Program, among others. Throughout North Carolina, various conservation partnerships exist with diverse members who focus on regionally important conservation targets. Conservation partnerships also bring together key partners in forestland conservation and are well-positioned to accomplish conservation objectives by combining and leveraging funds.

State and federal agency staff, land trusts personnel, and NGO biologists will provide technical assistance, individually and through partnerships. Tax incentives will be available through programs such as the Forest Legacy Program, NC Conservation Tax Credit, Forestry Present Use Valuation, and the Wildlife Conservation Land Program. An increase of private and public participation in wildlife conservation will develop—leading to forestland protection, habitat management, and environmental education. The result will be an increase in acres and enhancement of acres of protected and managed forestland benefitting wildlife. These objectives will be accomplished more specifically by such strategies as land acquisition, conservation easements, and conservation agreements, as well as by promoting forest-management plans and implementing forest-management practices that support natural forest ecosystems. The underlying key to success will come through education of landowners, citizens, and children.

Note: Several issues areas are not addressed within Goal 5 because they are addressed in other goals. For example, issues pertaining to the use of prescribed fire are addressed in Goal 3.

5. Goals, Objectives, and Strategies

Objective 5.1.—Protect and conserve priority forest fish and wildlife habitat.
(Addresses key Assessment findings in section 4g and USDA Forest Service national objectives 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 3.4, 3.5, 3.6, 3.7)

Strategy 5.1.1.—Protect and conserve forestland with priority wildlife habitat through acquisition (fee simple) and conservation easements.

Priority Area(s)	DFR Program Areas	Key Stakeholders and Partners	Resources Needed	Measures of Success
Priority Ecosystems (State Wildlife Action Plan) Forest Legacy "Areas of Need" Conserving Working Forestlands Map Rural Forest Priority Landscape Map	Forest Legacy Forest Stewardship Field staff FM	Landowners NRCS NCWRC USFWS USFS DENR—DPR, DSWC, NHP CWMTF TNC Land trusts USNPS NGO's Riverkeepers Various NC conservation partnerships CREP	Funding for state and federal initiatives and programs (ex. fully funded CREP, WRP, Forest Legacy) Competitive grants Funding for training and dedicated personnel to provide technical services on conservation easements opportunities Forestry, wildlife, and conservation programs for financial and tax benefits (ex. NC Conservation Tax Credit)	Number of acres protected and conserved through acquisition or conservation easements Number of properties brought into an easement program Number of stream miles protected Number of Natural Heritage Program acres conserved Number of priority ecosystem acres conserved as identified by the State Wildlife Action Plan Number of floodplain acres conserved

Strategy 5.1.2.—Enroll private forestland in long-term, nonpermanent conservation agreements using federal and state conservation programs.

Priority Area(s)	DFR Program Areas	Key Stakeholders and Partners	Resources Needed	Measures of Success
Priority Ecosystems (State Wildlife Action Plan) Conserving Working Forestlands Map Rural Forest Priority Landscape Map	Forest Stewardship FSPP FM Field staff	NRCS NCWRC USFWS DENR—NHP FSA TNC NGOs Partners for Fish and Wildlife Wildlife Conservation Land Program Safe Harbor CREP CWMTF	Funding for state and federal initiatives and programs (ex. fully funded FSPP, CRP, CREP, EQIP, WHIP, Partners for Fish/Wildlife Program) Competitive Grants Funding for training and dedicated personnel to provide technical services on conservation agreement opportunities Forestry, wildlife, and conservation programs for financial and tax benefits (ex. NC Conservation Tax Credit) Funding for Wildlife Conservation Land Program	Number of acres under long-term conservation agreements Number of priority species' habitats protected Number of acres in Safe Harbor Number of acres enrolled in Farm Bill programs, such as CREP, annually Number of properties and acres listed in NC Registry of Natural Heritage Areas

Strategy 5.1.3.—Increase compliance with existing regulations that protect fish and wildlife habitat.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Priority Ecosystems (State Wildlife Action Plan)		NCWRC DENR—DWQ NRCS USFWS Land trusts Wildlife Conservation Land Program	Funding for wildlife enforcement officers Funding to maintain NCWRC Enforcement Communication Center (1-800-662-7137)	Number of acres patrolled or monitored Number of wildlife violations reported Number of educational programs offered to increase awareness Number of wildlife enforcement officers hired Number of calls to NCWRC Enforcement Communication Center (1-800-662-7137)
Strategy 5.1.4.—Provide technical assistance for the protection or mitigation of forest wildlife habitats affected by transportation and utility infrastructure.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Priority Ecosystems (State Wildlife Action Plan) Forest Legacy "Areas of Need" Conserving Working Forestlands Map Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map	Forest Stewardship FSPP Forest Legacy U&CF BMP/NPS FM	NRCS NCWRC USFWS DENR—EEP, NHP DOT Land trusts USDOD FERC USEPA Utility companies	Funding for mitigation Funding to ensure an effective review and permitting process. Grants (ex. federal, foundation, state wildlife, NRCS Conservation Innovation grants) Full funding to carry out duties as designated in Section 7 of the Endangered Species Act and the Migratory Bird Treaty Act	Number of service calls provided by NCWRC Number of acres protected or mitigated (ex. wetlands) Number of stream miles protected or restored Number of impacts avoided Number of workshops held for DOT and utilities Number of collaborative projects and partnerships

5. Goals, Objectives, and Strategies

Strategy 5.1.5.—Promote the sound management of riparian buffers with native species.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Priority Ecosystems (State Wildlife Action Plan) Wetland and stream mitigation site opportunities for private landowners map (Figure 2f-1) Conserving Working Forestlands Map Rural Forest Priority Landscape Map	FDP Pest Control Forest Stewardship FSPP NPS FM N&TI	DENR—NHP USFWS NCWRC NGOs SGSF Private nurseries CWMTF NCACF NCCES Riverkeepers	Identification of lead individuals and/or organization for improved coordination and collaboration between various state agencies, key stakeholders, and cooperative partners Development and implementation of inter-organizational MOUs Funding for training and dedicated personnel to provide technical services related to riparian buffer establishment and management Funding for education and outreach (ex. websites, newsletter articles, e-mails, billboards, and radio/television PSAs) Funding for state and federal cost-share programs (ex. FSPP, FDP, EQIP) Funding for state and federal initiatives and conservation programs (ex. non native invasive species control) Funding to support tree nurseries in the production of native riparian plant species Forestry, wildlife, and conservation programs for financial and tax benefits	Number of MOUs created Number of workshops held Number of professionals trained Number of miles or acres of riparian buffers established Number of participants in workshops Number of landowners implementing riparian management practices Number of seedlings produced for riparian buffer establishment Amount of cost-share funds available for landowners to implement management practices Number of ESF/FS annual visitors Number of NCWRC education center visitors

Objective 5.2.—Restore and actively manage forests to benefit priority fish and wildlife habitats. (Addresses key Assessment findings in section 4g and USDA Forest Service national objectives 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7)				
Strategy 5.2.1.—Use technical and financial assistance programs to identify and restore critical terrestrial and aquatic habitats at risk.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Priority Ecosystems (State Wildlife Action Plan) Forest Legacy "Areas of Need" Conserving Working Forestlands Map Rural Forest Priority Landscape Map	Forest Stewardship Forest Legacy FM FDP BMP/NPS Field staff FPG/WQ FSPP	Landowners NCWRC USFWS DENR—NHP NGOs NCTFS NC Woodlands NCACF Riverkeepers NCCES NRCS NCSWCD	Identification of lead individuals and/or organization for improved coordination and collaboration between various state agencies, key stakeholders, and cooperative partners Development and implementation of inter-organizational MOUs Funding for training and dedicated personnel to provide technical services related to identifying and restoring critical terrestrial and aquatic habitat at risk Funding for education and outreach (ex. websites, newsletter articles, e-mails, billboards, and radio/television PSAs) Funding for state and federal cost-share programs (ex. FSPP, FDP, CRP, EQIP, WHIP, CREP) Funding for state and federal initiatives and conservation programs (ex. non-native invasive species control) Forestry, wildlife, and conservation programs for financial and tax benefits	Number of MOUs created Number of workshops held Number of participants in workshops Number of professionals trained Amount of cost-share funds available for landowners to implement management practices Number of landowners assisted Number of landowners implementing management practices to restore critical terrestrial and aquatic habitat Number of miles or acres of critical terrestrial and aquatic habitat restored Number of stewardship or other forest-management plans written

5. Goals, Objectives, and Strategies

Strategy 5.2.2.—Assist landowners with developing and implementing comprehensive forest-management plans that incorporate landowner wildlife management objectives and focus on utilizing silviculture practices that mimic natural ecosystem conditions beneficial to native wildlife species.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resource Needed**	**Measures of Success**
Priority Ecosystems (State Wildlife Action Plan) Forest Legacy "Areas of Need" Conserving Working Forestlands Map Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map	Forest Stewardship Forest Legacy FM FEB SP&A U&CF FDP TD&P	Landowners NRCS NCWRC USFWS FSA NCCES NCACF USFS USGS DENR—DPR, NHP UNC System NCCES NCTFS NC Woodlands TNC Land trusts NCPFC NGOs (ex. The Wildlife Society, NC Longleaf Coalition) SAF	Funding for training and dedicated personnel to provide technical services to assist landowners with developing and implementing comprehensive forest-management plans Funding for education and outreach (ex. websites, newsletter articles, e-mails, billboards, and radio/television PSAs) Funding for state and federal cost-share programs (ex. FDP, CRP, EQIP, WHIP, CREP) Funding for state and federal initiatives and conservation programs Forestry, wildlife, and conservation programs (ex. Wildlife Conservation Land Program, Partners for Fish/Wildlife Program, NC Conservation Tax Credit)	Number of workshops held Number of participants in workshops Number of professionals trained Number of landowners assisted Number of stewardship or other forest-management plans written Number of acres enrolled in forest and wildlife conservation programs Amount of cost-share funds available for landowners to implement management practices Number of acres on which management practices (ex. reforestation, thinning, prescribed burning) were implemented Number of landowners implementing management practices (ex. reforestation, thinning, prescribed burning)

Strategy 5.2.3.—Conserve, restore, and connect ecologically functioning forests to decrease fragmentation and enhance wildlife habitats.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Priority Ecosystems (State Wildlife Action Plan) Forest Legacy "Areas of Need" Conserving Working Forestlands Map Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map	Forest Legacy Forest Stewardship Field staff SP&A FM	CWMTF NRCS NCWRC USFWS USFS USGS FSA DENR—NHP UNC System TNC Land trusts NCPFC The Wildlife Society NGO's NC Longleaf Coalition SAF NCCES SGSF	Identification of lead individuals and/or organization for improved coordination and collaboration between various state agencies, key stakeholders, and cooperative partners Development and implementation of inter-organizational MOUs Funding for state and federal initiatives and conservation programs (ex. CWMTF) Forestry, wildlife, and conservation programs for financial and tax benefits Funding for training and dedicated personnel to provide technical services related to conserving, restoring, and connecting ecologically functioning forests Funding for education and outreach (ex. websites, newsletter articles, e-mails, billboards, and radio/television PSAs) Funding for state and federal cost-share programs (ex. FDP, CRP, EQIP, WHIP, CREP)	Number of MOUs created Number of wildlife corridors created Number of Forest Legacy tracts and acres Number of Natural Heritage Program acres conserved Number of SWAP defined acres conserved Number of floodplain acres conserved Number of workshops held Number of participants in workshops Number of professionals trained Number of landowners assisted Number of stewardship or other forest-management plans written Number of acres enrolled in forest and wildlife conservation programs Amount of cost-share funds available for landowners to implement management practices Number of acres in which management practices (ex. reforestation, thinning, prescribed burning) were implemented Number of landowners implementing management practices (ex. reforestation, thinning, prescribed burning) Number of specific wildlife species observed

5. Goals, Objectives, and Strategies

Objective 5.3.—Promote the restoration and conservation of declining tree species and forest ecosystems. (Addresses key Assessment findings in section 4g and USDA Forest Service national objectives 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7)				
Strategy 5.3.1.—Assess, identify, and emphasize management and conservation strategies that prioritize declining tree species and forest ecosystems.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Priority Ecosystems (State Wildlife Action Plan) Forest Legacy "Areas of Need" Conserving Working Forestlands Map Rural Forest Priority Landscape Map	Forest Legacy Forest Stewardship FM FDP TD&P Pest Control SP&A GSB FIA	DENR—DPR, NHP USFWS USFS USDOD NCWRC NRCS FSA TNC UNC System NCCES NCPFC NGOs (ex., The Wildlife Society, QU, DU, NWTF, land trusts, NC Longleaf Coalition, America's Longleaf Conservation Plan, Atlantic White Cedar Alliance, American Chestnut Foundation)	Identification of lead individuals and/or organization to improve coordination and collaboration among key stakeholders and partners Development and implementation of inter-organizational MOUs Funding for training and dedicated personnel to provide technical services related to management of declining tree species and forest ecosystems Funding for education and outreach (ex. websites, newsletter articles, e-mails, billboards, and radio/television PSAs) Funding for increased GIS, inventory, and database of specific tree species and forest ecosystems (distribution and abundance) Funding for state and federal cost-share programs (ex. FDP, CRP, EQIP, WHIP, CREP) Funding for state and federal initiatives and conservation programs (ex. CWMTF) Forestry, wildlife, and conservation programs (ex. Wildlife Conservation Land Program, Partners for Fish/Wildlife Program, NC Conservation Tax Credit)	Number of MOUs established Development of a regional or statewide strategic conservation plan that identifies key tree species and forest ecosystems in decline Number of new initiatives developed Number of priority conservation areas identified with declining tree species and forest ecosystems Participation and support of new partnerships and collaborative coalitions Number of acres of declining forest ecosystems restored or managed Number of new initiatives or action plan efforts developed for specific ecosystems and species in decline Number of workshops held Number of participants in workshops Number of professionals trained Number of products developed (ex. podcasts, webpages, news articles, posters, brochures, demonstration sites on ESF/SF, and other media) Number of ESF/FS annual visitors Number of NCWRC education center visitors

Priority Area(s)	DFR Program Areas	Key Stakeholders and Partners	Resources Needed	Measures of Success
Strategy 5.3.2.—Educate the public on the benefits, ecological importance, and value of restoring and conserving declining tree species and forest ecosystems.				
Priority Ecosystems (State Wildlife Action Plan) Forest Legacy "Areas of Need" Conserving Working Forestlands Map Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map	Forest Legacy Forest Stewardship FM Forest Protection I&E ESF/SF TD&P U&CF	DENR—DPR, NHP USFS USFWS NCWRC NCCES NCPFC TNC NCTFS NC Woodlands SGSF NCACF NGOs (ex., Longleaf Alliance, America's Longleaf Conservation Plan, Atlantic White Cedar Alliance, American Chestnut Foundation)	Funding for education and outreach (ex. newsletter articles, e-mails, billboards, and radio/television PSAs) Funding for Internet server space and enhanced Web presence USFS funding (ex. Redesign grants)	Number of information and outreach programs, workshops, and conferences to promote declining tree species and forest ecosystems Number of products developed (ex. podcasts, webpages, news articles, posters, brochures, demonstration sites, social media, and other media) Number of users accessing materials through the Internet Number of ESF/FS annual visitors Number of NCWRC education center visitors

5. Goals, Objectives, and Strategies

Objective 5.4.—Educate natural resource professionals, the general public, landowners, and K-12 schoolchildren about forestland conservation, restoration, and management, and the value of forests for fish and wildlife habitat. (Addresses key Assessment findings in section 4g and USDA Forest Service national objectives 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7)				
Strategy 5.4.1.—Educate natural resource professionals on wildlife habitat management programs and initiatives.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Priority Ecosystems (State Wildlife Action Plan) Forest Legacy "Areas of Need" Conserving Working Forestlands Map Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map	Forest Stewardship TD&P I&E FM FM&FD Field staff	NCWRC (including stewardship biologists) USFWS NCPFC SAF NCCES UNC System NCACF NRCS The Wildlife Society	Identification of lead individuals and/or organization to improve coordination and collaboration among key stakeholders and partners Funding for education and outreach (ex. newsletters, training aids, websites) Funding for training and dedicated personnel to provide technical services (NCWRC and its stewardship biologists, NRCS) USFS funding (ex. Redesign grants)	Number of products developed (ex. podcasts, webpages, articles, brochures, and other media) Number of users accessing materials through the Internet Number of workshops held Number of professionals trained Number of stewardship or other management plans developed Number of landowners provided with technical services from trained professionals Number of landowners enrolled in wildlife conservation programs

Strategy 5.4.2.—Educate the general public, landowners, policy-makers, and K-12 schoolchildren about forestland conservation, restoration and management and the value of forests for wildlife habitat.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Priority Ecosystems (State Wildlife Action Plan) Forest Legacy "Areas of Need" Conserving Working Forestlands Map Rural Forest Priority Landscape Map Urban Forest Priority Landscape Map	Forest Stewardship Forest Legacy FM Field staff Forest Protection BMP/NPS SP&A I&E ESF/SF TD&P U&CF	NCCES UNC System School systems and home-school organizations DPI DENR—OEE, NHP, DPR, DSWC (Resource Conservation Workshop/Envirothon) NRCS NCWRC USFWS USFS TNC Land trusts NCPFC NCTFS NC Woodlands SGSF NCACF SAF NCFA NGOs (ex., The Wildlife Society, NC Longleaf Coalition)	Identification of lead individuals and/or organization to improve coordination and collaboration among key stakeholders and partners Development and implementation of inter-organizational MOUs Funding for education and outreach (ex. newsletter articles, e-mails, displays for ESF/SF, billboards, and radio/television PSAs) Funding for training and dedicated personnel to provide technical services Funding for Internet server space and enhanced Web presence Full funding for programs (ex. Partners for Fish/Wildlife Program, Forest Stewardship Program, NC Environmental Education Programs, PLT, NC Wild) Funding to provide ESF/SF with adequate staff USFS funding (ex. Redesign grants)	Number of MOUs established Number of products developed (ex. podcasts, webpages, news articles, posters, brochures, demonstration sites on ESF/SF, and other media) Number of users accessing materials through the Internet Number of workshops held Number of participants in workshops Number of stewardship or other management plans developed Number of ESF/FS annual visitors Number of NCWRC education center visitors Number of school programs Number of youth attending environmental camps Number of PLT facilitators trained Number of school curriculum projects developed Number of schools using PLT or NC Wild in their curriculum

5. Goals, Objectives, and Strategies

Goal 6.—Manage, conserve, restore, and enhance forestlands important to current and future supplies of clean water for economic, social, and ecological uses.

With this goal, we will continue efforts to address water resource issues, particularly those issues tied to best management practices (BMPs) for traditional, rural forestry. Continued emphasis is needed on traditional programs tied to BMP technical assistance. These programs support the substantial level of silvicultural management within the state's working forests. A unique opportunity has emerged, however, to bridge the gap between traditional BMP-program delivery and emerging nonpoint source pollution issues in rural-to-urban transitional forested watersheds. We can bridge this gap successfully only by diversifying the base of cooperators and stakeholders, many of whom historically have not been directly affiliated with forestry program delivery. This new approach will provide technical assistance to forestland owners, home owners, land developers, and local governments and describe for them opportunities to protect or enhance the health of their watershed(s) by integrating forestry-related practices. Sustainable funding sources and personnel are needed to support ongoing and future efforts to meet the objectives in this goal. National objectives related to water resources, working lands, and public benefits are addressed by this goal and the strategies that support it.

Objective 6.1.—Increase implementation of forestry BMPs and compliance with water-quality regulations. (Addresses key Assessment findings in sections 2c, 4e, 4f, 4g, 4h and USDA Forest Service national objectives 1.1, 1.2, 2.2, 3.1, 3.5, 3.6)				
Strategy 6.1.1.—Evaluate forestry operations for implementation of forestry BMPs and compliance with water-quality regulations.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Conserving Working Forestlands Map (emphasis on active sites, areas with historically-lower BMP implementation and FPG compliance rates, environmentally sensitive areas, and cases identified through public complaints) Priority forest watersheds in North Carolina maps (Figures 4f-8a and 4f-8b) Freshwater conservation watersheds map (Figure 4f-4) Urban Forest Priority Landscape Map	FPG/WQ Law Enforcement BMP/NPS FM FM&FD Field staff	NCAPL NCFA (Prologger) Forest Industry Landowners DENR—DLR, DWQ USACE USEPA 319/NPS Program	Identification of lead individuals and/or organization to improve coordination and collaboration among key stakeholders and partners responsible for monitoring and enforcing regulations Development and implementation of inter-organizational MOUs Funding for DFR water quality foresters and associated technical support staff. Funding for and development of training for DFR staff related to site evaluations Funding for DFR BMP/NPS Program	Number of DFR water-quality foresters and associated technical support staff employed Number of MOUs established Number of sites inspected for compliance FPG compliance rate Number of BMP implementation surveys BMP implementation rate Monitoring of BMP effectiveness Number of training programs conducted Number of DFR personnel trained in site evaluation Amount of grant funding to support DFR BMP/NPS Program

Strategy 6.1.2.—Develop threshold criteria for determining when a noncompliant forestry operation directly contributes to a degradation or loss of in-stream aquatic habitat sufficient to warrant restoration or remediation of the affected water resource.

Priority Area(s)	DFR Program Areas	Key Stakeholders and Partners	Resources Needed	Measures of Success
Conserving Working Forestlands Map (emphasis on active sites, areas with historically-lower BMP implementation and FPG compliance rates, and environmentally sensitive areas) Priority forest watersheds in North Carolina maps (Figures 4f-8a and 4f-8b) Freshwater conservation watersheds map (Figure 4f-4) Urban Forest Priority Landscape Map	FPG/WQ Law Enforcement BMP/NPS FM FM&FD Field staff I&E ESF/SF N&TI	DENR—DCM, DLR, DMF, DWQ, EEP USACE USEPA SGSF (Water Resources Committee) NCWRC USFWS NCAPL Private nurseries Silviculture Contractors	Identification of lead individuals and/or organization to improve coordination and collaboration among key stakeholders and partners responsible for monitoring and enforcing regulations Development and implementation of inter-organizational MOUs Funding for DFR BMP/NPS Program Funding for research and analysis Funding for and development of training on threshold criteria	Number of MOUs established and interagency agreements executed Amount of grant funding to support DFR BMP/NPS Program and research Development of criteria Number of training programs conducted Number of personnel trained in threshold criteria Linear feet of impacted stream remediated or restored Volume of sediment removed from affected streams Number of trees planted along affected streams

Strategy 6.1.3.—Increase the use of portable temporary bridging for crossing streams or ditches during forestry operations.

Priority Area(s)	DFR Program Areas	Key Stakeholders and Partners	Resources Needed	Measures of Success
Conserving Working Forestlands Map (emphasis on active sites, areas with historically-lower BMP implementation and FPG compliance rates, and environmentally sensitive areas) Priority forest watersheds in North Carolina maps (Figure 4f-8a and 4f-8b) Freshwater conservation watersheds map (Figure 4f-4) Urban Forest Priority Landscape Map	BMP/NPS FPG/WQ FM FM&FD ESF/SF Field staff	NCAPL NCFA (Prologger) Forest Industry Landowners USEPA 319/NPS Program DENR—APNEP, DLR, DWQ Conservation groups Bridgemat suppliers USFS SGSF	Funding for DFR BMP/NPS personnel and for the portable bridgemat program. Funding for training and outreach (ex. Prologger, demonstration areas) Funding for survey and analysis on mat use Development of and funding for cost-share program USFS funding (ex. Redesign grants)	Amount of grant funding to support DFR BMP/NPS Program and research Number of sites where bridgemats are used. Number of stream crossings or ditches protected by use of bridgemats. Number of loggers using bridgemats. Development of a cost-share program for loggers to purchase bridgemats

5. Goals, Objectives, and Strategies

Objective 6.2.—Retain or increase the area of forestland within priority watersheds. (Addresses key Assessment findings in sections 1b, 2b, 4e, 4f, 4h, 4i and USDA Forest Service national objectives 1.1, 1.2, 3.1, 3.5, 3.6)				
Strategy 6.2.1.—Conserve and acquire forestlands in priority watersheds for the purposes of protecting or restoring water quality, water supply, and aquatic habitat.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Priority forest watersheds in North Carolina maps (Figures 4f-8a and 4f-8b) Freshwater conservation watersheds map (Figure 4f-4) Forest Legacy "Areas of Need" Priority Ecosystems (State Wildlife Action Plan)	Forest Stewardship FSPP Forest Legacy BMP/NPS FDP FM FM&FD Field staff ESF/SF U&CF	Landowners NGOs (ex. Conservation groups and land trusts) CWMTF NHTF ADFPTF DENR—DWQ, DPR, DCM, DMF, DSWC NCWRC NCACF NC Woodlands NCTFS NCFA NCCES USFS USDOD NCSWCD NCRS VAD	Identification of lead individuals and/or organization to improve coordination and collaboration among key stakeholders and partners responsible for land acquisition and conservation Funding for training and outreach for natural resources professionals and landowners (ex. identification of priority watersheds, conservation easements, land gifts) Funding for state and federal initiatives and programs for conservation (ex. FSPP, FDP, CREP, WRP) Conservation programs for financial and tax benefits Funding for DFR BMP/NPS Program Funding for state and federal initiatives and programs for acquisition (ex. fully funded Forest Legacy, CWMTF, ADFPTF) Funding to hire personnel to manage and oversee land that is acquired in-fee	Number of MOUs established and interagency agreements executed Amount of grant funding to support DFR BMP/NPS Program and research Number of workshops held Number of professionals trained Number of landowners in priority watersheds provided with technical services from trained professionals Number of stewardship or other management plans developed Number of acres in priority watersheds under a stewardship plan or other conservation management plan Number of projects converting impervious cover to forest cover Number of acres protected and conserved through acquisition or conservation easements Number of stream miles protected Number of endemic aquatic species protected Number of floodplain acres conserved

Objective 6.3.—Conduct education and outreach on the relationships between forests and water resources.
(Addresses key Assessment findings in sections 2c, 4a, 4e, 4h, 4i, 4j and USDA Forest Service national objectives 1.2, 2.2, 3.1, 3.4, 3.6)

Strategy 6.3.1: Educate natural resources professionals and landowners on how to protect water quality from nonpoint source pollution that may result from forestry operations.

Priority Area(s)	DFR Program Areas	Key Stakeholders and Partners	Resources Needed	Measures of Success
Conserving Working Forestlands Map (emphasis on active sites, areas with historically-lower BMP implementation and FPG compliance rates, and environmentally sensitive areas) Priority forest watersheds in North Carolina Maps (Figures 4f-8a and 4f-8b) Freshwater conservation watersheds map (Figure 4f-4) Forest Legacy "Areas of Need" Priority Ecosystems (State Wildlife Action Plan) Urban Forest Priority Landscape Map	Forest Stewardship FSPP FPG/WQ BMP/NPS FM FM&FD Field staff I&E ESF/SF U&CF	FEOP NCCES Landowners NCACF NC Woodlands NCTFS NCAPL NCFA (Prologger) Forest Industry DENR—DLR, DWQ USACE USEPA 319/NPS Program	Funding for DFR water-quality foresters and associated technical support staff Funding for DFR BMP/NPS Program Funding for development and training on the use of preharvest planning tools Funding for educating natural resources professionals and landowners (ex. workshops, training aids, demonstration sites, website) Funding for state and federal initiatives and programs for conservation (ex. FSPP)	Number of DFR water-quality foresters Amount of funding for DFR BMP/NPS Program Amount of funding for preharvest planning tool development Number of professionals and landowners utilizing the preharvest planning tool Number of products developed (ex. webpages, workshops, demonstration sites) Number of users accessing materials through the Internet Number of workshops held Number of professionals trained Number of landowners with technical services from trained professionals Number of stewardship or other management plans developed Number of acres under a stewardship plan or other conservation management plan

5. Goals, Objectives, and Strategies

Strategy 6.3.2.—Raise awareness of landowners, the general public, policy-makers, and K-12 schoolchildren on the relationship between forests, water quality, and nonpoint source pollution prevention.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Urban Forest Priority Landscape Map Priority forest watersheds in North Carolina maps (Figures 4f-8a and 4f-8b) Conserving Working Forestlands Map	U&CF I&E ESF/SF FPG/WQ BMP/NPS Forest Stewardship FSPP FM FM&FD Field staff	Landowners DENR—OEE, DLR, DWQ FEOP NCCES Water-supply utility companies Local and municipal government officials Councils of Government League of Municipalities School systems and home school organizations DPI NCACF NC Woodlands SAF NCTFS NCAPL NCFA Forest industry SGSF USFS USACE USEPA 319/NPS Program	Identification of lead individuals and/or organization to improve coordination and collaboration among key stakeholders and partners Development and implementation of inter-organizational MOUs Funding to adequately staff DFR U&CF, ESF/SF, and BMP/NPS programs Funding for outreach (ex. news articles, social media, websites, e-mails, billboards and radio/television PSAs, demonstration materials) Full funding for programs (ex. Forest Stewardship Program, OEE Environmental Education programs, PLT, NC Project WET) USFS funding (ex. Redesign grants)	Number of MOUs established Number of information and outreach events, workshops, and demonstrations Number of products developed (ex. podcasts, webpages, news releases, posters, brochures, social media) Number of users accessing materials through the Internet Number of ESF/FS annual visitors Number of participants in workshops Number of stewardship or other management plans developed Number of school programs Number of youth attending environmental camps Number of PLT facilitators trained Number of school curricula projects developed Number of schools using PLT or NC Project WET in their curricula

Objective 6.4.—Offer landowners technical assistance that incorporates water-resource management with forest management. (Addresses key Assessment findings in sections 2a, 2b, 2c, 2d, 3b, 3c, 4e, 4f, 4j and USDA Forest Service national objectives 1.1, 1.2, 2.2, 3.1, 3.4, 3.5, 3.6)				
Strategy 6.4.1.—Assist landowners with assessing and managing their forests to protect watersheds or restore degraded aquatic conditions.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Priority forest watersheds in North Carolina maps (Figures 4f-8a and 4f-8b) Freshwater conservation watersheds map (Figure 4f-4) Urban Forest Priority Landscape Map Conserving Working Forestlands Map (emphasis on active sites, areas with historically-lower BMP implementation and FPG compliance rates, and environmentally sensitive areas) Forest Legacy "Areas of Need" Priority Ecosystems (State Wildlife Action Plan)	U&CF I&E BMP/NPS Forest Stewardship FSPP FDP FPG/WQ FM FM&FD Field staff N&TI GSB ESF/SF	Landowners DENR—DSWC, DWQ, DMF, DLR, DCM, EEP NRCS NCTFS NC Woodlands NCFA NCCES USACE USEPA SGSF NCWRC USFWS Private nurseries Silvicultural contractors	Funding to fully support DFR BMP/NPS Program Funding for DFR Water Quality Foresters and associated technical support staff. Funding to develop and implement DFR Forest Watershed Assistance Program Funding to educate natural resources professionals and landowners on watershed protection and restoration opportunities Funding for state and federal initiatives and programs for watershed protection and restoration (ex. FSPP, EQIP, FDP, CREP, WRP) Funding for enhancing GIS capabilities	Amount of funds to fully support DFR BMP/NPS Program, DFR Water Quality Foresters, and GIS capabilities Number of DFR Water Quality Foresters and associated technical support staff Establishment of DFR Forest Watershed Assistance Program Amount of funds for state and federal initiatives and programs for watershed protection and restoration Number of workshops, outreach materials, and events Number of participants in education and outreach activities Number of landowners assisted Number of acres under stewardship plans or other forest watershed plans Retention of forest cover Number of acres afforested and/ or reforested Linear feet of stream restored or enhanced Acres of wetlands restored or enhanced Report of stream and wetland restoration opportunities on DFR-managed lands

5. Goals, Objectives, and Strategies

Strategy 6.4.2.—Evaluate and promote the utilization of forestry practices to manage nonpoint source runoff from nonforested lands in transition areas between rural, suburban, and urban environments.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Forest and/or natural cover trends in relation to impervious cover map (Figure 4f-5) Freshwater conservation watersheds map (Figure 4f-4)	BMP/NPS U&CF I&E Forest Stewardship FSPP FM&FD Field staff N&TI ESF/SF GSB	DENR—DSWC, DWQ NRCS USEPA 319/NPS Program USFS-SRS NCSU Landowners Local governments Municipal land-use planning officials Residential and commercial land developers	Identification of lead individuals and/or organization to improve coordination and collaboration among key stakeholders and partners Development and implementation of inter-organizational MOUs Funding to fully support DFR BMP/NPS Program Funding for research to assess suitability of urban forestry modeling (ex. I-Tree and UFORE models) and how forestry practices can be used to manage runoff from non-forested lands Funding for DFR Water Quality Foresters and associated technical support staff. Funding to develop and implement DFR Forest Watershed Assistance Program and creation of a North Carolina urban forest watershed manual Funding for state and federal initiatives and programs for NPS runoff mitigation and watershed protection Funding for demonstration areas and outreach project implementation Funding to educate natural resources professionals and landowners on how forestry practices can be used to manage runoff from nonforested lands	Number of MOUs established Amount of funds to fully support DFR BMP/NPS Program and DFR Water Quality Foresters Creation of a North Carolina urban forest watershed manual Number of DFR Water Quality Foresters and associated technical support staff Establishment of DFR Forest Watershed Assistance Program Number of research grants obtained and projects completed Amount of funds for state and federal initiatives and programs for managing nonpoint source runoff with forestry practices Number of workshops, outreach materials, and events Number of participants in education and outreach activities Number of landowners or communities assisted Number of acres under stewardship plans or other forest watershed plans Retention of forest cover Number of acres where forestry practices are used to manage nonpoint source runoff Number of forestry practices implemented to manage nonpoint source runoff Integration of forests and forestry practices with new or existing stormwater management, LEED principles, low-impact development (LID), and/or green infrastructure projects

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Goal 7.—Enhance the benefits and sustainable management of urban forests.

Objectives and strategies under this goal are focused on sustaining and facilitating healthy urban forests across the state by promoting strategic planning and proactive management of our urban natural resources. By definition, a *healthy urban forest* is an urban forest that (1) is actively managed for long-term benefits, (2) is structurally diverse enough to withstand environmental change and periodic catastrophic events, and (3) consists of an interconnected network of green space that conserves the natural ecosystem's values and functions. To improve urban forest health and viability throughout North Carolina, strategies will focus on tree conservation and planting, strategic land-use planning and management, and local urban forest program capacity. Because the urban forest resource reaches beyond municipal boundaries, partnerships will need to be multidimensional and broad. The success of these strategies depends greatly upon increasing the awareness and knowledge level of urban forestry professionals, land-use planners, elected officials and developers. Doing so will entail (1) conducting many training programs on proper tree care and urban forest management as well as (2) developing outreach materials specific to North Carolina's needs.

Objective 7.1.—Reduce the impacts of land-use change and urbanization on forested landscapes in and around urban areas. (Addresses key Assessment findings in section 4k and USDA Forest Service national objectives 1.1, 1.2, 3.1, 3.4, 3.5, 3.6, 3.7)				
Strategy 7.1.1.—Encourage the incorporation of forests and green space in land-use planning through the principles of green infrastructure, low-impact development (LID), and sustainability certification programs.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Urban Forest Priority Landscape Map Maintaining Viable Urban Forests Map Rural Forest Priority Landscape Map	U&CF BMP/NPS Forest Stewardship FM TD&P Field staff	NC land conservation groups DENR—NHP, DPR Local governments Municipal land-use planning officials COG League of Municipalities Residential and commercial land developers RC&D NCWRC NCAPA NCCES NCSWCD NC Green Builders Assoc. NCUFC Conservation Fund Certification programs SGSF NRCS USFS	Identification of lead individuals and/or organization to improve coordination and collaboration among regional partners and grass roots organizations (ex. LEED and other sustainable certification programs) Funding to fully support DFR U&CF Program and DSWC CCAP Funding for education and outreach Funding to conduct local and regional natural resource assessments Funding to implement the use of the One North Carolina Conservation Planning Tool Funding to conduct UFORE studies Conservation programs for financial and tax benefits for landowners USFS funding (ex. Redesign grants)	Amount of funds to fully support DFR U&CF Program and DSWC CCAP Number of county and regional green infrastructure plans adopted Number of products developed (ex. podcasts, webpages, demonstration sites, guidance documents, social media) Number of education and outreach events held with municipal planners, developers, and natural resource professionals Number of restoration projects implemented for improved urban ecological function Number of sustainability certifications Number of local and regional natural resource assessments conducted Number of certification standards incorporating trees and green space

Strategy 7.1.2.—Promote and support the active management of publicly-owned urban wooded areas for multiple-use benefits.				
Priority Area(s)	DFR Program Areas	Key Stakeholders and Partners	Resources Needed	Measures of Success
Urban Forest Priority Landscape Map Maintaining Viable Urban Forests Map Rural Forest Priority Landscape Map	U&CF I&E Forest Stewardship FSPP FDP FM TD&P FireWise BMP/NPS GSB Field staff	NGOs (ex. The Conservation Fund) NCWRC Local governments USFS SAF NCACF and arborists Land-use planners NCCES FEOP Land trusts HOAs SGSF COG League of Municipalities NRCS	Develop partnerships with land trust organizations, local government, HOAs Funding for education and outreach (ex. newsletter articles, e-mails, displays for ESF/SF, billboards and radio/television PSAs) Funding for state and federal cost-share programs (ex. FDP, FSPP, EQIP, WHIP) Funding to educate natural resources professionals and urban landowners (ex. identification of priority urban wooded areas, Changing Roles program) Funding to develop and implement a "Community Working Forest" recognition program Funding for enhancing GIS capabilities USFS funding (ex. Redesign grants)	Number of MOUs established Number of products developed (ex. podcasts, webpages, demonstration sites, guidance documents, case studies, social media) Development of a "Community Working Forest" recognition program Number of workshops, outreach materials, and events Number of participants in education and outreach activities Number of people trained under the Changing Roles program Number of landowners or communities assisted Number of plans and acres under stewardship plans or other management plans Number of forestry practices implemented to manage urban wooded areas

Objective 7.2.—Facilitate strategic planting and maintenance of community trees for public benefits. (Addresses key Assessment findings in section 4k and USDA Forest Service national objectives 1.1, 1.2, 3.1, 3.2, 3.4, 3.5, 3.6, 3.7)				
Strategy 7.2.1.—Promote and support tree canopy analyses that model regional tree populations to determine their conditions, derived benefits, and values.				
Priority Area(s)	DFR Program Areas	Key Stakeholders and Partners	Resources Needed	Measures of Success
Urban Forest Priority Landscape Map (focus on Piedmont region)	U&CF GSB FM	Local governments USFS CGIA Consulting arborists COG FEOP NCCES NGOs (ex. The Conservation Fund)	Full funding for grant programs (ex. U&CF grant program) Funding to educate natural resources professionals and local governments (ex. I-Tree, CITYgreen software and training) Funding for enhancing geospatial capabilities (ex. aerial imagery, GIS, software, analysis) USFSfunding (ex. Redesign grants)	Number of tree canopy analyses conducted Number of regional cost-benefit reports for urban canopy Number of education and outreach events held Amount of outreach materials developed and distributed

5. Goals, Objectives, and Strategies

Strategy 7.2.2.—Assist communities in the development of long-term goals and large-scale tree-planting plans.				
Priority Area(s)	DFR Program Areas	Key Stakeholders and Partners	Resources Needed	Measures of Success
Urban Forest Priority Landscape Map (focus on Piedmont region)	U&CF FM&FD Forest Stewardship FSPP T&NI Field staff GSB	Local Governments NCUFC COG Volunteer organizations Green Industry Council NC Nursery and Landscape Association Private nurseries NCCES DENR	Full funding for grant programs (ex. U&CF grant program) Funding for enhancing geospatial capabilities for tree canopy studies and inventories (ex. aerial imagery, GIS, software, analysis) Funding and personnel dedicated to providing technical services	Number of DFR U&CF staff employed to provide assistance Number of urban plans written Number of communities with tree planting or canopy goals Number of urban strategic plans addressing long-term goals Increased urban tree canopy cover

Strategy 7.2.3.—Develop guidelines for tree planting and maintenance to conserve energy and improve air quality.				
Priority Area(s)	DFR Program Areas	Key Stakeholders and Partners	Resources Needed	Measures of Success
Urban Forest Priority Landscape Map (focus on Piedmont region)	U&CF FHM FM&FD BMP/NPS T&NI Forest Protection	NCUFC Utility companies NCCES Local governments Nonprofit organizations DENR—DAQ, DWQ Green Industry Council Conference of Mayors NCLM UNC System	Identification of lead individuals and/or organization to improve coordination and collaboration among stakeholders Development and implementation of inter-organizational MOUs Funding to establish baseline measures of energy efficiency and air quality Funding for heat island studies	Number of MOUs established Number of partnerships developed (ex. Partnership with Conference of Mayors Climate Protection Agreement communities) Number of utility companies recognized as TreeLine USA Decrease in USEPA designated air-quality nonattainment areas Incorporation of trees into the State Implementation Plan

Objective 7.3.—Assist communities with establishing and managing their urban forests.
(Addresses key Assessment findings in section 4k and USDA Forest Service national objectives 1.1, 1.2, 2.2, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7)

Strategy 7.3.1.—Assist communities with establishing and retaining municipal tree manager positions.

Priority Area(s)	DFR Program Areas	Key Stakeholders and Partners	Resources Needed	Measures of Success
Urban Forest Priority Landscape Map (focus on Piedmont region)	U&CF	Local governments NCUFC SMA NCCES	Full funding for grant programs (ex. U&CF grant program) Identification of lead individuals and/or organization to improve coordination and collaboration among stakeholders (ex. local advocacy group) Development and implementation of MOUs between local governments and other organizations Funding to provide education and technical assistance	Number of MOUs established Number of partnerships developed Number of workshops held Number of people attending trainings and workshops Number of products developed (ex. trainings, webpages, workshops) Number of ISA certified arborists and/or municipal specialists working for/in communities Number of manager positions created Number of Municipal Forester Institute graduates Number of contracts between communities and private tree care companies/consultants

Strategy 7.3.2.—Provide local governments assistance for tree inventories and enhanced GIS/spatial analysis capabilities that lead to improved management planning.

Priority Area(s)	DFR Program Areas	Key Stakeholders and Partners	Resources Needed	Measures of Success
Urban Forest Priority Landscape Map (focus on tree inventories in the Piedmont region) Rural Forest Priority Landscape Map	U&CF GSB	USFS NCCGIA Local governments RC&D COG NCCES FEOP SGSF USFS Consulting arborists NCUFC NCWRC	Full funding for grant programs (ex. U&CF grant program) Funding to educate natural resources professionals and local governments (ex. utilization of the Green Growth Toolbox) Funding for tree inventories and enhancing geospatial capabilities (ex. aerial imagery, GIS, software, analysis) Funding for training and utilization of tree inventory protocol process USFS funding (ex. Redesign grants)	Number of education and outreach events held Number of people trained Quantities of outreach materials developed and distributed Number of tree canopy analyses or tree inventories conducted Number of regional cost/benefit reports for urban canopy Amount of grants awarded to conduct tree inventories that lead to the development of urban forest-management plans Number of urban forest-management plans based on tree inventory data Number of communities participating in Arbor Day programs

5. Goals, Objectives, and Strategies

Objective 7.4.—Encourage policies and guidelines that sustain urban and community forests for the public's benefit. (Addresses key Assessment findings in section 4k and USDA Forest Service national objectives 1.2, 3.1, 3.2, 3.4, 3.5, 3.6, 3.7)
Strategy 7.4.1.—Raise awareness levels of elected officials and policy-makers on the benefits of urban trees and their management.
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Urban Forest Priority Landscape Map Rural Forest Priority Landscape Map	U&CF I&E	NCUFC Local governments Nonprofit and volunteer groups NCCES/FEOP DENR NCLM USFS SGSF	Funding for outreach (ex. news articles, social media, websites, e-mails, billboards and radio/television PSAs, demonstration materials) Full funding for grant programs (ex. U&CF grant program) Identification of lead individuals and/or organization to improve coordination and collaboration among stakeholders (ex. NCLM) USFS funding (ex. Redesign grants)	Number of information and outreach events, workshops, and demonstrations Level of awareness indicated by stakeholder surveys Number of products developed (ex. podcasts, webpages, news releases, posters, brochures, social media) Number of users accessing materials through applicable websites Number of participants in outreach events
Strategy 7.4.2.—Enhance technical and professional capacity of tree-care professionals and the green industry.
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Urban Forest Priority Landscape Map (focus on Piedmont region)	U&CF I&E FM&FD T&NI	Local governments NCUFC NCNLA NC Green Industry Council Consulting arborists Tree care firms ISA Southern Chapter NCCES Charlotte Arborists Association Forestry Advisory Council Private nurseries SGSF USFS NCACF	Full funding for grant programs (ex. U&CF grant program) Identification of lead individuals and/or organization to improve coordination and collaboration among stakeholders Funding to educate tree-care professionals and the green industry USFS funding (ex. Redesign grants)	Number of education and outreach events held Number of people trained Quantities of outreach materials developed and distributed Number of tree care professionals becoming certified Creation of policies and/or regulations related to professional licensing of tree-care professionals and the green industry

Strategy 7.4.3.—Improve local governments' capability to write effective tree ordinances and land-use policies.				
Priority Area(s)	**DFR Program Areas**	**Key Stakeholders and Partners**	**Resources Needed**	**Measures of Success**
Urban Forest Priority Landscape Map Rural Forest Priority Landscape Map	U&CF FPG/WQ	Local governments NCUFC City and regional planners COG NCAPA NCCES NCSU UNC School of Government Residential and commercial land developers Landscape architects Tree care industry Tree boards USFS SGSF NCWRC	Full funding for grant programs (ex. U&CF grant program) Funding for education and outreach efforts (ex. websites, workshops, media releases) Funding to maintain the ordinance database (http://www.ces.ncsu.edu/forestry/ordinance/) Funding for Internet server space and enhanced Web presence Funding for Arbor Day programs USFS funding (ex. Redesign grants)	Number of educational products developed (ex. podcasts, webpages, webinars, workshops) Number of participants in educational events Number of users accessing materials through the Internet Development of a Tree Board Academy Number of people completing the Tree Board Academy training Number of ordinances developed and updated Number of Tree City, Tree Campus, and Tree Line USA entities Amount of funding to support U&CF program Amount of grants awarded for U&CF program